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# Computer Programs for Population Analysis of B. C. Herring from Catch, Sampling and Spawn Deposition Data

by A. S. Hourston and F. W. Nash

FISHERIES RESEARCH BOARD OF CANADA

TECHNICAL REPORT NO. 399

1973



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COMPUTER PROGRAMS FOR POPULATION ANALYSIS OF B.C. HERRING  
FROM CATCH, SAMPLING AND SPAWN DEPOSITION DATA

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#### A. INTRODUCTION AND PROGRAM DESCRIPTIONS

Analyses of the status of British Columbia herring populations have been conducted annually for many years to provide a biological basis for management strategies. The failure of these analyses to adequately predict and explain the abrupt decline of most of the major British Columbia herring populations in the late 1960's demonstrated the need for more precise and more detailed stock assessments. During the past 3 years a new analysis has been developed for this purpose and programmed for processing by a 16K single disk IBM 1130 computing system under version 2 disk monitor. In addition to the CPU with its associated disk capacity, a 2501 card reader, 1442 card punch, 1403 printer and 1627 model 2 plotter were employed in processing the data.

A series of 49 programs or subroutines was prepared to carry out the various stages in the analyses. These are listed in Table 1, along with brief summaries of their function, input (with source) and output (with references to publications in which it is included). Program documentation is given in the program listings (section D).

Inter-program data passage was facilitated by summary card output, a result of limited on-line storage (one disk drive). Recent programs (ASH45, ASH46, ASH47 and ASH48) were, however, able to take advantage of a multi-disk environment in which common data files were used for data transfer.

Table 1. Summary of program functions, input (with source) and output (with reference numbers). (Reference numbers are those assigned to papers in the list of references which contain that printed output.)

Program	Function	Input	Source	Output	Ref.
ASH11	Converts catch data into standard form for which various area and locality revisions are required	Landing records (C1 cards)	MEB tapes or key-punched records from plant records	1. FRB catch data by landing (C2 cards)	3
MEAL	Converts other codings of areas and localities to current herring areas	File MEEKF	Programmed from data records	2. MEB catch data by landing (C2 cards)	
EV series	Converts license number for season	File MIECF	ASH13 or ASH14	3. FRB boat numbers (new boats)	
BOATN	Calculates FRB fiscal week number from MEB month and date	File MEEKF	ASH14		
MSNO					
ASH12	Calculates and associated catches 1) Total effort 2) Catch per unit of effort for boat weeks, days fishing or sets	Landings in tons (C2 cards) File MIEFX	ASH11 ASH14		2
ASH13	Summarizes catch by week and locality 1) Area 2) Subpopulation 3) Subpopulation 4) Population	Landings in tons (C2 cards) File MIEFX	ASH11 ASH14	1. Weekly catch by locality for areas (C9 cards) and subpopulation (C8 cards). 2. Weekly catch by area (C5 cards), season totals by area (C9 cards) and subpopulation (C10 cards) 3. Weekly catch by major population (C11 cards) with season totals (C12 cards)	3 4 4
ASH14	Scores parameters, legitimate area and population numbers and their array index values on files	12 cards 13 cards 14 cards 15 cards 16 cards 17 cards 18 cards 19 cards	Keypunched Keypunched Keypunched Keypunched Keypunched Keypunched Keypunched Keypunched	File MEEKF Record 1. Parameters for calculating week number 2. Legitimate area and population numbers 3. Parameters for estimating spawners File MIEFX Record 1. Area codes with corresponding subpopulation and population codes 2. Indices and population codes (new jobs followed by minors) 3-7. Population names by population as 8-13. Reports records 3-7 for population codes arrayed by major followed by its minors (subpopulations)	
		110 cards	Keypunched	File PMAGE Records 1-24. Abbreviated population names	

Table 1 (cont'd)

Program	Function	Input	Source	Output	Ref.
ASH5	Compiles and stores files to identify boat number from licence number and year	Boat names, numbers and licence numbers (11 cards)	Keypunched from MEB records	Boat numbers, names and licence numbers by season arrayed by 1. Boat name 2. Licence number 3. Licence number (File LISCF)	
ASH6	Converts other types of sampling data cards to current FRB cards (10 fish per card) and assigns sample numbers	One fish per card sampling data (S1 cards) one fish per card sampling data (S2 cards)	FRB card files Operations Branch	1. List of samples by old and new numbers 2. Punches data on S3 cards	
ASH7	Compiles data record of samples processed and tabulates the processed separately using the following 2 programs) Loads data on File R37 for subsequent processing by ASB7 Punches data on File R37 (reconstructed by ASB7)	Standard sampling data (54 cards) per card (S3 cards) File WERF	ASB6 or ASB7 data sheets ASB3A	1. Specimen data by sample number 2. List of samples by area and week 3. List of samples by area and week 4. Punches number of fish and age frequency distribution for each length group in sample (S4 cards)	5 5
RD7					
PCB37					
ASH8	Control program for the following linked programs to calculate load data onto File R38				
RD38		Frequency at age by length group within samples (S4 cards)	ASH7	Frequency at age by length group within samples (stored on File R38)	
PAC38	Calculates preliminary age	Frequency at age within samples (File R38)	RD38	Preliminary age composition by sample (for fish aged from 1948)	10
FAL38	Tabulates age frequency by length group for samples	Frequency at age by length group within samples (File R38)	RD38	Frequency at age by length group within samples	10
FLD38	Compiles percent length distribution by age for season	Frequency at age by length group within samples (File R38)	RD38	Percent length distribution at age by area for season	10
AGE38	Calculates revised age composition by sample	Frequency at age within samples (File R38)	RD38	Revised percent age composition by sample with corresponding normal probability data (stored on File R38)	10
AGE	Subroutine for AGE38 to age unaged fish in samples			Probable age distribution for unaged fish by length groups within samples	10
PRB38	Records normal probability tables of length at age	Normal probability tables of length at age (File R38)	AGE38	Normal probability tables of lengths at age by area and week	10

Table 1 (cont'd)

Program	Function	Input	Source	Output	Ref.
ACE3B	Tabulates age composition by sample	Revised percent age composition by sample (File E3B)	ACE3B	Revised percent age composition by sample (for all fish sampled)	10
ACW3B	Compiles age composition by area and week	Revised percent age composition by sample (File E3B)	ACE3B	Percent age composition by area and week (53 cards)	10
AMB19	Calculates age composition by sample from age by length group where Type 1 samples are not available	Age by length group for Type 2 samples (S7 or S8 cards) Frequency at age by length group within samples (S6 cards)	Keypunched from sample data sheets AMB17	1. Percent age distribution by length group (age-length key) 2. Frequency at age by length group within samples 3. Percent age composition by sample 4. Percent age composition by area and week (S6 cards)	10 10 10 10
AMB10	Updates File L1CEP assigning numbers to boats not previously on file	File L1CEP Boats, numbers and dates for new boats (11 cards)	AMB13 Keypunched from MBP records	Boat number, license numbers and name for boats added to File L1CEP	
AMB11	Calculates fish at age in weekly and seasonal catches by area or population and seasonal age composition	Fish per ton by area and week (S9 cards) Weekly age composition by area (S5 or S6 cards) Weekly catch in tons by area (C7 cards) File MBFX	AMB14 AMB18 or AMB19 AMB13 AMB14	1. Fish at age in catch by week and area 2. Fish at age in catch by area for season (C16 cards) 3. Fish at age in catch by week and population (C13 cards) 4. Fish at age in catch by population for season (C15 cards) 5. Percent age composition of catch by area for season (S10 cards) 6. Percent age composition of catch by population for season (S11 cards)	11 11 11 11 10 10
AMB12	Calculates miles of spawn and numbers of eggs by area	Egg survival adjusted for fecundity (E2 cards) Spawn survey data (E1 cards) File MBEXF	Keypunched Keypunched from data sheets AMB14	Locality, date, length, width, intensity, miles of area and number of eggs for each spawning and total by area of miles of spawn and number of eggs	13 13



Table 1 (cont'd)

Program	Function	Input	Source	Output	Ref.
ASH3	Calculates spawners at age by area and population from eggs or miles of spawn	Age composition (PAC files) Egg survival adjustments by intensity (E2 cards) Substitute areas for age composition (I12 cards) Spawning survey data (E1 cards) Files WEEEF and REFX	PACLD Keypunched Keypunched from data sheets Keypunched	1. Spawners at age by area from eggs (E3 cards) 2. Spawners at age by population from eggs (E4 cards) 3. Spawners at age by area from miles (E5 cards) 4. Spawners at age by population from miles (E6 cards)	12 11
PACLD	Loads up to 30 years of age composition by area and season for use by program ASH3	Age composition by area and season (S10 cards)	ASH34 ASH31	DLak file PAC01 to PAC30 loaded with age composition by area and season	
ASH44	Compiles adults (catch + spawners) at age by area and population for one season	File REFX Fish at age in catch by area (E14 cards) Spawners by area (E3 or E5 cards) Area and population numbers and indices (File REFX)	ASH34 ASH31 ASH33 ASH34	1. Adults (catch, spawners and total) at age by area 2. Adults (catch, spawners and total) at age by population	5 7
ASH5	Tabulates adults (catch + spawners) at age and age composition of adults by season for populations	File PRAME Fish at age in catch by area (E15 cards) Spawners at age by area and population (E4 or E6 cards)	ASH34 ASH31 ASH33	1. Adults (catch, spawners and total) at age by season and means for each population 2. Age composition of adults by season for each population	7 10
ASH6	Plots histograms of catch and spawners (for adults) or catch + spawners + immatures (for stock) by season for each population or area showing means or major age groups	File PRAME and REFX Catch and spawners at age by population (File PFILE) or Catch and spawners at age by area (File AFLE) or Catch, spawners and immatures at age by population (File TPOP)	ASH34 ASH35 ASH33 ASH34	1. Histograms showing spawners and adults (spawners + catch) by season for each population showing means (or spawners and adults (spawners + catch) for major age groups by population 2. As for 1 by area 3. Histograms showing immatures, escapement (immatures + spawners) and stock (catch + escapement) by season for each population showing means for immatures escapement and stock 4. As for 2 by area 5. Histograms showing immatures, escapement (immatures + spawners) and stock (catch + escapement) by season for each population showing means for immatures escapement and stock 6. Histograms showing immatures, escapement (immatures + spawners) and stock (escapement + catch) for major age groups by season for each population	7, 9 7, 9 7, 9 6, 9 6, 9 8, 9 8, 9

Table 1 (cont'd)

Program	Punction	Input	Source	Output	Ref.
ASH7	Calculates apparent natural mortality rates at age by population	Fish at age by season for each population (FILE PFLE) File REF3	ASH5	Apparent natural mortality rates at age by population	
ASH8	Calculates immatures at age for up to 30 seasons by population	File REF3 Catch and spawners at age by season for each population (PFLE) Natural mortality rates at age by population (I13 cards)	ASH4 ASH34 ASH5	1. Stock (catch, spawners, immatures and total) by season for each population calculated from natural survival rates for ages of full recruitment 2. Stock (catch, spawners, immatures and total) at age by season for each population (File TPOP)	8 8
ASH9	Tabulates locality codes by name and number within areas and by name for all areas for FRB and MEB codings	Locality name, FRB and MEB area and locality number (I11 cards)	Keypunched	1. FRB codings by locality number within areas 2. FRB codings alphabetically by locality name within areas 3. MEB codings by locality name within areas 4. MEB codings alphabetically by locality name within areas	14 14 14
ASH3	Tabulates adults (catch + spawners) at age and age composition of adults by season for areas	File REF3 Fish at age in catch by area (C14 cards) Spawners at age (E3 or E5 cards)	ASH4 ASH3	1. Adults (catch, spawners and total) at age by season for each area (File AFLE) 2. Age composition of adults by season for each area	6 10
ASH4	Compiles fish per ton by sample and by week within areas	Sample weights and number of fish (S3 cards)	Keypunched or ASH5	1. Fish per ton by sample 2. Fish per ton by area and week (S9 cards)	5 5
ASH5	Compiles fish at age and age composition of fish by season for areas and populations	Fish at age in catch by area and age (C15 cards) or population (C15 cards) Age composition of catches for season by area (E10 cards) and population (S11 cards)	ASH4	1. Fish at age in catch by season for areas 2. Fish at age in catch by season for population 3. Age composition of catch by season for areas 4. Percent age composition of catch by season for populations	6 7 10 10



## B. OUTLINE OF ANALYSIS

The primary objective of the British Columbia herring population analysis is to estimate the abundance by age of the catch, spawners and immatures annually for each population. Field records of catch, sampling and spawning data by locality and date are compiled and processed by area and week into their final form by population and season (Fig. 1). The analysis features new methods of estimating age composition (Hourston, Nash and Isaacson MS 1972a), abundance of spawners (Hourston and Outram MS 1972), and converting catch in tons to numbers of fish (Hourston, Nash and Isaacson MS 1972b). Alternative programming provides for using former methods for estimating age composition (substituting ASH39 for ASH38), abundance of spawners (using alternative output from ASH42 in ASH43) and converting catch in tons to numbers of fish (using alternative output from ASH33, ASH54 and ASH38 or ASH39 in ASH41). The possibility of estimating abundance at age from catch and effort data using adaptations of Allen's WHPOP programs (Hourston MS 1970) is also provided for.

Aside from the "mainstream" processing shown in Fig. 1, intermediate results may be provided in other forms (Table 2). In addition to the "mainstream" results by area and week (sector B2) and by population and season (sectors C3 and C4), some results are available by locality and week (sector A2), population and week (sector C2) and area and season (sectors B3 and B4).

In addition to processing the analysis, the programs produce basic data records for catch and effort (ASH31), sampling (ASH37), and spawnings (ASH42). Manuals for coding area and locality (Isaacson and Hourston MS 1972) and for coding boat numbers may also be printed (by ASH50 and ASH35 respectively).

Much of the back data to be utilized in these analyses were available as computer input in different codings and formats. Programs to convert these data into the current form were required for catch (NEWAL, RV series, BOATN, WKNO) and sampling (ASH36) data.

Finally, a program (ASH34) was provided to store parameters, legitimate area and population numbers and indices, and population names on permanent files.

Table 2. Major outputs by program for B.C. herring population analysis. Sectors A1, B2, C3 and C4 correspond to stages in the mainstream of processing (Fig. 1). Other sectors show additional levels of output.

	A Locality	B Area	C Population
1 Date	ASH31 Catch in tons Fishing effort		
	ASH42 Eggs spawned Miles of spawn		
	ASH37 Sampling data		
	AGE38 Age composition by sample		
2 weeks	ASH32 Fishing effort	ASH33 Catch in tons	ASH32 Fishing effort
	FAL38 Length at age	ASH32 Fishing effort	
	ASH54 Fish per ton	PLD38 Length at age	
		ASH54 Fish per ton	
		ACW38 Age composition of catch	
		ASH41 Fish at age in catch	ASH41 Fish at age in catch
3 seasons		ASH42 Eggs spawned Miles of spawn	
		ASH32 Fishing effort	ASH32 Fishing effort
		ASH41 Fish at age in catch	ASH41 Fish at age in catch
		Age composition of catch	Age composition of catch
		ASH43 Spawners at age	ASH43 Spawners at age
		ASH44 Fish at age in adult run	ASH44 Fish at age in adult run
4 series of seasons		ASH55 Fish at age in catch	ASH55 Fish at age in catch
		Age composition of catch	Age composition of catch
		ASH53 Fish at age in adult run	ASH45 Fish at age in adult run
		ASH46	ASH46
		ASH53 Age composition of adult run	ASH45 Age composition of adult run
			ASH48 Fish at age in stock
			Age composition of stock
			Fish at age by year class
			Immatures at age

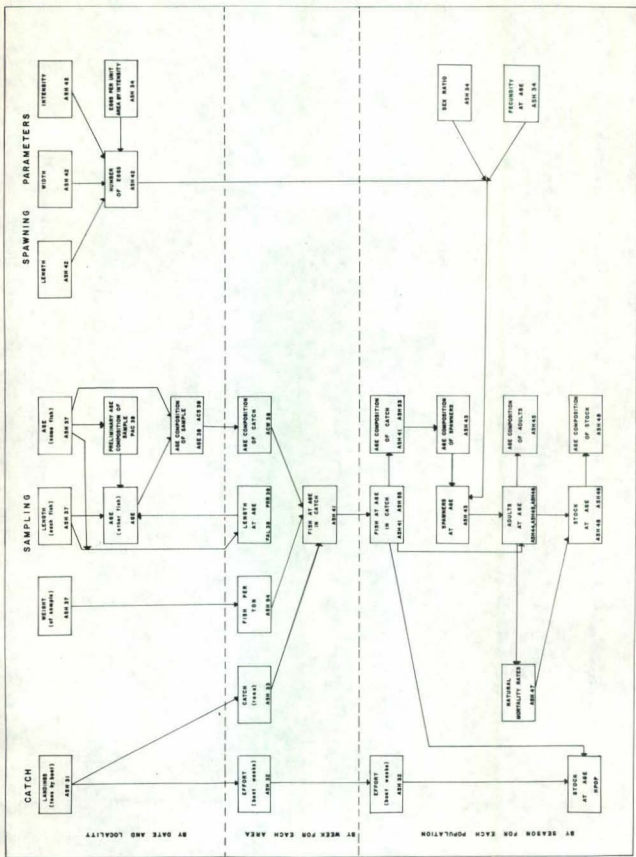
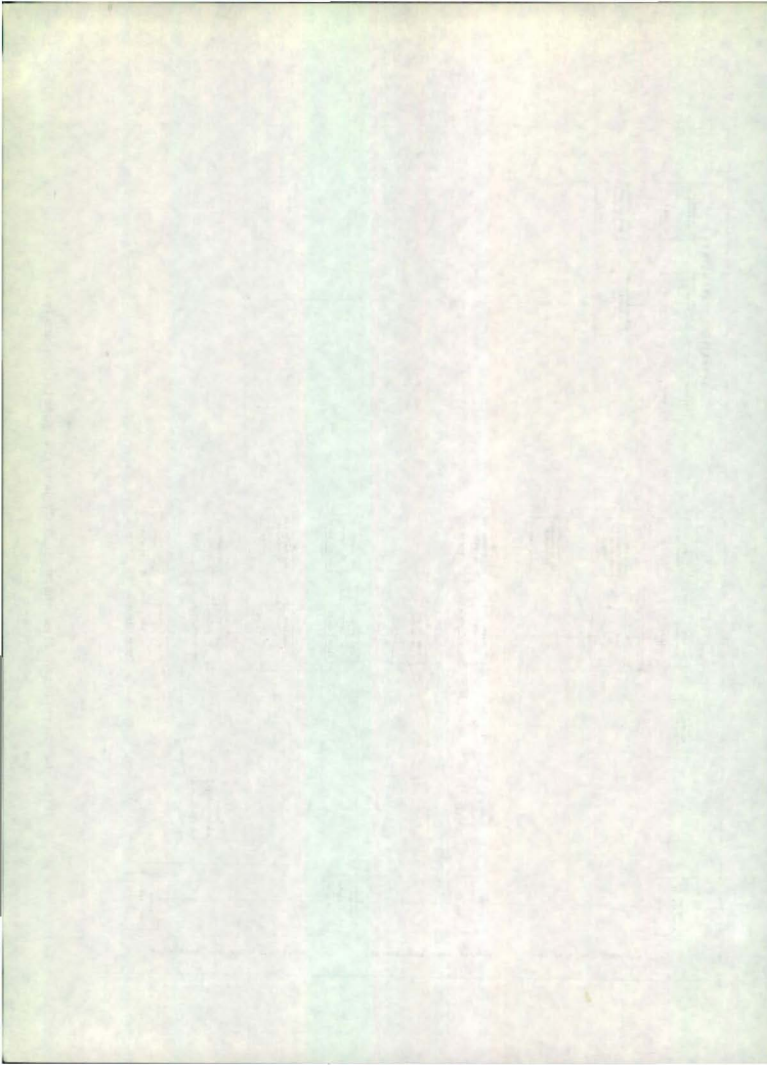


Fig. 1. Simplified flow chart of B.C. herring population analysis.



### C. CARD LAYOUTS

The types of cards used in these analyses are listed in Table C1, along with the pages on which the layout of each is given. These layouts are intended primarily as working references in the preparation of data for processing by personnel not trained in Fortran programming and to facilitate relating the biological data to the computation and analysis carried out by the various programs. Table C2 provides an alphabetic listing of card codes (the identification punched on the cards) with a cross-reference to card type and page number of the card layout.

Table C1. Card types used in B.C. herring computer programs

	<u>Page</u>
<b>I</b> <u>Indices, codings, names and parameters</u>	
I1 Boat and licence numbers	15
I2 Parameters for calculation of week	16
I3 Area and population array subscripts	17
I4 Spawning intensity and fecundity parameters	18
I5 Area numbers with corresponding subpopulation and population numbers	19
I6 Population indices (all populations followed by subpopulations) corresponding to areas indexed in REFX record 1	20
I7 Population and subpopulation names corresponding to population numbers in REFX record 2	21
I8 Population indices (subpopulations following corresponding populations) corresponding to areas indexed in REFX record 1	22
I9 Population and subpopulation names corresponding to population numbers in REFX record 8	23
I10 Abbreviated population and subpopulation names corresponding to population numbers in REFX record 2	24
I11 Locality codings	25
I12 Substitute areas for age composition	26
I13 Natural mortality rates at age by population	27
<b>S</b> <u>Sampling and age composition</u>	
S1 Sample data - one fish per card	28
S2 Sample data - four fish per card	29
S3 Standard sample data - ten fish per card	30
S4 Age frequency by length group for samples	31
S5 Age composition of catch by week and area from length at age	32
S6 Age composition of catch by week and area from age at length	32
S7 Age frequency by length group for areas and weeks	33
S8 Age frequency by length group for areas and seasons	33
S9 Fish per ton by area and week	34
S10 Age composition of catch by area and season	35
S11 Age composition of catch by population and season	35
<b>C</b> <u>Catch</u>	
C1 Landings in tons - MEB coding	36
C2 Landings in tons - FRB coding	36
C3 Fishing effort by area and week	37
C4 Fishing effort by population and week	37
C5 Fishing effort by area and season	37
C6 Fishing effort by population and season	37
C7 Weekly catches (tons) by area	38
C8 Weekly catches (tons) by population	38
C9 Annual catches (tons) by area	38
C10 Annual catches (tons) by population	38



Table C1 (cont'd)

C11	Weekly catch summaries (tons) for major populations	39
C12	Annual catch summaries (tons) for major populations	39
C13	Fish at age in weekly catches by population	40
C14	Fish at age in season catches by area	41
C15	Fish at age in season catches by population	41

E Spawning

E1	Spawning data	42
E2	Egg survival by spawn intensity	43
E3	Spawners at age by area from eggs deposited	44
E4	Spawners at age by population from eggs deposited	44
E5	Spawners at age by area from miles of spawn	44
E6	Spawners at age by population from miles of spawn	44

Table C2. Card codes used in B.C. herring computer programs, with reference to card type and card layout page number.

Card code	Card type	Page
AC	S5	32
ACA	S10	35
ACP	S11	35
AK	S6	32
ALS	S8	33
ALW	S7	33
CAS	C9	38
CAW	C7	38
CPS	C10	38
CPW	C8	38
CTA	C12	39
CTW	C11	39
CW	C2	36
CYP	C15	41
EAW	C3	37
EAY	C5	37
ED	E1	42
EPW	C4	37
EPY	C6	37
ESR	E2	43
FA	C14	41
H	S3	30
LB	I1	15
LG	S4	31
S	S3	30
SEA	E3	44
SEP	E4	44
SMA	E5	44
SMP	E6	44
W	S9	34
WP	C13	40



BOAT AND LICENCE NUMBERS  
(One card per boat)

CARD TYPE: I1  
SOURCE: Key punched from licence records  
INPUT FOR: ASH35 and ASH40  
STORED ON: Disk file LISCF

<u>Col.</u>	<u>Data</u>
1-2	Card code 'LB'
3	Number of card for that boat number (if greater than 1)
4-6	Boat number (FRB)
7-12	1966-67 Licence number (Econ. Br.)
13-15	Number of boats in pool (if greater than 1)
16-21	1965-66 Licence number
22-24	Number of boats in pool (if greater than 1)
25-30	1964-65 Licence number
31-33	Number of boats in pool (if greater than 1)
34-39	1963-64 Licence number
40-42	Number of boats in pool (if greater than 1)
43-48	1962-63 Licence number
49-51	Number of boats in pool (if greater than 1)
52-57	1962-63 Second licence number (if applicable)
63-80	Boat name

PARAMETERS FOR CALCULATION OF WEEK

CARD TYPE: 12  
 SOURCE: Keypunched  
 INPUT FOR: ASH34 (cards 1-3)  
 STORED ON: File WEEKF, record 1

Card number	1	2	3
Parameters	IYR, LY	SDAY	IDAY

Data stored  
 (for 1941-1980)

<u>Col.</u>	<u>Data</u>	<u>Col.</u>	<u>Data</u>	<u>Col.</u>	<u>Data</u>
1-2	40	1	1	1-4	275
6	1	2	4	5-8	306
10	1	3	3	9-12	334
14	1	4	1	13-16	0
18	1	5	7	17-20	30
22	1	6	6	21-24	61
26	1	7	5	25-28	91
30	1	8	3	29-32	122
34	1	9	2	33-36	153
38	1	10	1	37-40	183
42	1	11	7	41-44	214
		12	5	45-48	244
		13	4		
		14	3		
		15	2		
		16	7		
		17	6		
		18	5		
		19	4		
		20	2		
		21	1		
		22	7		
		23	6		
		24	4		
		25	3		
		26	2		
		27	1		
		28	6		
		29	5		
		30	4		
		31	3		
		32	1		
		33	7		
		34	6		
		35	5		
		36	3		
		37	2		
		38	1		
		39	7		
		40	5		

PARAMETER DEFINITIONS

IYR - Year preceding first  
 year in 40-year series

LY - Leap years in series

SDAY - Number of day before  
 the first Sunday in  
 April by year

IDAY - Julian date for the  
 first of each month  
 for non-leap year  
 beginning April 1

AREA AND POPULATION ARRAY SUBSCRIPTS

CARD TYPE: I3  
SOURCE: Keypunched  
INPUT FOR: ASH34 (cards 4-8)  
STORED ON: File WEEKF, record 2

Card number	4	5	6	7	8
<u>Col.</u>	<u>Area numbers</u>			<u>Population numbers</u>	
11-13	10	83	250	10	62
14-16	21	90	260	20	
17-19	22	100	270	30	
20-22	23	110	280	40	
23-25	24	121	290	50	
26-28	31	122	20	60	
29-31	32	123	30	70	
32-34	41	124	40	80	
35-37	42	131	50	90	
38-40	51	132	60	100	
41-43	52	133	70	11	
44-46	61	140	80	12	
47-49	62	150	120	13	
50-52	63	160	130	21	
53-55	64	171	170	22	
56-58	65	172	200	23	
59-61	66	180	300	31	
62-64	67	190		32	
65-67	68	201		41	
68-70	71	202		42	
71-73	72	210		51	
74-76	81	230		52	
77-79	82	240		61	

SPAWNING INTENSITY AND FECUNDITY PARAMETERS

CARD TYPE: 14  
 SOURCE: Keypunched from literature reference  
 INPUT FOR: ASH34 (cards 9-11)  
 STORED ON: File WEEKF, record 3

Card number			9	10	11	Fecundity $\times 10^3/2$	
Col.	Eggs $\times 10^3/sq. yd.$	(Spawning intensity)	Col.	Areas 10-100	Areas 110-290	(Age)	
11-15	51	VL	11-17	5.122	5.122	1+	
16-20	154	VL-L	18-24	7.285	7.149	2+	
21-25	257	L	25-31	9.406	10.208	3+	
26-30	488	L-M	32-38	11.202	12.348	4+	
31-35	719	M	39-45	12.848	15.549	5+	
36-40	1130	M-H	46-52	13.340	19.885	6+	
41-45	1540	H	53-59	13.340	19.885	7+	
46-50	2362	H-VH	60-66	13.340	19.885	8+	
51-55	3183	VH	67-73	13.340	19.885	9+	

AREA NUMBERS WITH CORRESPONDING SUBPOPULATION AND POPULATION NUMBERS

CARD TYPE: I5  
 SOURCE: Keypunched  
 INPUT FOR: ASH34 (cards 12-23)  
 STORED ON: File REFX, record 1

<u>Col.</u>	<u>Card number</u>											
	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>	<u>23</u>
1-4	10	65	131	280	13	32	61	0	10	30	60	100
5-8	20	66	132	290	0	32	62	0	10	30	60	100
9-12	21	67	133		12	32	62		10	30	60	
13-16	22	68	140		13	32	61		10	30	60	
17-20	23	70	150		11	0	62		10	40	60	
21-24	24	71	160		13	41	62		10	40	60	
25-28	30	72	170		0	42	0		20	40	70	
29-32	31	80	171		21	0	0		20	40	70	
33-34	32	81	172		23	41	0		20	40	70	
37-40	40	82	180		0	42	0		20	40	70	
41-44	41	83	190		21	42	0		20	40	70	
45-48	42	90	200		22	41	0		20	40	80	
49-52	50	100	201		0	41	0		20	40	80	
53-56	51	110	202		21	52	0		20	50	70	
57-60	52	120	210		23	0	0		20	50	80	
61-64	60	121	230		0	51	0		30	50	80	
65-68	61	122	240		31	51	0		30	50	80	
69-72	62	123	250		31	52	0		30	50	90	
73-76	63	124	260		32	52	0		30	50	90	
77-80	64	130	270		32	0	0		30	60	90	

Cards 12-15 array 62 area numbers.

Cards 16-19 array subpopulation numbers for each of the 62 areas.

Cards 20-23 array population numbers for each of the 62 areas.

POPULATION INDICES (ALL POPULATIONS FOLLOWED BY SUBPOPULATIONS)  
CORRESPONDING TO AREAS INDEXED IN REFX RECORD 1

CARD TYPE: I6  
SOURCE: Key punched  
INPUT FOR: ASH34 (cards 24-33)  
STORED ON: File REFX, record 2

Col.	Card number									
	26	27	28	29	30	31	32	33	24	25
1-4	13	18	23	0	1	3	6	10	10	51
5-8	0	18	24	0	1	3	6	10	20	52
9-12	12	18	24		1	3	6		30	61
13-16	13	18	23		1	3	6		40	62
17-20	11	0	24		1	4	6		50	
21-24	13	19	24		1	4	6		60	
25-28	0	20	0		2	4	7		70	
29-32	14	0	0		2	4	7		80	
33-36	16	19	0		2	4	7		90	
37-40	0	20	0		2	4	7		100	
41-44	14	20	0		2	4	7		11	
45-48	15	19	0		2	4	8		12	
49-52	0	19	0		2	4	8		13	
53-56	14	22	0		2	5	7		21	
57-60	16	0	0		2	5	8		22	
61-64	0	21	0		3	5	8		23	
65-68	17	21	0		3	5	8		31	
69-72	17	22	0		3	5	9		32	
73-76	18	22	0		3	5	9		41	
77-80	18	0	0		3	6	9		42	

Cards 24-25 array all population numbers followed by all subpopulation numbers.  
Cards 26-29 array subpopulation indices (from above array) for areas as arrayed in record 1.  
Cards 30-33 array population indices (from above array) for areas as arrayed in record 1.



POPULATION AND SUBPOPULATION NAMES CORRESPONDING TO POPULATION  
NUMBERS IN REFX RECORD 2

(All populations followed by all subpopulations)

CARD TYPE: 17  
SOURCE: Keypunched  
INPUT FOR: ASH34 (cards 34-57)  
STORED ON: File REFX, records 3-7

<u>Card</u>	<u>Population number</u>	<u>Data (beginning in Col. 1 for each card)</u>
34	1	Queen Charlotte Islands population
35	2	Northern population
36	3	Upper Central population
37	4	Lower Central population
38	5	Upper East Coast of Vancouver Island population
39	6	Middle East Coast of Vancouver Island population
40	7	Lower East Coast of Vancouver Island population
41	8	Lower West Coast of Vancouver Island population
42	9	Upper West Coast of Vancouver Island population
43	10	District 1 population
44	11	Queen Charlotte Islands - Lower East Coast sub- population
45	12	Queen Charlotte Islands - Upper East Coast sub- population
46	13	Queen Charlotte Islands - West Coast subpopulation
47	14	Northern Straits subpopulation
48	15	Northern Harbour subpopulation
49	16	Northern Local subpopulation
50	17	Upper Central Major subpopulation
51	18	Upper Central Minor subpopulation
52	19	Lower Central Major subpopulation
53	20	Lower Central Minor subpopulation
54	21	Upper East Coast of Vancouver Island - Island subpopulation
55	22	Upper East Coast of Vancouver Island - Mainland subpopulation
56	23	Middle East Coast of Vancouver Island - Island subpopulation
57	24	Middle East Coast of Vancouver Island - Mainland subpopulation

POPULATION INDICES (SUBPOPULATIONS FOLLOWING CORRESPONDING POPULATIONS)  
CORRESPONDING TO AREAS INDEXED IN REFX RECORD 1

CARD TYPE: I8  
SOURCE: Keypunched  
INPUT FOR: ASH34 (cards 58-67)  
STORED ON: File REFX, record 8

<u>Col.</u>	<u>Card number</u>									
	<u>60</u>	<u>61</u>	<u>62</u>	<u>63</u>	<u>64</u>	<u>65</u>	<u>66</u>	<u>67</u>	<u>58</u>	<u>59</u>
1-4	4	11	19	0	1	9	18	24	10	70
5-8	0	11	20	0	1	9	18	24	11	80
9-12	3	11	20		1	9	18		12	90
13-16	4	11	19		1	9	18		13	100
17-20	2	0	20		1	12	18		20	
21-24	4	13	20		1	12	18		21	
25-28	0	14	0		5	12	21		22	
29-32	6	0	0		5	12	21		23	
33-36	8	13	0		5	12	21		30	
37-40	0	14	0		5	12	21		31	
41-44	6	14	0		5	12	21		32	
45-48	7	13	0		5	12	22		40	
49-52	0	13	0		5	12	22		41	
53-56	6	17	0		5	15	21		42	
57-60	8	0	0		5	15	22		50	
61-64	0	16	0		9	15	22		51	
65-68	10	16	0		9	15	22		52	
69-72	10	17	0		9	15	23		60	
73-76	11	17	0		9	15	23		61	
77-80	11	0	0		9	18	23		62	

Cards 58-59 array subpopulation numbers following their respective population numbers.



POPULATION AND SUBPOPULATION NAMES CORRESPONDING TO POPULATION  
NUMBERS IN REFX RECORD 8  
(Subpopulations following corresponding populations)

CARD TYPE: I9  
SOURCE: Keypunched  
INPUT FOR: ASH34 (cards 68-91)  
STORED ON: File REFX, records 9-13

<u>Card</u>	<u>Population number</u>	<u>Data (beginning in Col. 1 for each card)</u>
68	1	Queen Charlotte Islands population
69	2	Queen Charlotte Islands - Lower East Coast sub- population
70	3	Queen Charlotte Islands - Upper East Coast sub- population
71	4	Queen Charlotte Islands - West Coast subpopulation
72	5	Northern population
73	6	Northern Straits subpopulation
74	7	Northern Harbour subpopulation
75	8	Northern Local subpopulation
76	9	Upper Central population
77	10	Upper Central Major subpopulation
78	11	Upper Central Minor subpopulation
79	12	Lower Central population
80	13	Lower Central Major subpopulation
81	14	Lower Central Minor subpopulation
82	15	Upper East Coast of Vancouver Island population
83	16	Upper East Coast of Vancouver Island - Island subpopulation
84	17	Upper East Coast of Vancouver Island - Mainland subpopulation
85	18	Middle East Coast of Vancouver Island population
86	19	Middle East Coast of Vancouver Island - Island subpopulation
87	20	Middle East Coast of Vancouver Island - Mainland subpopulation
88	21	Lower East Coast of Vancouver Island population
89	22	Lower West Coast of Vancouver Island population
90	23	Upper West Coast of Vancouver Island population
91	24	District 1

ABBREVIATED POPULATION AND SUBPOPULATION NAMES  
CORRESPONDING TO POPULATION NUMBERS IN REF# RECORD 2

CARD TYPE: 110  
SOURCE: Keypunched  
INPUT FOR: ASH43 (cards 92-115)  
STORED ON: File PNAME

<u>Card</u>	<u>Population number</u>	<u>Data (centered in first 29 columns of each card)</u>
92	1	Queen Charlotte Islands
93	2	Northern
94	3	Upper Central
95	4	Lower Central
96	5	Upper East Coast of Vancouver Island
97	6	Middle East Coast of Vancouver Island
98	7	Lower East Coast of Vancouver Island
99	8	Lower West Coast of Vancouver Island
100	9	Upper West Coast of Vancouver Island
101	10	District 1
102	11	Queen Charlotte Islands - Lower East Coast
103	12	Queen Charlotte Islands - Upper East Coast
104	13	Queen Charlotte Islands - West Coast
105	14	Northern - Straits
106	15	Northern - Harbour
107	16	Northern - Local
108	17	Upper Central - Major
109	18	Upper Central - Minor
110	19	Lower Central - Major
111	20	Lower Central - Minor
112	21	Upper East Coast - Island
113	22	Upper East Coast - Mainland
114	23	Middle East Coast - Island
115	24	Middle East Coast - Mainland

LOCALITY CODINGS  
(One card per locality)

CARD TYPE: I11  
SOURCE: Keypunched  
INPUT FOR: ASH50

<u>Col.</u>	<u>Data</u>
1-3	Area
5	Type    E - Economics Branch only R - FRB only - common to both
7-9	Locality code
11-37	Locality name
39-41	Area                    ] For transferred localities
43-45	Locality code        ] (R coding for E card and E coding for R card).

SUBSTITUTE AREAS FOR AGE COMPOSITION  
(One card for each area requiring substitute age compositions)

CARD TYPE: I12  
SOURCE: Keypunched  
INPUT FOR: ASH43

Col.

Data

- |     |   |
|-----|---|
| 1-3 | Area involved for which age composition data are not available.           |
| 4-6 | Area from which age composition data are to be applied to the above area. |

NATURAL MORTALITY RATES AT AGE BY POPULATION  
(One card per population)

CARD TYPE: I13  
SOURCE: ASH47 or keypunched from literature  
INPUT FOR: ASH48

<u>Col.</u>	<u>Data</u>								
1-3	Population								
4-5	Age at full recruitment								
6-11	Natural mortality rate from age 0+ to age 1+								
12-17	"	"	"	"	"	1+	"	"	2+
18-23	"	"	"	"	"	2+	"	"	3+
24-29	"	"	"	"	"	3+	"	"	4+
30-35	"	"	"	"	"	4+	"	"	5+
36-41	"	"	"	"	"	5+	"	"	6+
42-47	"	"	"	"	"	6+	"	"	7+
48-53	"	"	"	"	"	7+	"	"	8+
54-59	"	"	"	"	"	8+	"	"	9+

SAMPLE DATA - ONE FISH PER CARD  
(Pre 1965-66 Samples)

CARD TYPE: S1  
SOURCE: Keypunched from data sheets  
INPUT FOR: ASH36

<u>Col.</u>	<u>Data</u>
1-3	Season
4	Period (summer, winter, spawning)
5-6	Population
7-9	Area
10-11	Locality
12-13	Month
14-15	Day
16-17	Sample Number
18-20	Boat Number
21	Source
22	Gear
23	Misc.
24	Preservation
31-33	Specimen Number
34-36	Length
37-39	Weight
40	Sex
41	Maturity
42-43	Age
44	Reliability of age determination

SAMPLE DATA - FOUR FISH PER CARD  
(Operations Branch 1968 to 1970)  
(Header card and four fish per data card)

CARD TYPE: S2  
SOURCE: Keypunched from data sheets  
INPUT FOR: ASH36

<u>Header card</u>		<u>Data card</u>	
<u>Col.</u>	<u>Data</u>	<u>Col.</u>	<u>Data</u>
1-4	Page Number	1-4	Page Number
6-8	Season	5-7	Fish Number
17-19	Area	8-10	Length
21-23	Locality	11-14	Weight
25-26	Month	15	Sex
28-29	Day	16	Maturity
31-33	Sample Number	17-18	Age
35-37	Boat	19-23	Fecundity
39	Period	24-26	Fish Number
41-42	Gear	27-29	Length
44-45	Source	30-33	Weight
47	Preservation	34	Sex
54-58	Sample Weight	35	Maturity
		36-37	Age
		38-42	Fecundity
		43-45	Fish Number
		46-48	Length
		49-52	Weight
		53	Sex
		54	Maturity
		55-56	Age
		57-61	Fecundity
		62-64	Fish Number
		65-67	Length
		68-71	Weight
		72	Sex
		73	Maturity
		74-75	Age
		76-80	Fecundity



STANDARD SAMPLE DATA - TEN FISH PER CARD  
 (Header card for each sample followed by specimen data  
 with 10 fish per card)

CARD TYPE: S3

CARD CODE: H (header card) or S (data card)

SOURCE: ASH36 or keypunched from data sheets

INPUT FOR: ASH37, ASH54

<u>Header card</u>		<u>Data card</u>		<u>Fish number</u>
<u>Col.</u>	<u>Data</u>	<u>Col.</u>	<u>Data</u>	
1-3	Season	1-3	Season	
4-6	Sample Number	4-6	Sample Number	
7	Sample Type	7	Type	
10-12	Area	8-9	Card Number	
14-16	Locality	10-12	Length	1
18-19	Month	13	Sex	
20-21	Day	14	Maturity	
22-23	Gear	15-16	Age	
24-26	Boat	17-19	Length	2
27	Source	20	Sex	
28	Preservation	21	Maturity	
30	Period	22-23	Age	
32-37	Sample Weight	24-26	Length	3
38-41	Number of Fish	27	Sex	
42	Units of Weight	28	Maturity	
80	"H"	29-30	Age	
		31-33	Length	4
		34	Sex	
		35	Maturity	
		36-37	Age	
		38-40	Length	5
		41	Sex	
		42	Maturity	
		43-44	Age	
		45-47	Length	6
		48	Sex	
		49	Maturity	
		50-51	Age	
		52-54	Length	7
		55	Sex	
		56	Maturity	
		57-58	Age	
		59-61	Length	8
		62	Sex	
		63	Maturity	
		64-65	Age	
		66-68	Length	9
		69	Sex	
		70	Maturity	
		71-72	Age	
		73-75	Length	10
		76	Sex	
		77	Maturity	
		78-79	Age	
		80	"S"	



AGE FREQUENCY BY LENGTH GROUP FOR SAMPLES  
(One card per length group by sample)

CARD TYPE: S4  
CARD CODE: LG  
SOURCE: ASH37  
INPUT FOR: ASH38 and ASH39

Col.

Data

1-3	Season
4-6	Area
7-9	Locality
10-11	Week
12-14	Sample number
15-16	Length group number
17-22	Number of aged fish in group
23-28	Total number of fish in group
29-32	Number of 0+ fish in length group number
33-36	Number of 1+ fish in length group number
37-40	Number of 2+ fish in length group number
41-44	Number of 3+ fish in length group number
45-48	Number of 4+ fish in length group number
49-52	Number of 5+ fish in length group number
53-56	Number of 6+ fish in length group number
57-60	Number of 7+ fish in length group number
61-64	Number of 8+ fish in length group number
65-68	Number of 9+ fish in length group number
69-74	Weight of sample
75-76	Units of weight
79-80	Card code

AGE COMPOSITION OF CATCH BY WEEK AND AREA  
(One card per week by area for each season)

	<u>From length at age</u> (Type 1 samples)	<u>From age at length</u> (Type 2 samples)
CARD TYPE:	S5	S6
CARD CODE:	AC	AK
SOURCE:	ASH38	ASH39
INPUT FOR:	ASH41	ASH41

<u>Col.</u>	<u>Data</u>
1-3	Season
4-6	Area
7-8	Week
9-15	Percent of 0+ fish
16-22	Percent of 1+ fish
23-29	Percent of 2+ fish
30-36	Percent of 3+ fish
37-43	Percent of 4+ fish
44-50	Percent of 5+ fish
51-57	Percent of 6+ fish
58-64	Percent of 7+ fish
65-71	Percent of 8+ fish
72-78	Percent of 9+ fish
79-80	Card code

AGE FREQUENCY BY LENGTH GROUP  
(AGE-LENGTH KEY FOR TYPE 2 SAMPLES)  
(One card per length group by area and week or season)

	<u>Weekly</u>	<u>Seasonal</u>
CARD TYPE:	S7	S8
CARD CODE:	ALW	ALS
SOURCE:	Keypunched from hand tabulations for 1965-66 to 1968-69	
INPUT FOR:	ASH39	

<u>Col.</u>	<u>Data</u>
1-3	Season
4	Period
5	Source
6	Gear
7-9	Population
10-12	Area
13-14	Week
15-16	Number of samples
18-20	Size group lower limit (from data for first group)
21-23	Size group upper limit (from data for last group)
25-28	Number of 0+ fish
29-32	Number of 1+ fish
33-36	Number of 2+ fish
37-40	Number of 3+ fish
41-44	Number of 4+ fish
45-48	Number of 5+ fish
49-52	Number of 6+ fish
53-56	Number of 7+ fish
57-60	Number of 8+ fish
61-64	Number of 9+ fish
76-78	Card code
79-80	Card number for set (area or population)

FISH PER TON BY AREA AND WEEK  
(One card per week for each area)

CARD TYPE: S9  
CARD CODE: W  
SOURCE: ASH54  
INPUT FOR: ASH41

<u>Col.</u>	<u>Data</u>
1-3	Season
4-6	Area
8-9	Week
10-19	Thousands of fish per ton
80	Card code

AGE COMPOSITION OF CATCH BY AREA OR POPULATION AND SEASON  
(One card per area or population and season)

	<u>Area</u>	<u>Population</u>
CARD TYPE:	S10	S11
CARD CODE:	ACA	ACP
SOURCE:	ASH41	ASH41
INPUT FOR:	PACLD	PACLD

<u>Col.</u>	<u>Data</u>
1-3	Season
5-7	Area or population
8-14	Percent of 0+ fish
15-21	Percent of 1+ fish
22-28	Percent of 2+ fish
29-35	Percent of 3+ fish
36-42	Percent of 4+ fish
43-49	Percent of 5+ fish
50-56	Percent of 6+ fish
57-63	Percent of 7+ fish
64-70	Percent of 8+ fish
71-77	Percent of 9+ fish
78-80	Card code

LANDINGS IN TONS  
(One card per landing)

CARD TYPE: C1  
 CARD CODE: 90  
 SOURCE: Markets & Economics Branch  
 INPUT FOR: ASH31

C2  
 CW  
 ASH31  
 ASH32, ASH33

<u>Pre 1970</u>		<u>Post 1969</u>			
<u>Col.</u>	<u>Data</u>	<u>Col.</u>		<u>Col.</u>	<u>Data</u>
1-2	Season	1-2		1-3	Season
3-4	Gear	3-4		4-5	Week
5-6	Day	5-6		6-7	Month
7	Period			8-9	Day
8-9	Month	7-8		10-12	Population
10	Week	9		13-15	Area
11-13	Area			16-18	Locality
14-15	Locality	13-14		19-20	Gear
17-21	Days fishing	16-20		21-23	Boat number
22-23	Company	21-22		24-31	Catch
24-25	Plant	23-24		32-34	Days fishing
26-27	Distribution	25-26		35-37	Sets
28-32	Boat licence	27-31		38-39	No. of boats in pool
33-34	Card code			79-80	Card code
42-49	Catch	41-48			
50	Pounds or tons	49			
	Area	59-61			
52-54	Sets	63-64			
55-57	No. of boats in pool				



FISHING EFFORT BY AREA OR POPULATION  
 (One card per week or season for each area or population)

	<u>Weekly</u>		<u>Annual</u>	
	<u>Area</u>	<u>Population</u>	<u>Area</u>	<u>Population</u>
CARD TYPE:	C3	C4	C5	C6
CARD CODE:	EAW	EPW	EAY	EPY
SOURCE:	ASH32	ASH32	ASH32	ASH32
INPUT FOR:	ALLEN	ALLEN	ALLEN	ALLEN

<u>Col.</u>	<u>Data</u>
1-3	Season
4-6	Card code
7-9	Area or population
10-12	Week or season
13-21	Catch (tons) with known effort
22-26	Fishing effort
27-35	Catch per unit of effort
36-44	Total catch
45-51	Fishing effort adjusted to total catch

CATCHES (TONS) BY AREA OR POPULATION  
 (one card per week or season for each area or population)

	<u>Weekly</u>		<u>Annual</u>	
	<u>Area</u>	<u>Population</u>	<u>Area</u>	<u>Population</u>
CARD TYPE:	C7	C8	C9	C10
CARD CODE:	CAW	CPW	CAS	CPS
SOURCE:	ASH33	ASH33	ASH33	ASH33
INPUT FOR:	ASH41			

<u>Col.</u>	<u>Data</u>	<u>Col.</u>	<u>Data</u>
1-3	Season	1-3	Season
5-7	Card code	5-7	Card code
9-11	Area (or population)	9-11	Area (or population)
14-15	Week	13-15	Season
17-25	Catch	17-25	Catch

CATCH SUMMARIES (TONS) FOR MAJOR POPULATIONS  
 (One card contains data for all 10 major populations)

	<u>Weekly</u>	<u>Annual</u>
CARD TYPE:	C11	C12
CARD CODE:	CTW	CTA
SOURCE:	ASH33	ASH33

<u>Col.</u>	<u>Data</u>	<u>Col.</u>	<u>Data</u>
1-3	Season	1-3	Season
4-6	Card code	4-6	Card code
8-9	Week	7-9	Season
11-17	Catch - Q.C.I. population	11-17	Catch - Q.C.I. population
18-24	" - Northern population	18-24	" - Northern population
25-31	" - Upper Central population	25-31	" - Upper Central population
32-38	" - Lower Central population	32-38	" - Lower Central population
39-45	" - Upper East Coast population	39-45	" - Upper East Coast population
46-52	" - Middle East Coast population	46-52	" - Middle East Coast population
53-59	" - Lower East Coast population	53-59	" - Lower East Coast population
60-66	" - Lower West Coast population	60-66	" - Lower West Coast population
67-73	" - Upper West Coast population	67-73	" - Upper West Coast population
74-80	" District 1 population	74-80	" - District 1 population

FISH AT AGE IN WEEKLY CATCHES BY POPULATION  
(One card per week for each population)

CARD TYPE: C13  
CARD CODE: WP  
SOURCE: ASH41  
INPUT FOR: ALLEN

Col.

1-3  
4-6  
7-8  
9-15  
16-22  
23-29  
30-36  
37-43  
44-50  
51-57  
58-64  
65-71  
72-78  
79-80

Data

Season  
Population  
Week  
Millions of 0+ fish  
Millions of 1+ fish  
Millions of 2+ fish  
Millions of 3+ fish  
Millions of 4+ fish  
Millions of 5+ fish  
Millions of 6+ fish  
Millions of 7+ fish  
Millions of 8+ fish  
Millions of 9+ fish  
Card code

FISH AT AGE IN SEASON CATCHES BY AREA OR POPULATION  
(One card for each season and area or population)

	<u>Area</u>	<u>Population</u>
CARD TYPE:	C14	C15
CARD CODE:	FA	CYP
SOURCE:	ASH41	ASH41
INPUT FOR:	ASH44	ASH45
	ASH53	

<u>Col.</u>	<u>Data</u>
1-3	Season
5-7	Area or population
8-14	Millions of 0+ fish
15-21	Millions of 1+ fish
22-28	Millions of 2+ fish
29-35	Millions of 3+ fish
36-42	Millions of 4+ fish
43-49	Millions of 5+ fish
50-56	Millions of 6+ fish
57-63	Millions of 7+ fish
64-70	Millions of 8+ fish
71-77	Millions of 9+ fish
78-80	Card code

Card layout is same as for card types E4-E7.

SPAWNING DATA  
(One card per spawning)

CARD TYPE: E1  
CARD CODE: ED  
SOURCE: Keypunched from spawn survey records  
INPUT FOR: ASH42, ASH43

<u>Col.</u>	<u>Data</u>
1-3	Season (year)
4	
5-6	Population (subdistrict)
7-9	Area
10-11	Locality
12-13	Month
14-15	Day
16-18	Fishery Officer
19	Survey reliability
20-24	Length in yards
25-27	Width in yards
28-29	Intensity
30-32	% of spawn on first substrate
33	Type of first substrate
34-36	% of spawn on second substrate
37	Type of second substrate
38-40	% of spawn on third substrate
41	Type of third substrate
42-44	% of spawn on fourth substrate
45	Type of fourth substrate
46-47	% of first mortality cause
48	First mortality cause
49-50	% of second mortality cause
51	Second mortality cause
52-53	% of third mortality cause
54	Third mortality cause
	<u>Lower limit</u>
55	Above or below zero tide
56-57	Distance in feet
	<u>Upper limit</u>
58	Above or below zero tide
59-60	Distance in feet
79-80	Card code



EGG SURVIVAL BY SPAWN INTENSITY

CARD TYPE: E2  
CARD CODE: ESR  
SOURCE: Key punched  
INPUT FOR: ASH42, ASH43

<u>Col.</u>	<u>Data</u>
1-5	Egg survival adjustments for intensity 1 (very light)
6-10	Egg survival adjustments for intensity 2 (very light to light)
11-15	Egg survival adjustments for intensity 3 (light)
16-20	Egg survival adjustments for intensity 4 (light to medium)
21-25	Egg survival adjustments for intensity 5 (medium)
26-30	Egg survival adjustments for intensity 6 (medium to heavy)
31-35	Egg survival adjustments for intensity 7 (heavy)
36-40	Egg survival adjustments for intensity 8 (heavy to very heavy)
41-45	Egg survival adjustments for intensity 9 (very heavy)
78-80	Card type

SPAWNERS AT AGE BY AREA OR POPULATION  
(One card for each season and area or population)

	<u>From eggs deposited by</u>		<u>From miles of spawn by</u>	
	Area	Population	Area	Population
CARD TYPE:	E3	E4	E5	E6
CARD CODE:	SEA	SEP	SMA	SMP
SOURCE:	ASH43	ASH43	ASH43	ASH43
INPUT FOR:	ASH44	ASH45	ASH44	ASH45
	ASH53		ASH53	

<u>Col.</u>	<u>Data</u>
1-3	Season
5-7	Area or population
8-14	
15-21	Millions of 1+ fish
22-28	Millions of 2+ fish
29-35	Millions of 3+ fish
36-42	Millions of 4+ fish
43-49	Millions of 5+ fish
50-56	Millions of 6+ fish
57-63	Millions of 7+ fish
64-70	Millions of 8+ fish
71-77	Millions of 9+ fish
78-80	Card code

Card layout is same as for card types C15-C16.

#### D. PROGRAM LISTINGS

Programs are listed in numerical order for the ASH series with related programs and subroutines following the ASH program with which they are associated (Table D1). This order parallels that in Table 1.

Documentation is self-contained within each program. Listed when applicable is the input, output, special program logic, subroutine library, sector requirement (a sector is a 320 word division of a disk file) and the appropriate \*FILES record. (The \*FILES command is a supervisor control record, used at execution to relate a file number, as defined in the program, to an external or permanent disk file referenced by name.)

Routines from the IBM commercial subroutine package SE-25X, although referenced in some programs, are not listed.

Table D1. Page index for program listings.

Program	Page	Program	Page
ASH31	47	PLD38	137
RV02	56	AGE38	141
RV03	57	AGE	147
RV05	58	PRB38	153
RV06	59	ACS38	155
RV07	60	ACW38	159
RV08	61	ASH39	162
RV12	63	ASH40	171
RV13	64	ASH41	173
RV17	65	GIT	185
RV20	66	RLGET	187
NEWAL	67	ASH42	190
BOATN	68	ASH43	194
WKNO	69	PACLD	206
ASH32	70	ASH44	209
ASH33	82	ASH45	214
ASH34	94	ASH46	222
ASH35	100	GRID	233
ASH36	106	FEET	235
ASH37	111	ASH47	236
RD37	122	ASH48	239
PCH37	123	ASH50	247
ASH38	124	LTRAN	252
RD38	125	ASH53	253
PAC38	128	ASH54	261
FAL38	132	ASH55	268
PUTI	135		

```

// JOB
// FOR
*IOCS(1403 PRINTER,TYPEWRITER,2501 READER,DISK,1442 PUNCH)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH31
** ASH31 TRANSFERS HERRING CATCH DATA FROM DEPT. CARD TO FRB CARD
C
C CALLS SUBROUTINES - 1 POATN - TO CONVERT LICENSE NUMBER TO BOAT NUMBERASH31 1
C (OMIT IF NO CONVERSION REQUIRED) ASH31 2
C 2 NEWAL - TO SELECT YEARS WITH AREA CODING CHANGESASH31 3
C 3 'RV00' SERIES TO REVISE AREA AND LOCALITY CODINGASH31 4
C WITH SEPARATE SUBROUTINES FOR EACH AREA INVOLVEDASH31 5
C 4 WKNO TO CONVERT TO WEEK NUMBER OF FRB FISCAL YR. ASH31 6
C
C INPUT
C 1 *FILES(5,WEEKF),(4,LISCF) ASH31 7
C 2 TABLE AND CORRESPONDING PAGE CONTROL CARD. ASH31 8
C COLS. 1 - 3 TABLE VALUE OF PRINTED OUTPUT. ASH31 9
C 4 - 6 INITIAL PAGE VALUE. ASH31 10
C 3 CARD WITH SEASON (COLS.1-3) E.G. 501 ASH31 11
C 4 DEPARTMENT OF FISHERIES CATCH CARDS FOR 1 SEASON, PREFERABLY ASH31 12
C SORTED BY AREA (COLS.11-13) ASH31 13
C YEAR. (COLS.1-2) ASH31 14
C MONTH (COLS.8-9) ASH31 15
C DAY (COLS.5-6) ASH31 16
C 5 BLANK CARD TO CALL EXIT ASH31 17
C ASH31 18
C ASH31 19
C ASH31 20
C BOAT AND LICENCE NUMBERS READ FROM FILE LISCF. ASH31 21
C ASH31 22
C AREA REFERENCE CODES ARE READ FROM FILE WEEKF. ASH31 23
C ASH31 24
C ASH31 25
C PRINTED OUTPUT 1 FRB AND DOF CATCH DATA BY LANDING. ASH31 26
C 2 DOF LICENCE NUMBERS WITHOUT CORRESPONDING FRB BOAT ASH31 27
C NUMBERS ASH31 28
C ASH31 29
C CARD OUTPUT (TURN ON DATSW 1 TO BYPASS) ASH31 30
C 1 FRB 'CW' CARDS SHOWING CATCH IN TONS BY LANDING ASH31 31
C ASH31 32
C INCONSISTANCIES IN DATA ARE NOTED IN LEFT COLUMN OF PRINTED OUTPUT BY ASH31 33
C A INCORRECT AREA CODE ASH31 34
C B LICENCE NUMBER WITH NO CORRESPONDING BOAT NUMBER ON FILE ASH31 35
C Y YEAR AND MONTH DO NOT FALL WITHIN SEASON BEING PROCESSED ASH31 36
C G GEAR CODE NOT IN KNOWN LISTING ASH31 37
C ASH31 38
C SPECIFICATIONS ASH31 39
REAL LISCF,LISY(6),LISN(999),LBO(999) ASH31 40
INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RSAL,RLOC1ASH31 41
INTEGER C,H,P,TEST1,FIRST,YRT,YR1,YR2,PAGE,DEC2,DEC1 ASH31 42
INTEGER GEAR,DAY,DWK,DAYS,SETS,CO,PLANT,DISP,DLOC1 ASH31 43
INTEGER WEEK,POP,SUBP,PAREA,PSA,PLOC,BOAT,BTN(999),DSA1 ASH31 44
INTEGER OGN(6),NGN(6),T ASH31 45
DIMENSION NBS(5),NBP(999),LAREA(62) ASH31 46
DATA C,P,H/8,5,9/,LINE,FIRST,IFBO,NLN/55,1,0,1/,T/1 ASH31 47

```



DATA DGN/0,5,7,9,11,18/,NGN/0,50,70,59,19,29/ ASH31 48  
COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RSAL,RLOC1ASH31 49  
COMMON DSA1,DLOC1,LISN,LISC,RTN,NBP,BOAT,NLB,NOB ASH31 50  
DEFINE FILE 4(1000,24,U,KK) ASH31 51  
DEFINE FILE 5(13,93,U,K5) ASH31 52

C C FORMATS ASH31 53  
5 FORMAT (213) ASH31 54

10 FORMAT (211,212,1X,2(I2,I1),I2,1X,I5,3(I2),F5.0,9X,F8.2,1A1,1X,2I3)ASH31 56  
\*,19X,I1) ASH31 57

15 FORMAT (311,3I2,2(I2,I1),I3,I2,I3,F8.2,2I3,I2,I1,38X,'CW') ASH31 58  
20 FORMAT (80X) ASH31 59

25 FORMAT(211,3I2,I1,3X,I2,1X,I5,3I2,F5.0,9X,F8.2,1A1,9X,I2,I1,1X,I2)ASH31 60  
30 FORMAT (311) ASH31 61

35 FORMAT (1H1,' ') ASH31 62  
40 FORMAT (311,3I2,2(I2,I1),I3,I2,3X,F8.2,2I3,2X,I1,37X,'\*CW') ASH31 63

45 FORMAT (1H ,9X,'TABLE ',I1,'. HERRING LANDINGS IN TONS FOR THE 19ASH31 64  
\*,211,'-',2I1,' SEASON BY AREA, LOCALITY, WEEK AND BOAT.',3X,'PAGEASH31 65

\*,14/) ASH31 66  
50 FORMAT (1H ,15X,'CARD COLUMNS FOR MER (E) AND FRB (R) CARDS ARE SHASH31 67

\*OWN ABOVE TABLE COLUMN HEADINGS ON FIRST PAGE.')

55 FORMAT (1H ,15X,'WHERE MEB AREA OR LOCALITY DATA HAVE BEEN REVISEDASH31 69  
\* ON FRB CARDS, MEB DATA ARE GIVEN BELOW.')

60 FORMAT (1H ,9X,'M',1X,'1-2',9X,'5-6',2X,'8-10',7X,'11-13',1X,'14-1ASH31 71  
\*,2X,'3-4',8X,'28-32',3X,'42-49',1X,'17-21',1X,'53-54',6X,'22-23'ASH31 72

\*,1X,'24-25',1X,'26-27') ASH31 73  
65 FORMAT (1H ,9X,'R',1X,'1-3',1X,'4-5',1X,'6-7',1X,'8-9',7X,'10-12',ASH31 74

\*1X,'13-15',1X,'16-18',1X,'19-20',1X,'21-23',9X,'24-31',1X,'32-34',ASH31 75  
\*,1X,'35-37',1X,'38-39',13X,'40') ASH31 76

70 FORMAT (1H ,9X,'SEAS.',1X,'WK.',1X,'MO.',1X,'DAY',1X,'PERIOD',1X,'ASH31 77  
\*SUBD.',1X,'AREA',1X,'LOCAL.',1X,'GEAR',1X,'BOAT',1X,'LISC.NO.',2X,ASH31 78

\*'CATCH',2X,'DAYS',2X,'SETS',1X,'NBP',2X,'CO.',2X,'PLANT',1X,'DISP.ASH31 79  
\*') ASH31 80

75 FORMAT (1HN,10X,3I1,3I4,I5,I1,2(I5,I1),I5,I7,I5,F8.0,F9.2,I5,I6,I4)ASH31 81  
\*,I5,2I6) ASH31 82

80 FORMAT (1HN,40X,I2,I1,I5) ASH31 83  
85 FORMAT (' ',6X,'8',3X,3I1,3I4,3(I5,I1),I5,I7,5X,F8.0,F9.2,I5,I6,4X)ASH31 84

\*,I5,2I6) ASH31 85  
90 FORMAT ('DECADE BLANK',/,'REMOVE CARD AND PROCEED OR TURN ON DATSWASH31 86  
\*5 TO FINISH PROCESSING')

95 FORMAT ('TURN ON DATSW 1 TO HYPASS CARD OUTPUT')

100 FORMAT (1H1,'LICENCE NUMBERS WITH NO CORRESPONDING BOAT NUMBERS INASH31 89  
\* 19',2I1,'-',2I1,'.')

105 FORMAT (1H ,12F10.0) ASH31 91  
110 FORMAT (1H ,9X,'M',1X,'1-2',9X,'5-6',2X,'7-9',8X,'59-61',1X,'13-14)ASH31 92

\*,2X,'3-4',8X,'27-31',3X,'41-48',1X,'16-20',1X,'63-64',6X,'21-22',ASH31 93  
\*,1X,'23-24',1X,'25-26')

115 FORMAT (311,3I2,2(I2,I1),I3,I2,I3,F8.2,2I3,2X,I1,38X,'CW') ASH31 95  
120 FORMAT (1HN,10X,3I1,3I4,I5,I1,2(I5,I1),I5,I7,I5,F8.0,F9.2,I5,I6,4X)ASH31 96

\*,I5,2I6) ASH31 97  
125 FORMAT ('INCORRECT AREA, BOAT NUMBER AND YEAR CODES'/'OA - AN INCASH31 98  
\*ORRECT AREA CODE HAS BEEN LOCATED'/'OB - A LICENCE NUMBER WITH NO ASH31 99

\*CORRESPONDING BOAT NUMBER HAS BEEN LOCATED'/'OY - A YEAR WHICH IS ASH31100  
\*NOT WITHIN THE ROUNDS OF GIVEN SEASON HAS BEEN LOCATED'/'OG - GEAASH31101

\*R DOES NOT CORRESPOND WITH KNOWN CODINGS'/'') ASH31102  
130 FORMAT ('+',7X,'Y')

ASH31103



135	FORMAT ('+',5X,'A')	ASH31104
140	FORMAT ('+',4X,'G')	ASH31105
145	FORMAT('OTHE ABOVE CODES ARE LEFT ORIENTED BESIDE THE PRINTED LINE#ASH31106 * WHERE THE INCONSISTANCY WAS FOUND')	ASH31107
C	INITIALIZATION	ASH31108
	WRITE (T,95)	ASH31109
	DEC = 9	ASH31110
	WRITE (P,125)	ASH31111
	WRITE (P,145)	ASH31112
C	READ TABLE AND PAGE VALUES	ASH31113
C	READ (C,5) NTAB,PAGE	ASH31114
C	READ AREA SUBSCRIPTS FROM FILE AND DETERMINE SEASON NOTATION	ASH31115
	READ (5*2) LAREA	ASH31116
	READ (C,30) DEC1,YR1,YR2	ASH31117
	YRT = DEC1 * 10 + YR1	ASH31118
	IF (YR2)155,150,155	ASH31119
150	DEC2 = DEC1 +1	ASH31120
	GO TO 160	ASH31121
155	DEC2 = DEC1	ASH31122
C	READ LICENCE FILE FOR CORRESPONDING BOAT NUMBERS	ASH31123
C	160 IF (YRT-62)220,175,165	ASH31124
	165 IF (YRT-67)175,180,170	ASH31125
	170 IF (YRT-69)220,180,180	ASH31126
	175 J1 = IABS(YR1-7)	ASH31127
	GO TO 185	ASH31128
	180 J1 = 1	ASH31129
	185 I = 1	ASH31130
	DU 215 IJ = 1,999	ASH31131
	READ (4'IJ) BTN(I),LISY,NBS	ASH31132
	IF (BTN(I))190,225,190	ASH31133
190	IF (LISY(J1))195,215,195	ASH31134
195	LISN(I) = LISY(J1)	ASH31135
	NBP(I) = NBS(J1)	ASH31136
	IF (YRT - 62)210,200,210	ASH31137
200	IF (LISY(6))205,210,205	ASH31138
205	I = I + 1	ASH31139
	BTN(I) = BTN(I-1)	ASH31140
	NBP(I) = NBP(I-1)	ASH31141
	LISN(I) = LISY(6)	ASH31142
210	I = I + 1	ASH31143
215	CONTINUE	ASH31144
	GO TO 230	ASH31145
220	NLN = 0	ASH31146
225	NLB = I - 1	ASH31147
C	REINITIALIZE FOR NEXT CARD	ASH31148
C	230 TEST1 = 0	ASH31149
	CHANG = 1	ASH31150
	POP = 0	ASH31151
	SUBP = 0	ASH31152
	RAREA = 0	ASH31153
	RSA = 0	ASH31154
		ASH31155
		ASH31156
		ASH31157
		ASH31158
		ASH31159

RSAL = 0	ASH31160
RLOC = 0	ASH31161
ITST1 = 0	ASH31162
ITST2 = 0	ASH31163
ITST3 = 0	ASH31164
ITST4 = 0	ASH31165
C	ASH31166
C READ DATA TEST FOR LAST (BLANK) CARD AND CORRECT MONTH	ASH31167
IF (YRT-70)265,235,235	ASH31168
235 READ (C,25) DEC,YR,GEAR,DAY,DMON,DWK,DLOC,DAYS,CO,PLANT,DISP,LISC	ASH31169
*,CATCH,LBOT,DAREA,DSA,SETS	ASH31170
IF (DEC-9)245,240,245	ASH31171
240 YRT = 1	ASH31172
NLN = 0	ASH31173
GO TO 265	ASH31174
245 IF (DWK-4)255,250,250	ASH31175
250 IF (DAY-15)285,290,290	ASH31176
255 IF (DWK-1)290,260,290	ASH31177
260 IF (DAY-15)290,290,280	ASH31178
265 READ(C,10)DEC,YR,GEAR,DAY,DMON ,DWK,DAREA,DSA,DLOC,DAYS,CO,PLANT,	ASH31179
*DISP,LISC,CATCH,LBOT,SETS,NOB,IPER	ASH31180
IF (DEC-9)275,270,275	ASH31181
270 YRT = 99	ASH31182
NLN = 2	ASH31183
GO TO 235	ASH31184
275 IF (IPER - 1)290,280,285	ASH31185
280 DMON = DMON - 1	ASH31186
GO TO 290	ASH31187
285 DMON = DMON + 1	ASH31188
290 MONTH = DMON	ASH31189
LYR = DEC*10 + YR	ASH31190
IF (DEC)295,975,295	ASH31191
C	ASH31192
C REVISE GEAR CODING	ASH31193
295 IF (LYR -64)335,300,320	ASH31194
300 IF (GEAR - 10)310,305,310	ASH31195
305 GEAR = 19	ASH31196
GO TO 355	ASH31197
310 IF (GEAR - 20)355,315,355	ASH31198
315 GEAR = 29	ASH31199
GO TO 355	ASH31200
320 IF (LYR -65)355,325,355	ASH31201
325 IF (GEAR - 21)355,330,355	ASH31202
330 GEAR = 29	ASH31203
GO TO 355	ASH31204
335 DO 340 I = 1,7	ASH31205
IF (GEAR - OGN(I))340,350,340	ASH31206
340 CONTINUE	ASH31207
DU 345 I = 1,7	ASH31208
IF (GEAR - NGN(I))345,355,345	ASH31209
345 CONTINUE	ASH31210
IST3 = 1	ASH31211
GO TO 355	ASH31212
350 GEAR = NGN(I)	ASH31213
C	ASH31214
C DETERMINE SEASON NOTATION AND WEEK	ASH31215

355 IF (LROT + 4032)365,360,365	ASH31216
360 CATCH = CATCH / 20.0	ASH31217
365 IF (YR)375,370,375	ASH31218
370 IF (DEC-DEC2)395,380,395	ASH31219
375 IF (DEC-DEC1)395,380,395	ASH31220
380 IF (MONTH - 3)390,390,385	ASH31221
385 IF (YR - YR1)395,400,395	ASH31222
390 IF (YR - YR2)395,400,395	ASH31223
375 ITST1 = 1	ASH31224
470 CALL WKND (DFC1,YR1,MONTH,DAY,WEEK)	ASH31225
C THIS IS FOR WEEK 1 STARTING APRIL 1, WEEK 2 STARTING THE FIRST SUNDAY	ASH31226
C IN APRIL (EXCEPT IF APRIL 1) FOR THE YEARS 1941 - 1980	ASH31227
C DETERMINL POPULATION AND SUBPOPULATION	ASH31228
C REVISIONS IN AREA, SUBAREA AND LOCALITY MADE BY SUBROUTINES CALLED	ASH31229
C AFTER STATEMENT WHOSE NUMBER CORRESPONDS TO AREA NUMBER	ASH31230
IF (DAREA - 79)410,405,410	ASH31231
405 DAREA = 29	ASH31232
DSA = 0	ASH31233
410 DSA1 = DSA + 1	ASH31234
DLOC1 = DLUC + 1	ASH31235
GO TO (415,420,435,460,465,490,510,540,560,565,570,575,590,605,610,615,620,625,630,635,650,655,660,665,670,685,690,695,700),DAREA	ASH31236
415 PUP = 1	ASH31237
GO TO 720	ASH31238
420 POP = 1	ASH31239
CALL RV02	ASH31240
IF (RSA)425,430,425	ASH31241
425 GO TO (705,715,720,710,720),RSA1	ASH31242
430 GO TO (705,715,720,710,720),DSA1	ASH31243
435 PUP = 2	ASH31244
CALL RV03	ASH31245
IF (RSA)445,440,445	ASH31246
440 GO TO (705,710,720),DSA1	ASH31247
445 GO TO (705,450,720), RSA1	ASH31248
450 IF (DLOC - 18)710,455,710	ASH31249
455 RLOC = 29	ASH31250
GO TO 710	ASH31251
460 POP = 2	ASH31252
GO TO (705,710,715),DSA1	ASH31253
465 CALL RV05	ASH31254
IRAR = RAREA - 3	ASH31255
IF (RAREA)470,475,470	ASH31256
470 GO TO (460,475,495),IRAR	ASH31257
475 POP = 2	ASH31258
IF (RSA)480,485,480	ASH31259
480 GO TO (705,710,715),RSA1	ASH31260
485 GO TO (705,710,715),DSA1	ASH31261
490 CALL RV06	ASH31262
495 POP = 3	ASH31263
IF (RSA)500,505,500	ASH31264
500 GO TO (705,710,710,715,715,715,715,715,715),RSA1	ASH31265
505 GO TO (705,710,710,715,715,715,715,715,715),DSA1	ASH31266
	ASH31267
	ASH31268
	ASH31269
	ASH31270
	ASH31271

510 CALL RV07	
IF (DSA-9)520,515,520	ASH31272
515 RSA = 1	ASH31273
RSAI = RSA + 1	ASH31274
RLDC = DLDC + 100	ASH31275
520 IF (RAREA-6)525,490,525	ASH31276
525 POP = 4	ASH31277
IF (RSA)530,535,530	ASH31278
530 GO TO (705,710,715),RSAI	ASH31279
535 GO TO (705,710,715),DSA1	ASH31280
540 CALL RV08	ASH31281
IF (RAREA-7)545,525,545	ASH31282
545 POP = 4	ASH31283
IF (RSA)550,555,550	ASH31284
550 GO TO (705,710,715,715),RSAI	ASH31285
555 GO TO (705,710,715,715),DSA1	ASH31286
560 POP = 4	ASH31287
GO TO 710	ASH31288
565 POP = 4	ASH31289
GO TO 710	ASH31290
570 POP = 5	ASH31291
GO TO 715	ASH31292
575 CALL RV12	ASH31293
POP = 5	ASH31294
IF (RSA)580,585,580	ASH31295
580 GO TO (705,710,710,715,715), RSAI	ASH31296
585 GO TO (705,710,710,715,715), DSA1	ASH31297
590 CALL RV13	ASH31298
POP = 6	ASH31299
IF (RSA)595,600,595	ASH31300
595 GO TO (705,710,715,715), RSAI	ASH31301
600 GO TO (705,710,715,715), DSA1	ASH31302
605 POP = 6	ASH31303
GO TO 710	ASH31304
610 POP = 6	ASH31305
GO TO 715	ASH31306
615 POP = 6	ASH31307
GO TO 715	ASH31308
620 CALL RV17	ASH31309
POP = 7	ASH31310
GO TO 705	ASH31311
625 POP = 7	ASH31312
GO TO 705	ASH31313
630 POP = 7	ASH31314
GO TO 705	ASH31315
635 CALL RV20	ASH31316
IF (RSA)640,645,640	ASH31317
640 GO TO (630,650,630),RSAI	ASH31318
645 GO TO (630,650,630),DSA1	ASH31319
650 POP = 8	ASH31320
GO TO 705	ASH31321
655 POP = 8	ASH31322
GO TO 705	ASH31323
660 POP = 8	ASH31324
GO TO 705	ASH31325
665 POP = 8	ASH31326
	ASH31327

	GO TO 705	ASH31328
670	POP = 9	ASH31329
	IF (DSA - 2)690,675,680	ASH31330
675	DLOC = DLOC + 9	ASH31331
680	USA = 0	ASH31332
	GO TO 705	ASH31333
685	POP = 9	ASH31334
	GO TO 705	ASH31335
690	POP = 9	ASH31336
	GO TO 705	ASH31337
695	POP = 10	ASH31338
	GO TO 705	ASH31339
700	POP = 10	ASH31340
705	SURP = 0	ASH31341
	GO TO 725	ASH31342
710	SUBP = 1	ASH31343
	GO TO 725	ASH31344
715	SUBP = 2	ASH31345
	GO TO 725	ASH31346
720	SUBP = 3	ASH31347
C		ASH31348
C	CODE BOAT NUMBER FROM LICENSE NUMBER	ASH31349
725	IF (NLN)750,730,750	ASH31350
730	IF (NOB)740,735,740	ASH31351
735	NOB = 1	ASH31352
740	BOAT = IFIX(LISC)	ASH31353
	LISC = 0.0	ASH31354
	IF (BOAT - 799)755,745,755	ASH31355
745	BOAT = 999	ASH31356
	GO TO 755	ASH31357
750	CALL BOATN	ASH31358
C		ASH31359
C	PUNCH 'CW' CARDS WITH FRB REVISED DATA	ASH31360
C	PRINT FRB AND DUF DATA	ASH31361
755	CALL DATSW (1,M1)	ASH31362
	IF (LINE - 48)790,790,760	ASH31363
760	LINE = 0	ASH31364
	WRITE (P,35)	ASH31365
	WRITE (P,45) NTAB, DEC1,YR1,DEC2,YR2,PAGE	ASH31366
	PAGE = PAGE + 1	ASH31367
	IF (FIRST)765,785,765	ASH31368
765	WRITE (P,50)	ASH31369
	WRITE (P,55)	ASH31370
	IF (DEC-7)775,770,770	ASH31371
770	WRITE (P,110)	ASH31372
	GO TO 780	ASH31373
775	WRITE (P,60)	ASH31374
780	WRITE (P,65)	ASH31375
	FIRST = 0	ASH31376
	LINE = LINE + 6	ASH31377
785	WRITE (P,70)	ASH31378
790	IF (RAREA)795,800,795	ASH31379
795	TEST1 = 1	ASH31380
	PAREA = RAREA	ASH31381
	GO TO 805	ASH31382
800	PAREA = DAREA	ASH31383



805 IF (RSA)810,815,810	ASH31384
810 TEST1 = 1	ASH31385
PSA = RSA	ASH31386
GO TO 820	ASH31386
815 PSA = DSA	ASH31387
820 IF (RLOC)825,830,825	ASH31388
825 TEST1 = 1	ASH31389
PLOC = RLOC	ASH31390
GO TO 835	ASH31391
830 PLOC = DLOC	ASH31392
835 MAREA = PAREA * 10 + PSA	ASH31393
DO 850 M = 1,62	ASH31394
IF (MAREA - LAREA(M))850,840,850	ASH31395
840 IF (M - 52)860,845,845	ASH31396
845 IF (PLOC)855,860,855	ASH31397
850 CONTINUE	ASH31398
855 ITST2 = 1	ASH31399
860 IF (BOAT)865,865,890	ASH31400
865 IF (IFBO)870,880,870	ASH31401
870 DO 875 I = 1,IFBO	ASH31402
IF (LBO(I) - LISC)875,885,875	ASH31403
875 CONTINUE	ASH31404
880 IFBO = IFBO + 1	ASH31405
LBO(IFBO) = LISC	ASH31406
ITST4 = 1	ASH31407
885 WRITE (P,85)DEC1,YR1,YR2,WEEK,MONTH,DAY,DMON,DWK,POP,SUBP,PAREA,P	ASH31408
*SA,PLOC,GEAR,LISC,CATCH,DAYS,SETS,CO,PLANT,DISP	ASH31409
GO TO 905	ASH31410
890 IF (NOB)895,900,895	ASH31411
895 WRITE (P,75)DEC1,YR1,YR2,WEEK,MONTH,DAY,DMON,DWK,POP,SUBP,PAREA,P	ASH31412
*SA,PLOC,GEAR,BOAT,LISC,CATCH,DAYS,SETS,NOB,CO,PLANT,DISP	ASH31413
GO TO 905	ASH31414
900 WRITE (P,120) DEC1,YR1,YR2,WEEK,MONTH,DAY,DMON,DWK,POP,SUBP,PAREA,	ASH31415
*PSA,PLOC,GEAR,BOAT,LISC,CATCH,DAYS,SETS,CO,PLANT,DISP	ASH31416
905 LINE = LINE + 1	ASH31417
IF (TEST1)910,915,910	ASH31418
910 WRITE (P,80) DAREA,DSA,DLOC	ASH31419
LINE = LINE + 1	ASH31420
915 IF (ITST1)920,925,920	ASH31421
920 WRITE (P,130)	ASH31422
ITST4 = 1	ASH31423
925 IF (ITST2)930,935,930	ASH31424
930 WRITE (P,135)	ASH31425
ITST4 = 1	ASH31426
935 IF (ITST3)940,945,940	ASH31427
940 WRITE (P,140)	ASH31428
945 GO TO (230,950),M1	ASH31429
950 IF (ITST4-1)960,955,960	ASH31430
955 WRITE (H,40) DEC1,YR1,YR2,WEEK,MONTH,DAY,POP,SUBP,PAREA,PSA,PLUC,	ASH31431
*GEAR,CATCH,DAYS,SETS,DISP	ASH31432
GO TO 230	ASH31433
960 IF (NOB)970,965,970	ASH31434
965 WRITE (H,115) DEC1,YR1,YR2,WEEK,MONTH,DAY,POP,SUBP,PAREA,PSA,PLOC,	ASH31435
*GEAR,BOAT,CATCH,DAYS,SETS,DISP	ASH31436
GO TO 230	ASH31437
970 WRITE (H,15)DEC1,YR1,YR2,WEEK,MONTH,DAY,POP,SUBP,PAREA,PSA,PLOC,G	ASH31438
	ASH31439



*EAR,BOAT,CATCH,DAYS,SETS,NOB,DISP	ASH31440
GO TO 230	ASH31441
975 WRITE (1,90)	ASH31442
PAUSE 1	ASH31443
CALL DATSW(5,M5)	ASH31444
GO TO (980,230),M5	ASH31445
980 WRITE (H,20)	ASH31446
IF (IFB0)990,990,985	ASH31447
985 WRITE (P,100) DEC1,YR1,DEC2,YR2	ASH31448
WRITE (P,105) (LR0(I),I=1,IFB0)	ASH31449
990 CALL EXIT	ASH31450
END	ASH31451
// DUP	
*DELETE	ASH31
*STORE WS UA	ASH31

```
// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
SUBROUTINE RV02
C
C REVISES DUF AREA 02 CODINGS TO FRB CODINGS
C
REAL LISC,LISN(999)
INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RS1,RLOC1
INTEGER RTN(999),NBP(999),DS1,DLOC1,BOAT
COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA, RSA, DLOC, RLOC, RS1, RLOC1
COMMON DS1,DLOC1,LISN,LISC,RTN,NBP,BOAT,NLB,NOB
C
CALL NEWAL
IF(CHANG)30,5,30
5 IF(DSA-4)30,10,30
10 IF(DLOC-2)15,20,30
15 RLOC=99
GO TO 25
20 RLOC=98
25 RSA=3
RSA=RSA+1
30 RETURN
END
// DUP
*DELETE WS UA RV02
*STORE WS UA RV02
```

RV02  
RV02 2  
RV02 4  
RV02 6  
RV02 8  
RV02 10  
RV02 12  
RV02 14  
RV02 16  
RV02 18  
RV02 20  
RV02 22  
RV02 24  
RV02 26  
RV02 28  
RV02 30  
RV02 32  
RV02 34  
RV02 36  
RV02 38  
RV02 40  
RV02 42  
RV02 44

```
// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
SUBROUTINE RV03
C
C REVISES DOF AREA 03 CODING TO FR3 AREAS C31 AND C32
C
REAL LISC,LISN(999)
INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,rsa,DLOC,RLOC,rsa1,rloc1
INTEGER BTN(999),NBP(999),DSA1,DLOC1,BOAT
COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,rsa,DLOC,RLOC,rsa1,rloc1
COMMON DSA1,DLOC1,LISN,LISC,BTN,NBP,BOAT,NLB,NDB
C
IF (DSA)30,5,30
5 IF(DLOC)10,25,10
10 IF(DLOC-6)20,15,20
15 RSA=1
GO TO 25
20 RSA=2
25 RSA1=RSA+1
30 RETURN
END
C
// DUP
*DELETE WS UA RV03
*STORE WS UA RV03
```

```
// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
SUBROUTINE RV05
C
C REVISES DOF AREAS 051 AND 052 TO FRB AREAS 041,051,052 AND 061
C
REAL LISC,LISN(999)
INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RSAL,RLOC1RV05 2
RV05 4
INTEGER RTN(999),NBP(999),DSA1,DLOC1,BOATRV05 6
COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RSAL,RLOC1RV05 8
COMMON DSA1,DLOC1,LISN,LISC,RTN,NBP,BOAT,NLR,NORRV05 10
RV05 12
C
CALL NEWAL
IF(CHANG)105,5,105
5 IF(DSA-1)105,10,70
10 IF(DLOC-6)120,15,20
15 RLOC=98
GO TO 30
20 IF(DLOC-16)35,25,35
25 RLOC=99
30 RAREA=4
GO TO 105
35 IF(DLOC-8)45,40,45
40 RLOC=98
GO TO 65
45 IF(DLOC-19)55,50,55
50 RLOC=99
GO TO 65
55 IF (DLOC - 22)105,60,105
60 RLOC = 13
65 RAREA=6
GO TO 105
70 IF(DLOC-14)80,75,80
75 RLOC=99
RSA=1
RSAL=RSA+1
RAREA=5
GO TO 105
80 IF(DLOC-12)90,85,90
85 RLOC=97
GO TO 100
90 IF(DLOC-15)105,95,105
95 DLUC=96
100 RSA=1
RAREA=6
RSAL=RSA+1
105 RETURN
END
// DUP
*DELETE RV05
*STORE WS UA RV05
```

// JOB	RV06
// FOR	
*ONE WORD INTEGERS	
*EXTENDED PRECISION	
*LIST ALL	
C	
SUBROUTINE RV06	RV06 2
C	RV06 4
C REVISES DOF AREA 066 TO FRB AREAS 066 AND 061	RV06 6
C	RV06 8
REAL LISC,LISN(999)	RV06 10
INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RSAL,RLOC1	RV06 12
INTEGER BTN(999),NBP(999),DSA1,DLUC1,BOAT	RV06 14
COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RSAL,RLOC1	RV06 16
COMMON DSA1,DLUC1,LISN,LISC,BTN,NBP,BOAT,NLB,NOB	RV06 18
C	RV06 20
CALL NEWAL	RV06 22
IF (CHANG)20,5,20	RV06 24
5 IF (DSA-6)20,10,20	RV06 26
10 IF (DLOC-9)20,15,20	RV06 28
15 RLOC=95	RV06 30
RSA=1	RV06 32
RSA1=RSA+1	RV06 34
20 RETURN	RV06 36
END	RV06 38
// DUP	RV06 40
*DELETE	RV06
*STORE	WS UA RV06

```
// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
SUBROUTINE RV07
C
C REVISES DDF AREA 072 TO FRB AREAS 072, 065 AND 068
C
REAL LTSC,LISN(999)
INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,rsa,DLOC,RLOC,rsa1,rloc1
INTEGER BTN(999),NBP(999),DSA1,DLOC1,BOAT
COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,rsa,DLOC,RLOC,rsa1,rloc1
COMMON DSA1,DLOC1,LISN,LTSC,BTN,NBP,BOAT,NLB,NOB
C
CALL NEWAL
IF(CHANG)30,5,30
5 IF(DSA-2)30,10,30
10 IF(DLOC-2)15,20,30
15 RSA=8
GO TO 25
20 RSA=5
25 RAREA=6
RLOC=99
RSA1=RSA+1
30 RETURN
END
// DUP
*DELETE WS UA RV07
*STORE WS UA RV07
```

RV07 2  
RV07 4  
RV07 6  
RV07 8  
RV07 10  
RV07 12  
RV07 14  
RV07 16  
RV07 18  
RV07 20  
RV07 22  
RV07 24  
RV07 26  
RV07 28  
RV07 30  
RV07 32  
RV07 34  
RV07 36  
RV07 38  
RV07 40  
RV07 42  
RV07 44  
RV07 46



// JOB	
// FOR	
•ONE WORD INTEGERS	
•EXTENDED PRECISION	
•LIST ALL	
C	
SURROUTINE RV09	RV08 2
C	RV08 4
C REVISED DOF AREA 081 TO FRB AREAS 081, 071 AND 082	RV08 6
C REVISED DOF AREA 082 TO FRB AREAS 082, 071 AND 083	RV08 8
C	RV08 10
REAL LISC,LISN(999)	RV08 12
INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSR,DLOC,PLDC,RSAL,PLUC1	RV08 14
INTGFR BTN(999),NRP(999),DSA1,DLOC1,ROAT	RV08 16
COMMON DEC,YR,DMON,CHANG,DARLA,RAREA,DSA,RSR,DLOC,PLDC,RSAL,PLUC1	RV08 18
COMMON DSA1,DLOC1,LISN,LISC,BTN,NRP,BOAT,NLR,NOR	RV08 20
C	RV08 22
CALL NEWAL	RV08 24
IF(CHANG)160,5,160	RV08 26
5 IF (DLOC - 1)15,10,15	RV08 28
10 RLOC = 22	RV08 30
GO TO 60	RV08 32
15 IF (DSA-1)160,20,85	RV08 34
20 IF (DLOC-3)30,25,30	RV08 36
25 RLOC = 194	RV08 38
GO TO 60	RV08 40
30 IF (DLOC-4)40,35,40	RV08 42
35 RLOC=99	RV08 44
GO TO 60	RV08 46
40 IF (DLOC-8)50,45,50	RV08 48
45 RLOC=98	RV08 50
GO TO 60	RV08 52
50 IF (DLOC-9)65,55,65	RV08 54
55 RLOC=97	RV08 56
60 RAREA=7	RV08 58
GO TO 155	RV08 60
65 IF (DLOC - 10)75,70,75	RV08 62
70 RLOC = 99	RV08 64
RSA = 2	RV08 66
75 IF (DLOC - 6)155,80,155	RV08 68
80 RLOC = 99	RV08 70
GO TO 155	RV08 72
85 IF (DLOC-1)75,70,95	RV08 74
90 RLOC=99	RV08 76
GO TO 115	RV08 78
95 IF (DLOC-3)105,100,105	RV08 80
100 RLOC=98	RV08 82
GO TO 115	RV08 84
105 IF (DLOC-8)120,110,120	RV08 86
110 RLOC=97	RV08 88
115 RSA=3	RV08 90
GO TO 155	RV08 92
120 IF (DLOC-9)130,125,130	RV08 94
125 RLOC=96	RV08 96
GO TO 150	RV08 98
	RV08 100

```
130 IF(DLOC-11)140,135,140
135 RLOC=95
    GO TO 150
140 IF(DLOC-12)155,145,155
145 RLOC=94
150 RSA=1
    RAREA=7
155 RSA1=RSA+1
160 RETURN
    END
```

```
RV08 102
RV08 104
RV08 106
RV08 108
RV08 110
RV08 112
RV08 114
RV08 116
RV08 118
RV08 120
```

```
// DUP
*DELETE          RV08
*STORE          WS UA RV08
```

// JOB		RV12	
// FOR			
*ONE WORD INTEGERS			
*EXTENDED PRECISION			
*LIST ALL			
SUBROUTINE RV12		RV12	4
C		RV12	6
C REVISES DOF AREA 120 TO FRB AREAS 121,122,123,124		RV12	8
C		RV12	10
REAL LISC,LISN(999)		RV12	12
INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,PLOC,RSAL,RLOC1		RV12	14
INTEGER BTN(999),NBP(999),DSAL,DLOC1,BOAT		RV12	16
COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,PLOC,RSAL,RLOC1		RV12	18
COMMON DSAL,DLOC1,LISN,LISC,BTN,NBP,BOAT,NLB,NOB		RV12	20
C		RV12	22
IF (DSA)100,5,100		RV12	24
5 IF(DLOC-30)10,10,100		RV12	26
10 GO TO (100,30,15,20,20,20,25,25,25,25,15,20,15,15,20,20,25,25,25,		RV12	28
*25,15,20,20,20,15,25,20,25,15,15,15),DLOC1		RV12	30
15 RSA=1		RV12	32
GO TO 35		RV12	34
20 RSA=2		RV12	36
GO TO 35		RV12	38
25 RSA=3		RV12	40
GO TO 35		RV12	42
30 RSA=4		RV12	44
35 GO TO (95,40,40,40,45,50,40,45,50,55,45,55,50,55,60,65,60,65,70,		RV12	46
*75,60,70,75,80,65,80,85,85,70,75,90),DLOC1		RV12	48
40 RLOC=1		RV12	50
GO TO 95		RV12	52
45 RLOC=2		RV12	54
GO TO 95		RV12	56
50 RLOC=3		RV12	58
GO TO 95		RV12	60
55 RLOC=4		RV12	62
GO TO 95		RV12	64
60 RLOC=5		RV12	66
GO TO 95		RV12	68
65 RLOC=6		RV12	70
GO TO 95		RV12	72
70 RLOC=7		RV12	74
GO TO 95		RV12	76
75 RLOC=8		RV12	78
GO TO 95		RV12	80
80 RLOC=9		RV12	82
GO TO 95		RV12	84
85 RLOC=10		RV12	86
GO TO 95		RV12	88
90 RLOC = 0		RV12	90
95 RSAL=RSA+1		RV12	92
100 RETURN		RV12	94
END		RV12	96
// DUP			
*DELETE	WS UA	RV12	
*STORE	WS UA	RV12	

```
// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
    SUBROUTINE RV13
C
C REVISES DOF AREA 130 TO FRB AREAS 131,132,133
C
    REAL LISC,LISN(999)
    INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,rsa,DLOC,rLOC,rsa1,rLOC1
    INTEGER BTN(999),NBP(999),DSA1,DLOC1,BOAT
    COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,rsa,DLOC,rLOC,rsa1,rLOC1
    COMMON DSA1,DLOC1,LISN,LISC,BTN,NBP,BOAT,NLB,NOB
C
    IF (DSA)95,5,95
    5 IF(DLOC-16)10,10,95
    10 GO TO (95,15,15,15,15,15,25,15,95,15,15,20,15,20,15,15,25),DLOC1
    15 RSA=1
    GO TO 30
    20 RSA=2
    GO TO 30
    25 RSA=3
    30 GO TO (95,80,40,45,50,55,35,65,65,75,70,35,60,40,35,85,40),DLOC1
    35 RLOC=1
    GO TO 90
    40 RLOC=2
    GO TO 90
    45 RLOC=3
    GO TO 90
    50 RLOC=4
    GO TO 90
    55 RLOC=5
    GO TO 90
    60 RLOC=6
    GO TO 90
    65 RLOC=7
    GO TO 90
    70 RLOC=8
    GO TO 90
    75 RLOC=9
    GO TO 90
    80 RLOC=10
    GO TO 90
    85 RLOC=27
    90 RSA1=rsa+1
    95 RETURN
    END
C
// DUP
*DELETE
*STORE WS UA
RV13
RV13
RV13
RV13 2
RV13 4
RV13 6
RV13 8
RV13 10
RV13 12
RV13 14
RV13 16
RV13 18
RV13 20
RV13 22
RV13 24
RV13 26
RV13 28
RV13 30
RV13 32
RV13 34
RV13 36
RV13 38
RV13 40
RV13 42
RV13 44
RV13 46
RV13 48
RV13 50
RV13 52
RV13 54
RV13 56
RV13 58
RV13 60
RV13 62
RV13 64
RV13 66
RV13 68
RV13 70
RV13 72
RV13 74
RV13 76
RV13 78
RV13 80
RV13 82
RV13 84
RV13 86
RV13 88
```

```
// JOB
// FDR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
SUBROUTINE RV17
C
C REVISES DOF AREA 17 CODINGS TO FRH AREAS 171 AND 172 FOR ASH31
C
REAL LIS, LISN(999)
INTEGER DEC, YR, DMON, CHANG, DAREA, RAREA, DSA, RSA, DLLOC, RLOC, RSA1, RLOC1
COMMON DEC, YR, DMON, CHANG, DAREA, RAREA, DSA, RSA, DLLOC, RLOC, RSA1, RLOC1
COMMON DSA1, DLLOC1, LISN, LIS, BTN, NBP, BOAT, NLR, NUB
C
IF(DSA)20,5,20
5 GO TO (20,15,15,15,15,15,15,15,15,10,10,10,10,10,15,15,15,10,10,
*15,15,15,10),DLLOC1
10 RSA=1
GO TO 20
15 RSA=2
20 IF (DSA - 2)35,25,35
25 IF (DLLOC - 8)35,30,35
30 RSA = 1
RLOC = 85
GO TO 50
35 ITST = DEC * 10 + YR - 70
IF (ITST)40,50,50
40 IF (DLLOC-86)50,45,45
45 RLOC = DLLOC - 63
50 RETURN
END
C
// DUP
*DELETE WS UA RV17
*STORE WS UA RV17
```

```
// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
    SUBROUTINE RV20
C
C REVISES DOF AREA 20C CODING TO FRB AREAS 201 AND 202 FOR ASH31
C
    REAL LISC,LISN(999)
    INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLDC,RLOC,RSAL,RLOC1
    INTEGER RTN(999),NBP(999),DSA1,DLOC1,BOAT
    COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,DLDC,RLOC,RSAL,RLOC1
    COMMON DSA1,DLOC1,LISN,LISC,BTN,NBP,BOAT,NLR,NOB
C
    IF (DSA)25,5,25
    5 IF(DLOC-1)25,10,15
    10 RSA=1
    GO TO 20
    15 RSA =2
    20 RSA1=RSA+1
    25 RETURN
    END
// DUP
*DELETE
*STORE
```

		RV20	2
		RV20	4
		RV20	6
		RV20	8
		RV20	10
		RV20	12
		RV20	14
		RV20	16
		RV20	18
		RV20	20
		RV20	22
		RV20	24
		RV20	26
		RV20	28
		RV20	30
		RV20	32
		RV20	34
		RV20	36
		RV20	38
		RV20	
	WS UA	RV20	
		RV20	



```
// JOB NEWAL
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C SUBROUTINE NEWAL NEWAL 2
C NEWAL 4
C SELECTS YEARS FOR CODING CHANGES IN AREA AND/OR LOCALITY NEWAL 6
C NEWAL 8
REAL LISC,LISN(999) NEWAL 10
INTEGER DEC,YR,DMUN,CHANG,DAREA,RAREA,DSA,RSA,DLOC,PLOC,RSAL,RLOC1 NEWAL 12
INTEGER BTN(999),NBP(999),DSAL,DLOC1,BOAT NEWAL 14
COMMON DEC,YR,DMUN,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RSAL,RLOC1 NEWAL 18
COMMON DSAL,DLOC1,LISN,LISC,BTN,NBP,BUAT,NLB,NOB NEWAL 20
C NEWAL 22
CHANG = 1 NEWAL 24
YRD=DEC*10+YR NEWAL 26
IF(YRD-62)25,5,10 NEWAL 28
5 IF(DMON-3)25,25,20 NEWAL 30
10 IF(YRD-68)20,15,25 NEWAL 32
15 IF(DMON-3)20,20,25 NEWAL 34
20 CHANG=0 NEWAL 36
25 RETURN NEWAL 38
END NEWAL 40
// DUP
*DELETE WS UA NEWAL
*STORE WS UA NEWAL
```

```
// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
SUBROUTINE BOATN
C
CONVERTS DOF LICENCE NUMBER TO FRB BOAT NUMBER
C
REAL LISC,LISN(999)
INTEGER DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RSAL,RLOC1BOATN 2
INTEGER BTN(999),NBP(999),DSA1,DLOC1,BOAT BOATN 4
COMMON DEC,YR,DMON,CHANG,DAREA,RAREA,DSA,RSA,DLOC,RLOC,RSAL,RLOC1BOATN 6
COMMON DSA1,DLOC1,LISN,LISC,BTN,NBP,BOAT,NLB,NOB BOATN 8
C
IF (LISC)10,5,10 BOATN 10
5 BOAT = 999 BOATN 12
NOB = 0 BOATN 14
GO TO 25 BOATN 16
10 DO 15 I =1,NLB BOATN 18
DIFF = LISC - LISN(I) BOATN 20
DIFF = ABS(DIFF) BOATN 22
IF (DIFF-0.1)20,15,15 BOATN 24
15 CONTINUE BOATN 26
C *** LICENCE NUMBER NOT FOUND ON FILE. BOATN 28
BOAT=0 BOATN 30
NOB = 0 BOATN 32
GO TO 25 BOATN 34
C *** LICENCE FOUND, SET BOAT EQUAL TO FRB BOAT NUMBER, BOATN 36
NOB EQUAL TO THE NUMBER OF BOATS IN POOL. BOATN 38
20 BOAT=BTN(I) BOATN 40
NOB = NBP(I) BOATN 42
25 RETURN BOATN 44
END BOATN 46
// DUP
*DELETE WS UA BOATN
*STORE WS UA BOATN
```

```
// JOB WKNO
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C WKNO 2
SUBROUTINE WKNO (DEC,YR1,MONTH,DAY,WEEK) WKNO 4
C WKNO 6
C WKNO RETURNS WEEK NUMBER OF FISCAL YEAR (SEASON OF APRIL 1ST - MARCH) WKNO 8
C GIVEN THE YEAR (YEAR = 1900 + DEC * 10 + YR1), AND JULIAN DAY AND WKNO 10
C MONTH. WKNO 12
C PARAMETERS NEEDED IN CALCULATION ARE READ FROM DISK FILE WEEKF. WKNO 14
C WKNO 16
INTEGER SDAY(40),DEC,YR1,DAY,WEEK,Y1,Y2,YRR WKNO 18
DIMENSION LY(40),IDAY(12) WKNO 20
C WKNO 22
YRR = DEC*10 + YR1 WKNO 24
READ (5,1) IYR,LY,SDAY,IDAY WKNO 26
IF (MONTH)10,5,10 WKNO 28
5 WEEK = 54 WKNO 30
GO TO 55 WKNO 32
10 IF (MONTH-20)25,15,20 WKNO 34
15 MONTH = 11 WKNO 36
GO TO 25 WKNO 38
20 MONTH = 12 WKNO 40
25 IF (DAY)35,30,35 WKNO 42
30 WEEK = 54 WKNO 44
GO TO 55 WKNO 46
35 Y1 = YRR - IYR WKNO 48
IF (MONTH-3)45,40,45 WKNO 50
40 Y2 = Y1 + 1 WKNO 52
LDAY = DAY + LY(Y2) WKNO 54
GO TO 50 WKNO 56
45 LDAY = DAY WKNO 58
50 WEEK =(LDAY + IDAY(MONTH) - SDAY(Y1) + 6) / 7 + 1 WKNO 60
55 RETURN WKNO 62
END WKNO 64
// DUP
*DELETE WKNO
*STORE WS UA WKNO
```

```

// JOB
// FOR
*IOCS(1403 PRINTER,2501 READER,1442 PUNCH,DISK,TYPERWRITER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH32
**ASH32, WEEKLY SEINE CATCH, EFFORT AND C/E BY POPULATION OR AREA.
C
C *****
C USE *FILES(5,REFX) TO EXECUTE THIS PROGRAM.
C (200 SECTORS OF DISK WORKING STORAGE REQUIRED)
C OUTPUT
C
C A) PUNCH OUTPUT OF CATCH WITH EFFORT, EFFORT, CATCH PER UNIT OF
C EFFORT, TOTAL CATCH AND ADJUSTED EFFORT BY AREA (OR POPULATION)
C AND WEEK - CARD CODE EAW (EPW) - TURN DATASWITCH 6 ON TO BYPASS.
C
C B) PUNCH OUTPUT OF ABOVE BY AREA (POPULATION) AND SEASON.
C -CARD CODE CAY (EPY) - TURN ON DATA SWITCH 7 TO BYPASS.
C *****
C C) PRINTED OUTPUT OF THE ITEMS IN OUTPUT A, BY POPULATION AND WEEK
C WITH SUMMARY OF ALL WEEKS (SEASON)
C
C D) PRINTED OUTPUT OF C) BY SUBPOPULATION
C OR (OF C AND D)
C
C E) PRINTED OUTPUT OF ITEMS LISTED IN A) BY AREA AND WEEK WITH A
C SUMMARY OF ALL WEEKS (SEASON) .
C -- USE DATA SWITCH 5 ON TO BYPASS ANY PRINTED OUTPUT.
C INPUT
C
C 1) CONTROL CARD
C COL. 1 1 FOR COMPILATION OF DATA BY POPULATION, OR
C 2 FOR COMPILATION OF DATA BY AREA.
C
C 2 1 FOR BOAT WEEKS TO BE USED AS EFFORT, OR
C 2 FOR DAYS FISHING TO BE USED AS EFFORT.
C
C 3 1 IF PAGE VALUE OF OUTPUT D IS TO BE READ FROM PAGE
C AND TABLE VALUE CONTROL CARD, OR
C 2 IF PAGE VALUE OF OUTPUT D IS TO BE INCREMENTED FROM
C VALUE OF OUTPUT C
C THIS COLUMN USED ONLY IF COL. 1 CONTAINS A 1.
C
C 2) TABLE AND PAGE VALUE CONTROL CARD
C 1- 3 TABLE VALUE OF OUTPUT C
C 4- 6 INITIAL PAGE VALUE OF ABOVE
C 7- 9 TABLE VALUE OF OUTPUT D
C 10-12 INITIAL PAGE VALUE OF ABOVE
C (NOTE ABOVE COLUMNS NOT USED IF OUTPUTTING BY AREA)
C 13-15 TABLE VALUE OF OUTPUT E

```

ASH32

ASH32 1  
ASH32 2  
ASH32 3  
ASH32 4  
ASH32 5  
ASH32 6  
ASH32 7  
ASH32 8  
ASH32 9  
ASH32 10  
ASH32 11  
ASH32 12  
ASH32 13  
ASH32 14  
ASH32 15  
ASH32 16  
ASH32 17  
ASH32 18  
ASH32 19  
ASH32 20  
ASH32 21  
ASH32 22  
ASH32 23  
ASH32 24  
ASH32 25  
ASH32 26  
ASH32 27  
ASH32 28  
ASH32 29  
ASH32 30  
ASH32 31  
ASH32 32  
ASH32 33  
ASH32 34  
ASH32 35  
ASH32 36  
ASH32 37  
ASH32 38  
ASH32 39  
ASH32 40  
ASH32 41  
ASH32 42  
ASH32 43  
ASH32 44  
ASH32 45  
ASH32 46  
ASH32 47

C	16-18 INITIAL PAGE VALUE OF ABOVE	ASH32 48
C	(NOTE COLUMNS 13-18 NOT USED IF OUTPUTTING BY POP.)	ASH32 49
C		ASH32 50
C	3) DATA, CARD CODE CW (FROM ASH31), SORTED BY AREA (COLS.13-15)	ASH32 5
C	WITHIN BLOCKS BY WEEK (COLS. 4-5)	ASH32 52
C		ASH32 53
C	4) BLANK CARD TO INDICATE DATA TERMINATION.	ASH32 54
C		ASH32 55
C	.....	ASH32 56
C		ASH32 57
	INTEGER C,P,H,POPCD(62),POP(62),ARF(62),PPF(74),SUB(62),DISPO	ASH32 58
	INTEGER DEC,YR1,YR2,WEEK,POPUL,SUDP,GEAR,BOAT,GRTST(3)	ASH32 59
	INTEGER PAGE1,PAGE2,PAGE3,FIRST,FTYPE,DAYS,SETS,T	ASH32 60
	DIMENSION JBOAT(300),IBOAT(300)	ASH32 61
	DATA C,P,H,T/9,5,9,1/	ASH32 62
	DATA LINE,GRTST/55,21,20,29/	ASH32 63
	DEFINE FILE 1(62,300,U,KI)	ASH32 64
	DEFINE FILE 5(13,320,U,KI)	ASH32 65
	DEFINE FILE 10 (55,9,U,KI)	ASH32 66
	DEFINE FILE 11 (55,9,U,KI)	ASH32 67
	DEFINE FILE 12 (55,9,U,KI)	ASH32 68
	DEFINE FILE 13 (55,9,U,KI)	ASH32 69
	DEFINE FILE 20 (55,9,U,KI)	ASH32 70
	DEFINE FILE 21 (55,9,U,KI)	ASH32 71
	DEFINE FILE 22 (55,9,U,KI)	ASH32 72
	DEFINE FILE 23 (55,9,U,KI)	ASH32 73
	DEFINE FILE 24 (55,9,U,KI)	ASH32 74
	DEFINE FILE 30 (55,9,U,KI)	ASH32 75
	DEFINE FILE 31 (55,9,U,KI)	ASH32 76
	DEFINE FILE 32 (55,9,U,KI)	ASH32 77
	DEFINE FILE 40 (55,9,U,KI)	ASH32 78
	DEFINE FILE 41 (55,9,U,KI)	ASH32 79
	DEFINE FILE 42 (55,9,U,KI)	ASH32 80
	DEFINE FILE 50 (55,9,U,KI)	ASH32 81
	DEFINE FILE 51 (55,9,U,KI)	ASH32 82
	DEFINE FILE 52 (55,9,U,KI)	ASH32 83
	DEFINE FILE 60 (55,9,U,KI)	ASH32 84
	DEFINE FILE 61 (55,9,U,KI)	ASH32 85
	DEFINE FILE 62 (55,9,U,KI)	ASH32 86
	DEFINE FILE 63 (55,9,U,KI)	ASH32 87
	DEFINE FILE 64 (55,9,U,KI)	ASH32 88
	DEFINE FILE 65 (55,9,U,KI)	ASH32 89
	DEFINE FILE 66 (55,9,U,KI)	ASH32 90
	DEFINE FILE 67 (55,9,U,KI)	ASH32 91
	DEFINE FILE 68 (55,9,U,KI)	ASH32 92
	DEFINE FILE 70 (55,9,U,KI)	ASH32 93
	DEFINE FILE 71 (55,9,U,KI)	ASH32 94
	DEFINE FILE 72 (55,9,U,KI)	ASH32 95
	DEFINE FILE 80 (55,9,U,KI)	ASH32 96
	DEFINE FILE 81 (55,9,U,KI)	ASH32 97
	DEFINE FILE 82 (55,9,U,KI)	ASH32 98
	DEFINE FILE 83 (55,9,U,KI)	ASH32 99
	DEFINE FILE 90 (55,9,U,KI)	ASH32100
	DEFINE FILE 100(55,9,U,KI)	ASH32101
	DEFINE FILE 110(55,9,U,KI)	ASH32102
	DEFINE FILE 120(55,9,U,KI)	ASH32103



DEFINE FILE 121(55,9,U,K1)	ASH32104
DEFINE FILE 122(55,9,U,K1)	ASH32105
DEFINE FILE 123(55,9,U,K1)	ASH32106
DEFINE FILE 124(55,9,U,K1)	ASH32107
DEFINE FILE 130(55,9,U,K1)	ASH32108
DEFINE FILE 131(55,9,U,K1)	ASH32109
DEFINE FILE 132(55,9,U,K1)	ASH32110
DEFINE FILE 133(55,9,U,K1)	ASH32111
DEFINE FILE 140(55,9,U,K1)	ASH32112
DEFINE FILE 150(55,9,U,K1)	ASH32113
DEFINE FILE 160(55,9,U,K1)	ASH32114
DEFINE FILE 170(55,9,U,K1)	ASH32115
DEFINE FILE 171(55,9,U,K1)	ASH32116
DEFINE FILE 172(55,9,U,K1)	ASH32117
DEFINE FILE 180(55,9,U,K1)	ASH32118
DEFINE FILE 190(55,9,U,K1)	ASH32119
DEFINE FILE 200(55,9,U,K1)	ASH32120
DEFINE FILE 201(55,9,U,K1)	ASH32121
DEFINE FILE 202(55,9,U,K1)	ASH32122
DEFINE FILE 210(55,9,U,K1)	ASH32123
DEFINE FILE 230(55,9,U,K1)	ASH32124
DEFINE FILE 240(55,9,U,K1)	ASH32125
DEFINE FILE 250(55,9,U,K1)	ASH32126
DEFINE FILE 260(55,9,U,K1)	ASH32127
DEFINE FILE 270(55,9,U,K1)	ASH32128
DEFINE FILE 280(55,9,U,K1)	ASH32129
DEFINE FILE 290(55,9,U,K1)	ASH32130

C

C FORMATS

5 FORMAT (6I3)	ASH32133
10 FORMAT(3I1,I2,7X,I2,I1,3X,I2,I3,F8.2,2I3,I2,I1)	ASH32134
15 FORMAT (I3,'EPW',I3,I3,F9.2,F5.1,2F9.2,F5.1)	ASH32135
20 FORMAT (I3,'EPY',I3,I3,F9.2,F5.1,2F9.2,F5.1)	ASH32136
25 FORMAT (I3,'EAW',2I3,F9.2,F5.1,2F9.2,F5.1)	ASH32137
30 FORMAT (I3,'EAY',2I3,F9.2,F5.1,2F9.2,F5.1)	ASH32138
35 FORMAT (' '//)	ASH32139
40 FORMAT ('I',5IX,'PAGE',I3)	ASH32140
45 FORMAT (3I1)	ASH32141
50 FORMAT ('+',56X,'THE')	ASH32142
55 FORMAT (' TABLE ',I2,'.',I2,'. WEEKLY CATCH AND EFFORT FOR 19', *2I1,'-',2I1,' FROM')	ASH32143
60 FORMAT (' ',5X,'QUEEN CHARLOTTE ISLANDS.')	ASH32144
65 FORMAT (' ',5X,'NORTHERN POPULATION.')	ASH32145
70 FORMAT (' ',5X,'UPPER CENTRAL POPULATION.')	ASH32146
75 FORMAT (' ',5X,'LOWER CENTRAL POPULATION.')	ASH32147
80 FORMAT (' ',5X,'UPPER EAST COAST OF VANCOUVER ISLAND.')	ASH32148
85 FORMAT (' ',5X,'MIDDLE EAST COAST OF VANCOUVER ISLAND.')	ASH32149
90 FORMAT (' ',5X,'LOWER EAST COAST OF VANCOUVER ISLAND.')	ASH32150
95 FORMAT (' ',5X,'LOWER WEST COAST OF VANCOUVER ISLAND.')	ASH32151
100 FORMAT (' ',5X,'UPPER WEST COAST OF VANCOUVER ISLAND.')	ASH32152
105 FORMAT (' ',5X,'DISTRICT 1 POPULATION.')	ASH32153
110 FORMAT (' ',5X,'LOWER EAST COAST OF THE QUEEN CHARLOTTE ISLANDS.')	ASH32154
115 FORMAT (' ',5X,'UPPER EAST COAST OF THE QUEEN CHARLOTTE ISLANDS.')	ASH32155
120 FORMAT (' ',5X,'WEST COAST OF THE QUEEN CHARLOTTE ISLANDS.')	ASH32156
125 FORMAT (' ',5X,'NORTHERN STRAITS SUBPOPULATION.')	ASH32157
130 FORMAT (' ',5X,'NORTHERN HARBOUR SUBPOPULATION.')	ASH32158



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135 FORMAT (' ',5X,'NORTHERN LOCAL SUBPOPULATION.') ASH32160
140 FORMAT (' ',5X,'UPPER CENTRAL MAJOR SUBPOPULATION.') ASH32161
145 FORMAT (' ',5X,'UPPER CENTRAL MINOR SUBPOPULATION.') ASH32162
150 FORMAT (' ',5X,'LOWER CENTRAL MAJOR SUBPOPULATION.') ASH32163
155 FORMAT (' ',5X,'LOWER CENTRAL MINOR SUBPOPULATION.') ASH32164
160 FORMAT (' ',5X,'UPPER EAST COAST OF VANCOUVER ISLAND - ISLAND SUB-ASH32165
  * '/' ' ',5X,'POPULATION') ASH32166
165 FORMAT (' ',5X,'UPPER EAST COAST OF VANCOUVER ISLAND - MAINLAND SUASH32167
  *B- '/' ' ',5X,'POPULATION') ASH32168
170 FORMAT (' ',5X,'MIDDLE EAST COAST OF VANCOUVER ISLAND - ISLAND SUASH32169
  *B- '/' ' ',5X,'POPULATION') ASH32170
175 FORMAT (' ',5X,'MIDDLE EAST COAST OF VANCOUVER ISLAND - MAINLAND ASH32171
  *SUB- '/' ' ',5X,'POPULATION') ASH32172
180 FORMAT (' ',5X,'AREA ',I3, '. ') ASH32173
185 FORMAT (' ') ASH32174
190 FORMAT (' ',18X, '(EFFORT = BOAT WEEKS)') ASH32175
195 FORMAT (' ',17X, '(EFFORT = DAYS FISHING)') ASH32176
200 FORMAT (' ',16X, '(EFFORT = NUMBER OF SETS)') ASH32177
205 FORMAT ('O WEEK',2X,'CATCH WITH',2X,'EFFORT',6X,'CATCH /',5X,'TOTAL ASH32178
  * ',2X,'ADJUSTED' /' ',3X,'EFFORT',2X,'(BOAT WKS.)',1X,'UNIT EFFORT', ASH32179
  *3X,'CATCH',3X,'EFFORT') ASH32180
210 FORMAT ('OALL',2X,F9.2,4X,F5.1,5X,F8.2,2X,F9.2,3X,F5.1) ASH32181
215 FORMAT (' ',12,2X,F9.2,4X,F5.1,5X,F8.2,2X,F9.2,3X,F5.1) ASH32182
220 FORMAT (1H1,'ISW1 VALUES (COL.1 ON FIRST CARD)'/1H,10X,'1 FOR POPASH32183
  *ULATIONS'/1H,10X,'2 FOR AREAS'/1H0,'FTYPE VALUES (COL.2 ON FIRST ASH32184
  *CARD)'/1H,10X,'1 FOR BOAT WEEKS'/1H,10X,'2 FOR DAYS FISHING'/1H ASH32185
  * ,10X,'3 FOR NUMBER OF SETS') ASH32186
225 FORMAT (1H0,'PAGINATION FOR SECOND TABLE (COL.3 ON FIRST CARD)'/1H ASH32187
  * ,10X,'1 FOR VALUE READ FROM HEADER CARD'/1H,10X,'2 FOR CONTINUASH32188
  *NG ON FROM FIRST TABLE') ASH32189
230 FORMAT ('CHANGE IN SEASON FROM ',I3, ' TO ',I3, '.'/CORRECT ERROR OASH32190
  *R TURN ON DATSW 1 TO PRINT RESULTS') ASH32191
235 FORMAT ('TO BYPASS OUTPUT, TURN ON DATSW AS FOLLOWS'/5X,'6 CARD OASH32192
  *OUTPUT BY WEEK'/5X'5 PRINTED OUTPUT'/5X,'7 CARD OUTPUT BY YEAR') ASH32193
C ASH32194
C INITIALIZATION ASH32195
  WRITE (P,220) ASH32196
  WRITE (P,225) ASH32197
  WRITE (T,235) ASH32198
C READ CONTROL CARD VALUES. ASH32199
  READ (C,45) ISW1,FTYPE,IPSW ASH32200
C TO READ TABLE AND PAGE VALUES ASH32202
  READ (C,5) MTAB1,PAGE1,MTAB2,PAGE2,MTAB3,PAGE3 ASH32203
C TO READ AREA AND POPULATION CODES FROM FILE RCFX ASH32205
C POPCD IS USED TWICE AS A DUMMY ARRAY TO FACILITATE THE ACCESSING ASH32206
C OF THE ARRAY PPF ASH32207
  READ (5'1) ARF,SUB,POP ASH32208
  READ (5'2) POPCD,POPCD,PPF ASH32209
  GO TO (240,250),ISW1 ASH32210
240 NDP = 24 ASH32211
  DO 245 I = 1,24 ASH32212
  POPCD(I) = PPF(I) ASH32213
245 CONTINUE ASH32214
  GO TO 260 ASH32215
250 NDP = 62 ASH32216
  DO 255 I = 1,62 ASH32217
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POPDCD(I) = ARF(I)	ASH32218
255 CONTINUE	ASH32219
C TO INITIALIZE FILES TO ZERO	ASH32221
260 WCAT = 0.0	ASH32222
WEFFS = 0.0	ASH32223
GCT = 0.0	ASH32224
DO 265 I = 1,NOP	ASH32225
IFILE = POPDCD(I)	ASH32226
DO 265 J = 1,55	ASH32227
WRITE (IFILE'J) WCAT,WEFFS,GCT	ASH32228
265 CONTINUE	ASH32229
DO 270 I = 1,300	ASH32230
IBOAT(I) = 0	ASH32231
270 CONTINUE	ASH32232
DO 275 I = 1,NOP	ASH32233
WRITE (I'I) IBOAT	ASH32234
275 CONTINUE	ASH32235
FIRST = 1	ASH32236
C	ASH32237
C TO READ DATA	ASH32238
280 READ(C,10) DEC,YR1,YR2,WEEK,POPUL,SUBP,GEAR,ROAT,CATCH,DAYS,	ASH32239
*SETS,NPB,DISPO	ASH32240
GO TO (285,290,295), FTYPE	ASH32241
285 IEFF = NPB	ASH32242
GO TO 300	ASH32243
290 IEFF = DAYS	ASH32244
GO TO 300	ASH32245
295 IEFF = SETS	ASH32246
300 IF (DISPO)310,305,310	ASH32247
305 DISPO = 1	ASH32248
310 IF(DEC)315,405,315	ASH32249
315 SEAS = DEC * 100 + YR1*10 + YR2	ASH32250
POPUL = POPUL * 10 + SUBP	ASH32251
GO TO (320,345),ISW1	ASH32252
320 DO 340 I = 1,62	ASH32253
IF (POPUL - ARF(I))340,325,340	ASH32254
325 IF (SUB(I))330,335,330	ASH32255
330 POPUL = SUB(I)	ASH32256
GO TO 345	ASH32257
335 POPUL = POP(I)	ASH32258
GO TO 345	ASH32259
340 CONTINUE	ASH32260
PAUSE 1	ASH32261
C TO TEST FOR FIRST CARD	ASH32263
345 IF (FIRST)350,370,350	ASH32264
350 FIRST = 0	ASH32265
ISEAS = SEAS	ASH32266
IWK = WEEK	ASH32267
IDEC = DEC	ASH32268
IF ( YR2)360,355,360	ASH32269
355 IDEC1 = IDEC + 1	ASH32270
GO TO 365	ASH32271
360 IDEC1 = IDEC	ASH32272
365 IYR1 = YR1	ASH32273
IYR2 = YR2	ASH32274
LINE = 55	ASH32275

	IPOP = POPUL	ASH32276
	IT = 1	ASH32277
C		ASH32278
C	TO TEST FOR CHANGE IN SEASON	ASH32279
	370 IF (SEAS - ISEAS)375,380,375	ASH32280
	375 WRITE (T,230) ISEAS,SEAS	ASH32281
	PAUSE 1	ASH32282
	GO TO 280	ASH32283
C		ASH32284
C	TO TEST FOR CHANGE IN WEEK	ASH32285
	380 IF (WEEK - IWK)385,400,385	ASH32286
	385 READ (IPOP,IWK) SCAT,SEFF,SGC	ASH32287
	SCAT = SCAT + WCAT	ASH32288
	SEFF = SEFF + WEFFS	ASH32289
	SGC = SGC + GCT	ASH32290
	WRITE (IPOP,IWK) SCAT,SEFF,SGC	ASH32291
	IWK = WEEK	ASH32292
	IPOP= POPUL	ASH32293
	WCAT = 0.0	ASH32294
	WEFFS= 0.0	ASH32295
	GCT = 0.0	ASH32296
	DO 390 I = 1,IT	ASH32297
	IBOAT(I) = 0	ASH32298
	390 CONTINUE	ASH32299
	DO 395 I = 1,NOP	ASH32300
	WRITE (I,I) IBOAT	ASH32301
	395 CONTINUE	ASH32302
	IT = 1	ASH32303
	GO TO 430	ASH32304
C		ASH32305
C	TO TEST FOR CHANGE IN POPULATION	ASH32306
	400 IF (IPOP - POPUL)405,430,405	ASH32307
	405 DO 415 I = 1,NOP	ASH32308
	IF (POPCD(I) - IPOP)415,410,415	ASH32309
	410 WRITE (I,I) IBOAT	ASH32310
	GO TO 420	ASH32311
	415 CONTINUE	ASH32312
	420 READ (IPOP,IWK) SCAT,SEFF,SGC	ASH32313
	SCAT = SCAT + WCAT	ASH32314
	SEFF = SEFF + WEFFS	ASH32315
	SGC = SGC + GCT	ASH32316
	WRITE (IPOP,IWK) SCAT,SEFF,SGC	ASH32317
	IPOP = POPUL	ASH32318
	WCAT = 0.0	ASH32319
	WEFFS= 0.0	ASH32320
	GCT = 0.0	ASH32321
	DO 425 I = 1,IT	ASH32322
	IBOAT(I) = 0	ASH32323
	425 CONTINUE	ASH32324
	IT = 1	ASH32325
	IF (DEC)430,505,430	ASH32326
C		ASH32327
C	TO ACCUMULATE CATCH,EFFORT AND CATCH WITH EFFORT	ASH32328
	430 DO 435 I = 1,3	ASH32329
	IF (GEAR - GRST(I))435,440,435	ASH32330
	435 CONTINUE	ASH32331

GO TO 500	ASH32332
440 IF (DISPO - 1)500,445,500	ASH32333
445 IF (BOAT - 850)450,500,500	ASH32334
450 IF (NPR)455,500,455	ASH32335
455 WCAT = WCAT + CATCH	ASH32336
GO TO (465,460,460), FTYPE	ASH32337
460 WEFFS = WEFFS + IEFF	ASH32338
GO TO 500	ASH32339
465 DO 470 I = 1,IT	ASH32340
IF (IBOAT(I) - BOAT)470,500,470	ASH32341
470 CONTINUE	ASH32342
C	ASH32343
C TO SCAN FOR BOAT IN SAME WEEK BUT ANOTHER POPULATION OR AREA.	ASH32344
DO 490 I = 1,NOP	ASH32345
READ (1'I) JBOAT	ASH32346
DO 485 J = 1,300	ASH32347
IF (JBOAT(J))475,490,475	ASH32348
475 IF (BOAT - JBOAT(J))485,480,485	ASH32349
480 WEFFS = WEFFS + 0.50 * IEFF	ASH32350
IFILE = POPCD(I)	ASH32351
READ (IFILE'IWK) SCAT,SEFF,SGC	ASH32352
SEFF = SEFF - 0.50 * IEFF	ASH32353
WRITE (IFILE'IWK) SCAT,SEFF,SGC	ASH32354
GO TO 495	ASH32355
485 CONTINUE	ASH32356
490 CONTINUE	ASH32357
WEFFS = WEFFS + IEFF	ASH32358
495 IBOAT(IT) = BOAT	ASH32359
IT = IT + 1	ASH32360
500 GCT = GCT + CATCH	ASH32361
C	ASH32362
C TO RETURN AND PROCESS NEXT CARD	ASH32363
GO TO 280	ASH32364
C	ASH32365
C TO PRINT AND PUNCH BY WEEK AND POPULATION	ASH32366
505 GO TO (510,945),ISW1	ASH32367
C	ASH32368
C TO ACCUMULATE SUBDISTRICTS INTO DISTRICT FILES	ASH32369
510 DO 530 I = 1,NOP	ASH32370
DO 515 J = 1,62	ASH32371
IF (POPCD(I) - SUB(J))515,520,515	ASH32372
515 CONTINUE	ASH32373
GO TO 530	ASH32374
520 ISUB = SUB(J)	ASH32375
IPOP = POP(J)	ASH32376
DO 525 IWK = 1,54	ASH32377
READ (ISUB'IWK) SCAT,SEFF,SGC	ASH32378
READ (IPOP'IWK) PCAT,PEFF,PGC	ASH32379
PCAT = PCAT + SCAT	ASH32380
PEFF = PEFF + SEFF	ASH32381
PGC = PGC + SGC	ASH32382
WRITE (IPOP'IWK) PCAT,PEFF,PGC	ASH32383
525 CONTINUE	ASH32384
530 CONTINUE	ASH32385
NTAB = 0	ASH32386
II = 0	ASH32387

DO 720 I =10,100,10	ASH32388
II = II + 1	ASH32389
NTAB = NTAB + 1	ASH32390
NSET = 1	ASH32391
IF (LINE - 40)540,540,535	ASH32392
535 LINE = 55	ASH32393
540 TEFF = 0	ASH32394
TCAT = 0.0	ASH32395
TGCAT = 0.0	ASH32396
DO 680 J = 1,54	ASH32397
READ (I,J) CAT,EFF,GCAT	ASH32398
ACAT = GCAT + .00501	ASH32399
IF (ACAT - 0.00501)680,680,545	ASH32400
545 TCAT = TCAT + CAT	ASH32401
TGCAT = TGCAT + GCAT	ASH32402
IF (EFF)555,550,555	ASH32403
550 CE = 0.0	ASH32404
ADEFF = 0	ASH32405
GO TO 560	ASH32406
555 TEFF = TEFF + EFF	ASH32407
CE = CAT / EFF + .00501	ASH32408
ADEFF = EFF * GCAT / CAT + .0501	ASH32409
CAT = CAT + .00501	ASH32410
EFF = EFF + .0501	ASH32411
560 CALL DATSW (6,M6)	ASH32412
GO TO (570,565),M6	ASH32413
565 WRITE (H,15) ISEAS,I,J,CAT,EFF,CE,ACAT,ADEFF	ASH32414
570 CALL DATSW (5,M5)	ASH32415
GO TO (680,575),M5	ASH32416
575 IF (LINE - 52)585,585,580	ASH32417
580 WRITE (P,40) PAGE1	ASH32418
PAGE1 = PAGE1 + 1	ASH32419
LINE = 0	ASH32420
GO TO 595	ASH32421
585 IF (NSET)590,675,590	ASH32422
590 WRITE (P,35)	ASH32423
595 WRITE (P,55) MTAB1,NTAB,IDEC,IYR1,IDEC1,IYR2	ASH32424
WRITE (P,50)	ASH32425
NSET = 0	ASH32426
GO TO (600,605,610,615,620,625,630,635,640,645),II	ASH32427
600 WRITE (P,60)	ASH32428
GO TO 650	ASH32429
605 WRITE (P,65)	ASH32430
GO TO 650	ASH32431
610 WRITE (P,70)	ASH32432
GO TO 650	ASH32433
615 WRITE (P,75)	ASH32434
GO TO 650	ASH32435
620 WRITE (P,80)	ASH32436
GO TO 650	ASH32437
625 WRITE (P,85)	ASH32438
GO TO 650	ASH32439
630 WRITE (P,90)	ASH32440
GO TO 650	ASH32441
635 WRITE (P,95)	ASH32442
GO TO 650	ASH32443



640 WRITE (P,100)	ASH32444
GO TO 650	ASH32445
645 WRITE (P,105)	ASH32446
650 GO TO (655,660,665),FTYPE	ASH32447
655 WRITE (P,190)	ASH32448
GO TO 670	ASH32449
660 WRITE (P,195)	ASH32450
GO TO 670	ASH32451
665 WRITE (P,200)	ASH32452
670 WRITE (P,205)	ASH32453
LINE = LINE + 9	ASH32454
675 WRITE (P,215) J,CAT,TEFF,CE,ACAT,ADEFF	ASH32455
LINE = LINE + 1	ASH32456
680 CONTINUE	ASH32457
IF (TG CAT - 0.00501) 720,685,685	ASH32458
685 IF (TEFF) 695,690,695	ASH32459
690 TCE = 0.0	ASH32460
GO TO 700	ASH32461
695 TCC = TCAT / TEFF + .00501	ASH32462
700 TADEF = TEFF * TG CAT / TCAT + .0501	ASH32463
TCAT = TCAT + .00501	ASH32464
TACAT = TG CAT + .00501	ASH32465
GO TO (710,705),M5	ASH32466
705 WRITE (P,210) TCAT,TEFF,TCE,TACAT,TADEF	ASH32467
LINE = LINE + 2	ASH32468
710 CALL DATSW(7,M7)	ASH32469
GO TO (720,715), M7	ASH32470
715 WRITE (H,20) ISEAS,I,ISEAS,TCAT,TEFF,TCE,TACAT,TADEF	ASH32471
720 CONTINUE	ASH32472
C	ASH32473
C TO PRINT AND PUNCH BY SUBPOPULATION	ASH32474
GO TO (730,725),IPSW	ASH32475
725 PAGE2 = PAGE1	ASH32476
730 POP(1) = 11	ASH32477
POP(2) = 12	ASH32478
POP(3) = 13	ASH32479
POP(4) = 21	ASH32480
POP(5) = 22	ASH32481
POP(6) = 23	ASH32482
POP(7) = 31	ASH32483
POP(8) = 32	ASH32484
POP(9) = 41	ASH32485
POP(10) = 42	ASH32486
POP(11) = 51	ASH32487
POP(12) = 52	ASH32488
POP(13) = 61	ASH32489
POP(14) = 62	ASH32490
NTAB = 0	ASH32491
LINE = 55	ASH32492
DO 940 I = 1,14	ASH32493
IFILE = POP(I)	ASH32494
TEFF = 0	ASH32495
TCAT = 0.0	ASH32496
TG CAT = 0.0	ASH32497
NTAB = NTAB + 1	ASH32498
NSET = 1	ASH32499



IF (LINE = 40)740,740,735	ASH32500
735 LINE = 55	ASH32501
740 UU 900 J = 1,54	ASH32502
READ (IFILE,J) CAT,EFF,GCAT	ASH32503
ACAT = GCAT + .00501	ASH32504
IF (ACAT - .01)900,900,745	ASH32505
745 TCAT = TCAT + CAT	ASH32506
TGCAT = TGCAT + GCAT	ASH32507
IF (EFF)755,750,755	ASH32508
750 CE = 0.0	ASH32509
ADEFF = 0	ASH32510
GO TO 760	ASH32511
755 TEFF = TEFF + EFF	ASH32512
CE = CAT / EFF + .00501	ASH32513
ADEFF = EFF * GCAT / CAT + .0501	ASH32514
CAT = CAT + .00501	ASH32515
EFF = EFF + .0501	ASH32516
760 CALL DATSW (6,M6)	ASH32517
GO TO (770,765),M6	ASH32518
765 WRITE (H,15) ISEAS,IFILE,J,CAT,EFF,CF,ACAT,ADEFF	ASH32519
770 CALL DATSW (5,M5)	ASH32520
GO TO (900,775),M5	ASH32521
775 IF (LINE = 52)785,785,780	ASH32522
780 WRITE (P,40) PAGE2	ASH32523
PAGE2 = PAGE2 + 1	ASH32524
LINE = 0	ASH32525
GO TO 795	ASH32526
785 IF (NSET)790,895,790	ASH32527
790 WRITE (P,35)	ASH32528
795 WRITE (P,55) MTAR2,NTAB,IDECD,IYR1,IDECD1,IYR2	ASH32529
WRITE (P,50)	ASH32530
NSET = 0	ASH32531
GO TO (800,805,810,815,820,825,830,835,840,845,850,855,860,865),I	ASH32532
800 WRITE (P,110)	ASH32533
GO TO 870	ASH32534
805 WRITE (P,115)	ASH32535
GO TO 870	ASH32536
810 WRITE (P,120)	ASH32537
GO TO 870	ASH32538
815 WRITE (P,125)	ASH32539
GO TO 870	ASH32540
820 WRITE (P,130)	ASH32541
GO TO 870	ASH32542
825 WRITE (P,135)	ASH32543
GO TO 870	ASH32544
830 WRITE (P,140)	ASH32545
GO TO 870	ASH32546
835 WRITE (P,145)	ASH32547
GO TO 870	ASH32548
840 WRITE (P,150)	ASH32549
GO TO 870	ASH32550
845 WRITE (P,155)	ASH32551
GO TO 870	ASH32552
850 WRITE (P,160)	ASH32553
GO TO 870	ASH32554
855 WRITE (P,165)	ASH32555

GO TO 870	ASH32556
860 WRITE (P,170)	ASH32557
GO TO 870	ASH32558
865 WRITE (P,175)	ASH32559
870 GO TO (875,880,885),FTYPE	ASH32560
875 WRITE (P,190)	ASH32561
GO TO 890	ASH32562
880 WRITE (P,195)	ASH32563
GO TO 890	ASH32564
885 WRITE (P,200)	ASH32565
890 WRITE (P,205)	ASH32566
LINE = LINE + 7	ASH32567
895 WRITE (P,215) J,CAT,EFF,CE,ACAT,ADEFF	ASH32568
LINE = LINE + 1	ASH32569
900 CONTINUE	ASH32570
IF (TG CAT - 0.00501)940,905,905	ASH32571
905 IF (TEFF)915,910,915	ASH32572
910 TCE = 0.0	ASH32573
GO TO 920	ASH32574
915 TCE = TCAT / TEFF + .00501	ASH32575
920 TADEF = TEFF * TG CAT / TCAT + .C501	ASH32576
TCAT = TCAT + .00501	ASH32577
TACAT = TG CAT + .00501	ASH32578
GO TO (930,925),M5	ASH32579
925 WRITE (P,210) TCAT,TEFF,TCE,TACAT,TADEF	ASH32580
LINE = LINE + 2	ASH32581
930 CALL DATSW (7,M7)	ASH32582
GO TO (940,935), M7	ASH32583
935 WRITE (H,20) ISEAS,IFILL,ISEAS,TCAT,TEFF,TCE,TACAT,TADEF	ASH32584
940 CONTINUE	ASH32585
GO TO 1090	ASH32586
C	ASH32588
C TO PRINT AND PUNCH BY WEEK AND AREA	ASH32589
945 NTAB = 0	ASH32590
LINE = 55	ASH32591
DO 1080 I = 1,62	ASH32592
IFILE = ARF(I)	ASH32593
NTAB = NTAB + 1	ASH32594
NSET = 1	ASH32595
IF (LINE - 40)955,955,950	ASH32596
950 LINE = 55	ASH32597
955 TEFF = 0	ASH32598
TCAT = 0.0	ASH32599
TGCAT = 0.0	ASH32600
DO 1040 J = 1,54	ASH32601
READ (IFILE,J) CAT,EFF,GCAT	ASH32602
ACAT = GCAT + .00501	ASH32603
IF (GCAT - .00501)1040,1040,960	ASH32604
960 TCAT = TCAT + CAT	ASH32605
TGCAT = TGCAT + GCAT	ASH32606
IF (EFF)970,965,970	ASH32607
965 CE = 0.0	ASH32608
ADEFF = 0	ASH32609
GO TO 975	ASH32610
970 TEFF = TEFF + EFF	ASH32611
CE = CAT / EFF + .00501	ASH32612



// JOB  
// FOR

ASH33

- \*IOCS(1403 PRINTER,2501 READER,1442 PUNCH,DISK,TYPEWRITER)
- \*ONE WORD INTEGERS
- \*EXTENDED PRECISION
- \*LIST ALL
- \*NAME ASH33
- \*\*ASH33, WEEKLY CATCH BY LOCALITY, AREA AND POPULATION.

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C
C ..... ASH33 1
C ..... ASH33 2
C USE *FILES(5,REFX) TO EXECUTE ASH33 3
C ASH33 4
C 6R SECTORS OF DISK WORKING STORAGE REQUIRED. ASH33 5
C ASH33 6
C OUTPUT ASH33 7
C ----- ASH33 8
C ASH33 9
C A) PUNCH OUTPUT OF WEEKLY CATCH (TONS) FOR THE 10 MAJOR POPULATIONS ASH33 10
C - CARD CODE CTW, WITH SUMMARY FOR SEASON - CARD CODE CTA. ASH33 11
C TURN DATA SWITCH 5 ON TO BYPASS ASH33 12
C ASH33 13
C B) PUNCH OUTPUT OF WEEKLY CATCH BY AREA - CARD CODE CAW, WITH ASH33 14
C SUMMARY OVER ALL WEEKS - CARD CODE CAS. DATA SWITCH 8 ON TO ASH33 15
C BYPASS ASH33 16
C C) PUNCH OUTPUT OF WEEKLY CATCH BY SUBPOPULATION - CARD CODE CPW, ASH33 17
C WITH SUMMARY OVER ALL WEEKS - CARD CODE CPS. DATA SWITCH 9 ON ASH33 18
C TO BYPASS. ASH33 19
C ASH33 20
C *** NOTE- OUTPUTS B AND C WILL NOT BE GIVEN IF DATA SWITCH 6 IS ON. ASH33 21
C ASH33 22
C D) PRINTED OUTPUT OF CATCH BY LOCALITY AND WEEK ASH33 23
C - DATA SWITCH 3 ON TO BYPASS. ASH33 24
C ASH33 25
C E) PRINTED OUTPUT OF CATCH BY MAJOR POPULATION AND WEEK WITH ASH33 26
C SUMMARY FOR SEASON - DATA SWITCH 4 ON TO BYPASS. ASH33 27
C ASH33 28
C F) PRINTED OUTPUT OF CATCH BY SUBPOPULATION AND ASSOCIATED AREAS ASH33 29
C BY WEEK WITH SUMMARY FOR SEASON. DATA SWITCH 6 ON TO BYPASS. ASH33 30
C ASH33 31
C *** PUNCHED OUTPUT CARD CODE CAW REQUIRED FOR FURTHER ANALYSIS BY ASH33 32
C *** SYSTEM. ASH33 33
C ASH33 34
C INPUT ASH33 35
C ----- ASH33 36
C 1) TABLE AND PAGE VALUE CONTROL CARD. ASH33 37
C COLS 1-3 TABLE VALUE OF OUTPUT D, ASH33 38
C 4-5 INITIAL PAGE VALUE OF ABOVE. ASH33 39
C 6-8 TABLE VALUE OF OUTPUT E, ASH33 40
C 9-11 INITIAL PAGE VALUE OF ABOVE. ASH33 41
C 12-15 TABLE VALUE OF OUTPUT F, ASH33 42
C 16-18 INITIAL PAGE VALUE OF F. ASH33 43
C ASH33 44
C 2) DATA CARD CODE CW, SORTED BY WEEK (COLS.4-5) WITHIN BLOCKS OF ASH33 45
C LOCALITY (COLS.13-18) ASH33 46
C ASH33 47

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105 FORMAT (1H , 'WEEK', 4X, 3('AREA', 5X), 'AREA', 2X, 'LOWER WEST', 6X, 3(5X, ASH33104  
 \* 'AREA'), 2X, 'UPPER WEST') ASH33105

110 FORMAT (1H , 6X, 'AREA 023', 9X, 'AREA 021', 13X, '010', 6X, '022', 6X, '024' ASH33106  
 \* '5X, 'COAST') ASH33107

115 FORMAT (1H , 8X, '031', 6X, '041', 6X, '051', 21X, 'AREA 042', 13X, '032', 6X ASH33108  
 \* '052') ASH33109

120 FORMAT (1H , 8X, '061', 6X, '062', 24X, '063', 6X, '064', 6X, '065', 6X, '066' ASH33110  
 \* 6X, '067', 6X, '068') ASH33111

125 FORMAT (1H , 8X, '071', 6X, '081', 6X, '090', 6X, '100', 24X, '072', 6X, '082' ASH33112  
 \* 6X, '083') ASH33113

130 FORMAT (1H , 8X, '121', 6X, '122', 4X, 'ISLAND', 14X, '110', 6X, '123', 6X, '1' ASH33114  
 \* 24') ASH33115

135 FORMAT (1H , 8X, '131', 6X, '140', 4X, 'ISLAND', 14X, '132', 6X, '133', 6X, '1' ASH33116  
 \* 50', 6X, '160') ASH33117

140 FORMAT (1H , 8X, '171', 6X, '172', 6X, '180', 6X, '190', 6X, '202', 5X, 'COAST' ASH33118  
 \* 14X, '280', 6X, '290', 7X, '1') ASH33119

145 FORMAT (1H , 8X, '201', 6X, '210', 6X, '230', 6X, '240', 5X, 'COAST', 14X, '25' ASH33120  
 \* 0', 6X, '260', 6X, '270', 5X, 'COAST') ASH33121

150 FORMAT (1H , 1X, 12, 2( F9.2, 9X), 4F9.2, 9X, F9.2) ASH33122

155 FORMAT (1HN, 1X, 12, 4F9.2, 9X, F9.2, 9X, 3F9.2, 9X, F9.2) ASH33123

160 FORMAT (1HN, 1X, 12, 3F9.2, 9X, 7F9.2, 9X, F9.2) ASH33124

165 FORMAT (1H , 1X, 12, 5(F9.2), 9X, 4(F9.2), 9X, F9.2) ASH33125

170 FORMAT (1H , 1X, 12, 3(F9.2), 9X, 4F9.2, 9X, F9.2) ASH33126

175 FORMAT (1HN, 1X, 12, 3F9.2, 9X, 5F9.2, 9X, F9.2) ASH33127

180 FORMAT (1H , 1X, 12, 6F9.2, 9X, 3F9.2) ASH33128

185 FORMAT (1H , 1X, 12, 5F9.2, 9X, 4F9.2) ASH33129

190 FORMAT (1H , 'ALL', 2( F9.2, 9X), 4F9.2, 9X, F9.2) ASH33130

195 FORMAT (1H , 'ALL', 4F9.2, 9X, F9.2, 9X, 3F9.2, 9X, F9.2) ASH33131

200 FORMAT (1H , 'ALL', 3F9.2, 9X, 7F9.2, 9X, F9.2) ASH33132

205 FORMAT (1H , 'ALL', 5(F9.2), 9X, 4(F9.2), 9X, F9.2) ASH33133

210 FORMAT (1H , 'ALL', 3(F9.2), 9X, 4F9.2, 9X, F9.2) ASH33134

215 FORMAT (1H , 'ALL', 3F9.2, 9X, 5F9.2, 9X, F9.2) ASH33135

220 FORMAT (1H , 'ALL', 6F9.2, 9X, 3F9.2) ASH33136

225 FORMAT (1H , 'ALL', 5F9.2, 9X, 4F9.2) ASH33137

230 FORMAT (1H , 'TABLE ', 12, ' WEEKLY CATCH (TONS) BY SUBDISTRICT, 19' ASH33138  
 \* '211, '-1, 211, '., '53X, 'PAGE', 13) ASH33139

235 FORMAT (1H , 'WEEK', 3X, 'QUEEN', 3X, 'NORTHERN', 4X, 'UPPER', 5X, 'LOWER', ASH33140  
 \* 2X, 'UPPER EAST', 2X, 'MIDDLE', 2X, 'LOWER EAST', 2X, 'LOWFR', 3X, 'UPPER WASH33141  
 \* EST', 2X, 'DISTRICT', 6X, 'ALL') ASH33142

240 FORMAT (1H , 5X, 'CHARLOTTE', 12X, 'CENTRAL', 3X, 'CENTRAL', 4X, 'COAST', 2' ASH33143  
 \* X, 'EAST COAST', 3X, 'COAST', 2X, 'WEST COAST', 3X, 'COAST', 8X, '1') ASH33144

245 FORMAT (1HN, 13, 10F10.2, F12.2) ASH33145

250 FORMAT (1H , 'ALL', 10F10.2, F12.2) ASH33146

255 FORMAT (80X) ASH33147

260 FORMAT (1H1, ' ') ASH33148

265 FORMAT (1H , ' ') ASH33149

270 FORMAT (1H , 45X, 'PAGE', 14) ASH33150

275 FORMAT (1H , 'TABLE ', 12, ' WEEKLY CATCH (TONS) BY LOCALITY. 19' ASH33151  
 \* 211, '-1, 211, ' ') ASH33152

280 FORMAT (1H , 4X, 'AREA', 2X, 'LOCALITY', 2X, 'MONTH', 2X, 'WEEK', 5X, 'CATCH' ASH33153  
 \* ' ') ASH33154

285 FORMAT (1HN, 6X, 13, 4X, 13, 6X, 12, 5X, 12, F11.2) ASH33155

290 FORMAT (1H , 22X, 12, 5X, 12, F11.2) ASH33156

295 FORMAT (1H , 28X, 'ALL', F11.2) ASH33157

300 FORMAT (1H , ' ' ///) ASH33158

305 FORMAT ('SEASON ZERO. CORRECT CARD OR TURN ON DATSW 11 TO FINISH ASH33159



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      *PROCESSING') ASH33160
310 FORMAT ('POPULATION NUMBER ',I2, ' NOT ON POPULATION INDEX FILE. ASH33161
      *PRESS START TO CALL EXIT') ASH33162
315 FORMAT (1H, 'CARD INPUT FOR ASH 33') ASH33163
320 FORMAT (1H, '5X, '- FRB CATCH DATA CARDS FOR ONE SEASON (FROM ASH 31) ASH33164
      *) SORTED BY LOCALITY AND WEEK') ASH33165
325 FORMAT ('TURN ON DATSW TO BYPASS OUTPUT FOR ASH33 AS FOLLOWS') ASH33166
330 FORMAT (5X, '3 PRINT WEEKLY CATCH BY LOCALITY') ASH33167
335 FORMAT (5X, '4 PRINT WEEKLY CATCH BY POPULATION') ASH33168
340 FORMAT (5X, '5 PUNCH WEEKLY CATCH FOR ALL POPULATIONS ON 1 CARD') ASH33169
345 FORMAT (5X, '6 PRINT WEEKLY CATCH BY POPULATION (MUST BE LEFT OFF I) ASH33170
      *F CARD OUTPUT IS REQUIRED') ASH33171
350 FORMAT ('CHANGE IN SEASON FROM ',I3, ' TO ',I3, '.',',', 'CORRECT ERROR) ASH33172
      * OR TURN ON DATSW 1 TO CALL EXIT') ASH33173
355 FORMAT ('AREA READ ',I3,') NOT LEGITIMATE'/'PROCEED TO NEXT SET () ASH33174
      *F DATA OR TURN ON DATSW2 TO FINISH PROCESSING') ASH33175
360 FORMAT ('STATISTICAL AREA ',I3,') NOT LEGITIMATE'/'PROCEED TO NEXT) ASH33176
      *SET OF DATA OR TURN ON DATSW7 TO CALL EXIT') ASH33177
365 FORMAT (3I1,1X, 'CAW ',2(I3,1X),F9.2) ASH33178
370 FORMAT (3I1,1X, 'CPW ',2(I3,1X),F9.2) ASH33179
375 FORMAT (3I1,1X, 'CAS ',I3,1X,3I1,1X,F9.2) ASH33180
380 FORMAT (3I1,1X, 'CPS ',I3,1X,3I1,1X,F9.2) ASH33181
385 FORMAT (5X, '8 PUNCH WEEKLY CATCH BY AREA AND POPULATION') ASH33182
390 FORMAT (5X, '9 PUNCH SEASONAL CATCH BY AREA AND POPULATION') ASH33183
395 FORMAT (1H1,112X, 'PAGE',I4) ASH33184

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C
WRITE (P,260) ASH33186
WRITE (P,315) ASH33187
WRITE (P,320) ASH33188
WRITE (T,325) ASH33189
WRITE (T,330) ASH33190
WRITE (T,335) ASH33191
WRITE (T,340) ASH33192
WRITE (T,345) ASH33193
WRITE (T,385) ASH33194
WRITE (T,390) ASH33195
READ(C,5) NTAB1,PAGE1,NTAB2,PAGE2,NTAB3,PAGE3 ASH33196
IT = NOFA+1 ASH33197
DO 400 J = 1,54 ASH33198
WRITE (3'J) CA ASH33199
400 CONTINUE ASH33200
DO 405 J = 1,54 ASH33201
WRITE (4'J) CP ASH33202
405 CONTINUE ASH33203
READ (5'1) ARF,SPAF,PAF ASH33204
READ (5'2) DUMMY,DUMMY,PPF ASH33205

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C
C READ DATA ASH33206
410 READ (C,10) DEC,YR1,YR2,WEEK,MONTH,AREA,LOC,CATCH ASH33208
IF (AREA-79)420,415,420 ASH33209
415 AREA = 71 ASH33210
LOC = LOC +100 ASH33211
420 SEAS = DEC*100 + YR1*10 + YR2 ASH33212
DO 425 I = 1,NOFA ASH33213
IF (AREA-ARF(I))425,430,425 ASH33214
425 CONTINUE ASH33215

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WRITE (T,355) AREA	ASH33216
PAUSE 2	ASH33217
CALL DATSW (2,M2)	ASH33218
GO TO (475,410), M2	ASH33219
430 FAREA = I	ASH33220
AREA0 = (AREA / 10)*10	ASH33221
IF (DEC)440,435,440	ASH33222
435 WRITE (T,305)	ASH33223
PAUSE 11	ASH33224
CALL DATSW (11,M11)	ASH33225
GO TO (545,410),M11	ASH33226
440 IF (FIRST)445,465,445	ASH33227
445 FIRST = 0	ASH33228
ISEAS = SEAS	ASH33229
IAREA = AREA	ASH33230
IARO = AREA0	ASH33231
ILOC = LUC	ASH33232
IWK = WEEK	ASH33233
IMON = MONTH	ASH33234
IDEC = DEC	ASH33235
IAS = FAREA	ASH33236
IF (YR2)455,450,455	ASH33237
450 IDEC1 = IDEC + 1	ASH33238
GO TO 460	ASH33239
455 IDEC1 = IDEC	ASH33240
460 IYR1 = YR1	ASH33241
IYR2 = YR2	ASH33242
GO TO (465,630),ISW3	ASH33243
465 IF (SEAS-ISEAS)470,475,470	ASH33244
470 WRITE (T,350) ISEAS,SEAS	ASH33245
PAUSE 1	ASH33246
CALL DATSW (1,M1)	ASH33247
GO TU (1065,410),M1	ASH33248
C	ASH33249
C ACCUMULATE WEEKLY DATA	ASH33250
475 IF (IWK-WEEK)490,480,490	ASH33251
480 IF (ILOC-LUC)490,485,490	ASH33252
485 IF (IAREA-AREA)490,635,490	ASH33253
490 READ (3'IWK) CA	ASH33254
READ (4'IWK) CP	ASH33255
CA(IT) = CA(IT) + CAT	ASH33256
CA(IAS) = CA(IAS) + CAT	ASH33257
IF (IAREA-IARO)495,510,495	ASH33258
495 DO 500 I = 1,NOFA	ASH33259
IF (IARO-ARF(I))500,505,500	ASH33260
500 CONTINUE	ASH33261
WRITE (T,360) IARO	ASH33262
PAUSE 7	ASH33263
CALL DATSW (7,M7)	ASH33264
GO TO (1065,410),M7	ASH33265
505 CA(I) = CA(I) + CAT	ASH33266
510 IF (SPAF(IAS))515,530,515	ASH33267
515 DO 520 I = 11,24	ASH33268
IF(PPF(I)-SPAF(IAS))520,525,520	ASH33269
520 CONTINUE	ASH33270
WRITE (T,310) SPAF(IAS)	ASH33271

PAUSE 12	ASH33272
GO TO 1065	ASH33273
525 CP(I) = CP(I) + CAT	ASH33274
530 DO 535 I = 1,10	ASH33275
IF (PPF(I)-PAF(IAS))535,540,535	ASH33276
535 CONTINUE	ASH33277
WRITE (I,310) PAF(IAS)	ASH33278
PAUSE 10	ASH33279
GO TO 1065	ASH33280
540 CP(I) = CP(I) + CAT	ASH33281
WRITE (3*IWK) CA	ASH33282
WRITE (4*IWK) CP	ASH33283
C	ASH33284
C PRINT WEEKLY CATCH BY LOCALITY	ASH33285
545 CALL DATSW (3,M3)	ASH33286
GO TO (550,555), M3	ASH33287
550 CAT = 0.0	ASH33288
IF (DEC)585,640,585	ASH33289
555 CAT = CAT + .00501	ASH33290
IF (LINE1-40)560,565,565	ASH33291
560 IF (NEWL)575,570,575	ASH33292
565 LINE1 = 0	ASH33293
WRITE (P,260)	ASH33294
WRITE (P,270) PAGE1	ASH33295
WRITE (P,275) NTAB1, IDEC, IYR1, IDEC1, IYR2	ASH33296
WRITE (P,265)	ASH33297
WRITE (P,280)	ASH33298
PAGE1 = PAGE1 + 1	ASH33299
570 WRITE (P,285) IAREA, ILOC, IMON, IWK, CAT	ASH33300
NEWL = 1	ASH33301
GO TO 590	ASH33302
575 WRITE (P,290) IMON, IWK, CAT	ASH33303
580 LINE1 = LINE1 + 1	ASH33304
585 CAT = 0.0	ASH33305
IF (IAREA - AREA)595,590,595	ASH33306
590 IF (ILOC - LOC)595,625,595	ASH33307
595 TCAT = TCAT + .00501	ASH33308
GO TO (605,600), M3	ASH33309
600 WRITE (P,295) TCAT	ASH33310
605 IF (DEC)610,640,610	ASH33311
610 GO TO (620,615), M3	ASH33312
615 WRITE (P,265)	ASH33313
LINE1 = LINE1 + 2	ASH33314
NEWL = 0	ASH33315
620 TCAT = 0.0	ASH33316
625 ISW3 = 2	ASH33317
GO TO 445	ASH33318
630 ISW3 = 1	ASH33319
C	ASH33320
C ACCUMULATE WEEKLY CATCH	ASH33321
635 CAT = CAT + CATCH	ASH33322
TCAT = TCAT + CATCH	ASH33323
GO TO 410	ASH33324
C	ASH33325
C PRINT CATCH BY POPULATION	ASH33326
640 CALL DATSW (4,M4)	ASH33327

GO TO (710,645),M4	ASH33328
645 DO 690 J = 1,54	ASH33329
READ (4'J) CP	ASH33330
READ (3'J) CA	ASH33331
DO 660 K = 1,10	ASH33332
NP(K) = K * 10	ASH33333
DO 650 I = 1,24	ASH33334
IF (NP(K) - PPF(I))650,655,650	ASH33335
650 CONTINUE	ASH33336
WRITE (T,360) NP(K)	ASH33337
PAUSE 3	ASH33338
CALL DATSW (7,M7)	ASH33339
GO TO (1065,655),M7	ASH33340
655 FCAT(K) = CP(I) + .00501	ASH33341
FTCAT(K) = FCAT(K) + CP(I)	ASH33342
660 CONTINUE	ASH33343
FCAT(11) = CA(IT) + .00501	ASH33344
FTCAT(11) = FTCAT(11) + CA(IT)	ASH33345
IF (FCAT(11)-.01)690,665,665	ASH33346
665 IF (LINE2 - 48)675,670,670	ASH33347
670 LINE2 = 0	ASH33348
WRITE (P,260)	ASH33349
WRITE (P,230) NTAB2,IDEC,IYR1,IDEC1,IYR2,PAGE2	ASH33350
WRITE (P,265)	ASH33351
WRITE (P,235)	ASH33352
WRITE (P,240)	ASH33353
PAGE2 = PAGE2 + 1	ASH33354
675 WRITE (P,245) J,FCAT	ASH33355
LINE2 = LINE2 + 1	ASH33356
CALL DATSW (5,M5)	ASH33357
GO TO (690,680),M5	ASH33358
680 DO 685 KK = 1,10	ASH33359
685 FCAT(KK) = FCAT(KK) + .501	ASH33360
WRITE (H,15) ISEAS,J,(FCAT(K),K=1,10)	ASH33361
690 CONTINUE	ASH33362
WRITE (P,265)	ASH33363
DO 695 KK = 1,11	ASH33364
695 FTCAT(KK) = FTCAT(KK) + .00501	ASH33365
WRITE (P,250) FTCAT	ASH33366
CALL DATSW (5,M5)	ASH33367
GO TO (710,700),M5	ASH33368
700 DO 705 KK = 1,10	ASH33369
705 FTCAT(KK) = FTCAT(KK) + .501	ASH33370
WRITE (H,20) ISEAS,ISEAS,(FTCAT(K),K=1,10)	ASH33371
C	ASH33372
C PRINT CATCH BY AREA AND SUBPOPULATION	ASH33373
710 LINE3 = 55	ASH33374
CALL DATSW (6,M6)	ASH33375
GO TO (1065,715),M6	ASH33376
715 MTAB = MTAB + 1	ASH33377
NEW3 = 1	ASH33378
K2 = 0	ASH33379
GO TO (720,725,730,735,740,745,750,755), MTAB	ASH33380
720 K = 7	ASH33381
AF(1) = 23	ASH33382
AF(2) = 21	ASH33383

	AF(3) = 10	ASH33384
	AF(4) = 22	ASH33385
	AF(5) = 24	ASH33386
	AF(6) = 313	ASH33387
	AF(7) = 310	ASH33388
	GO TO 760	ASH33389
725	K = 9	ASH33390
	AF(1) = 31	ASH33391
	AF(2) = 41	ASH33392
	AF(3) = 51	ASH33393
	AF(4) = 321	ASH33394
	AF(5) = 42	ASH33395
	AF(6) = 32	ASH33396
	AF(7) = 52	ASH33397
	AF(8) = 323	ASH33398
	AF(9) = 320	ASH33399
	GO TO 760	ASH33400
730	K = 11	ASH33401
	AF(1) = 61	ASH33402
	AF(2) = 62	ASH33403
	AF(3) = 331	ASH33404
	AF(4) = 63	ASH33405
	AF(5) = 64	ASH33406
	AF(6) = 65	ASH33407
	AF(7) = 66	ASH33408
	AF(8) = 67	ASH33409
	AF(9) = 68	ASH33410
	AF(10) = 332	ASH33411
	AF(11) = 330	ASH33412
	GO TO 760	ASH33413
735	K = 10	ASH33414
	AF(1) = 71	ASH33415
	AF(2) = 81	ASH33416
	AF(3) = 90	ASH33417
	AF(4) = 100	ASH33418
	AF(5) = 341	ASH33419
	AF(6) = 72	ASH33420
	AF(7) = 82	ASH33421
	AF(8) = 83	ASH33422
	AF(9) = 342	ASH33423
	AF(10) = 340	ASH33424
	GO TO 760	ASH33425
740	K = 8	ASH33426
	AF(1) = 121	ASH33427
	AF(2) = 122	ASH33428
	AF(3) = 351	ASH33429
	AF(4) = 110	ASH33430
	AF(5) = 123	ASH33431
	AF(6) = 124	ASH33432
	AF(7) = 352	ASH33433
	AF(8) = 350	ASH33434
	GO TO 760	ASH33435
745	K = 9	ASH33436
	AF(1) = 131	ASH33437
	AF(2) = 140	ASH33438
	AF(3) = 361	ASH33439



AF(4) = 132	ASH33440
AF(5) = 133	ASH33441
AF(6) = 150	ASH33442
AF(7) = 160	ASH33443
AF(8) = 362	ASH33444
AF(9) = 360	ASH33445
GO TO 760	ASH33446
750 K = 9	ASH33447
K2 = 6	ASH33448
AF(1) = 171	ASH33449
AF(2) = 172	ASH33450
AF(3) = 180	ASH33451
AF(4) = 190	ASH33452
AF(5) = 202	ASH33453
AF(6) = 370	ASH33454
AF(7) = 280	ASH33455
AF(8) = 290	ASH33456
AF(9) = 400	ASH33457
GO TO 760	ASH33458
755 K = 9	ASH33459
K2 = 5	ASH33460
AF(1) = 201	ASH33461
AF(2) = 210	ASH33462
AF(3) = 230	ASH33463
AF(4) = 240	ASH33464
AF(5) = 300	ASH33465
AF(6) = 250	ASH33466
AF(7) = 260	ASH33467
AF(8) = 270	ASH33468
AF(9) = 390	ASH33469
760 DO 960 I=1,54	ASH33470
READ (3'I) CA	ASH33471
READ (4'I) CP	ASH33472
DU 795 J=1,K	ASH33473
IF (AF(J) -301)780,765,765	ASH33474
765 KF = AF(J) - 300	ASH33475
DO 770 L=1,NOFP	ASH33476
IF (KF-PPF(L))770,775,770	ASH33477
770 CONTINUE	ASH33478
WRITE (T,360) KF	ASH33479
PAUSE 7	ASH33480
CALL DATSW (7,M7)	ASH33481
GO TO (1065,795), M7	ASH33482
775 CATP(J) = CP(L) + .00501	ASH33483
TCATP(J) = TCATP(J) + CP(L)	ASH33484
GO TO 795	ASH33485
780 DO 785 L=1,NOFA	ASH33486
IF (AF(J)-ARF(L))785,790,785	ASH33487
785 CONTINUE	ASH33488
WRITE (T,355) AF(J)	ASH33489
PAUSE 2	ASH33490
CALL DATSW (2,M2)	ASH33491
GO TU (1065,795), M2	ASH33492
790 CATP(J) = CA(L) + .00501	ASH33493
TCATP(J) = TCATP(J) + CA(L)	ASH33494
795 CONTINUE	ASH33495



IF (K2)805,805,800	ASH33496
800 IF (CATP(K2) - .01)805,810,810	ASH33497
805 IF (CATP(K) - .01)960,810,810	ASH33498
810 IF (LINE3 - 54)820,815,815	ASH33499
815 LINE3 = 0	ASH33500
WRITE (P,395) PAGE3	ASH33501
PAGE3 = PAGE3 + 1	ASH33502
GO TO 835	ASH33503
920 IF (NEW3 - 1)885,825,885	ASH33504
925 IF (LINE3 - 44)830,815,815	ASH33505
830 WRITE (P,300)	ASH33506
LINE3 = LINE3 + 3	ASH33507
835 NEW3 = 0	ASH33508
WRITE (P,25) NTAB3,MTAB	ASH33509
GO TO (840,845,850,855,860,865,870,875),MTAB	ASH33510
840 WRITE (P,30) IDEC,IYR1, IDEC1,IYR2	ASH33511
WRITE (P,265)	ASH33512
WRITE (P,70)	ASH33513
WRITE (P,110)	ASH33514
GO TO 880	ASH33515
845 WRITE (P,35) IDEC,IYR1, IDEC1,IYR2	ASH33516
WRITE (P,265)	ASH33517
WRITE (P,75)	ASH33518
WRITE (P,115)	ASH33519
GO TO 880	ASH33520
850 WRITE (P,40) IDEC,IYR1, IDEC1,IYR2	ASH33521
WRITE (P,265)	ASH33522
WRITE (P,80)	ASH33523
WRITE (P,120)	ASH33524
GO TO 880	ASH33525
855 WRITE (P,45) IDEC,IYR1, IDEC1,IYR2	ASH33526
WRITE (P,265)	ASH33527
WRITE (P,85)	ASH33528
WRITE (P,125)	ASH33529
GO TO 880	ASH33530
860 WRITE (P,50) IDEC,IYR1, IDEC1,IYR2	ASH33531
WRITE (P,265)	ASH33532
WRITE (P,90)	ASH33533
WRITE (P,130)	ASH33534
GO TO 880	ASH33535
865 WRITE (P,55) IDEC,IYR1, IDEC1,IYR2	ASH33536
WRITE (P,265)	ASH33537
WRITE (P,95)	ASH33538
WRITE (P,135)	ASH33539
GO TO 880	ASH33540
870 WRITE (P,60) IDEC,IYR1, IDEC1,IYR2	ASH33541
WRITE (P,265)	ASH33542
WRITE (P,100)	ASH33543
WRITE (P,140)	ASH33544
GO TO 880	ASH33545
875 WRITE (P,65) IDEC,IYR1, IDEC1,IYR2	ASH33546
WRITE (P,265)	ASH33547
WRITE (P,105)	ASH33548
WRITE (P,145)	ASH33549
880 LINE3 = LINE3 + 5	ASH33550
885 GO TO (890,895,900,905,910,915,920,925),MTAB	ASH33551

890 WRITE (P,150) I,(CATP(J),J=1,K) GO TO 930	ASH33552
895 WRITE (P,155) I,(CATP(J),J=1,K) GO TO 930	ASH33553
900 WRITE (P,160) I,(CATP(J),J=1,K) GO TO 930	ASH33554
905 WRITE (P,165) I,(CATP(J),J=1,K) GO TO 930	ASH33555
910 WRITE (P,170) I,(CATP(J),J=1,K) GO TO 930	ASH33556
915 WRITE (P,175) I,(CATP(J),J=1,K) GO TO 930	ASH33557
920 WRITE (P,180) I,(CATP(J),J=1,K) GO TO 930	ASH33558
925 WRITE (P,185) I,(CATP(J),J=1,K)	ASH33559
930 LINE3 = LINE3 + 1 CALL DATSW (8,M8) GO TO (960,935),M8	ASH33560
935 DO 955 JCT = 1,K IF (CATP(JCT) - .01)955,940,940	ASH33561
940 IF (AF(JCT)-300)945,945,950	ASH33562
945 WRITE(H,365) IDEC,IYR1,IYR2,AF(JCT),I,CATP(JCT) GO TO 955	ASH33563
950 IAF = AF(JCT)-300 WRITE (H,370) IDEC,IYR1,IYR2,IAF,I,CATP(JCT)	ASH33564
955 CONTINUE	ASH33565
960 CONTINUE WRITE (P,265) LINE3 = LINE3 + 1 DO 965 KK=1,K	ASH33566
965 TCATP(KK) = TCATP(KK) + .00501 IF (K2)975,975,970	ASH33567
970 IF (TCATP(K2) - .01)975,980,980	ASH33570
975 IF (TCATP(K) -.01)1025,980,980	ASH33571
980 GO TO (985,990,995,1000,1005,1010,1015,1020),MTAB	ASH33572
985 WRITE (P,190) (TCATP(J),J=1,K) GO TO 1025	ASH33573
990 WRITE (P,195) (TCATP(J),J=1,K) GO TO 1025	ASH33574
995 WRITE (P,200) (TCATP(J),J=1,K) GO TO 1025	ASH33575
1000 WRITE (P,205) (TCATP(J),J=1,K) GO TO 1025	ASH33576
1005 WRITE (P,210) (TCATP(J),J=1,K) GO TO 1025	ASH33577
1010 WRITE (P,215) (TCATP(J),J=1,K) GO TO 1025	ASH33578
1015 WRITE (P,220) (TCATP(J),J=1,K) GO TO 1025	ASH33579
1020 WRITE (P,225) (TCATP(J),J=1,K)	ASH33580
1025 LINE3 = LINE3 + 1 CALL DATSW (9,M9) GO TO (1055,1030),M9	ASH33581
1030 DO 1050 JCT = 1,K IF (TCATP(JCT) - .01)1050,1035,1035	ASH33582
1035 IF (AF(JCT)-300)1040,1040,1045	ASH33583
	ASH33584
	ASH33585
	ASH33586
	ASH33587
	ASH33588
	ASH33569
	ASH33590
	ASH33591
	ASH33592
	ASH33593
	ASH33594
	ASH33595
	ASH33596
	ASH33597
	ASH33598
	ASH33599
	ASH33600
	ASH33601
	ASH33602
	ASH33603
	ASH33604
	ASH33605
	ASH33606
	ASH33607

1040	WRITE (H,375) IDEC,IYR1,IYR2,AF(JCT),IDEC,IYR1,IYR2,TCATP(JCT)	ASH33608
	GO TO 1050	ASH33609
1045	IAF = AF(JCT) - 300	ASH33610
	WRITE (H,380) IDEC,IYR1,IYR2,IAF,IDEC,IYR1,IYR2,TCATP(JCT)	ASH33611
1050	CONTINUE	ASH33612
1055	DO 1060 J=1,K	ASH33613
	TCATP(J) = 0.0	ASH33614
1060	CATP(J) = 0.0	ASH33615
	IF (MTAB-7)715,715,1065	ASH33616
1065	WRITE (H,255)	ASH33617
	CALL EXIT	ASH33618
	END	ASH33619
//	DUP	
*	DELETE	ASH33
*	STORE WS UA	ASH33

```

// JOB
// DUP
// DFILE          FX WEEKF    1
// DFILE          FX REF  X    13
// DFILE          UA PNAME     3
// FOR
*IOCS(2501 READER,1403 PRINTER,DISK)
*EXTENDED PRECISION
*ONE WORD INTEGERS
*LIST ALL
*NAME ASH34
**ASH34, LOADS DISK FILES WEEKF, REF  X, AND PNAME.
C
C.....
C USE *FILES(5,WEEKF),(1,REF  X),(3,PNAME) TO EXECUTE.
C
C USER AREA SECTOR REQUIRMENTS (..
C   WEEKF  1
C   REF  X 13
C   PNAME  3
C
C INPUT
C
C 1) PARAMETERS FOR CALCULATION OF WEEK NUMBER.
C   CARD 1 - COLS 1-2 YEAR PRECEEDING FIRST YEAR OF A 40 YEAR
C             SERIES
C             3-42 ENTER A ONE FOR EACH LEAP YEAR (1 COL. PER
C             YEAR OF THE 40 YEAR SERIES.)
C   2 - COLS 1-40 DAY NUMBER OF FIRST SATURDAY OF APRIL FOR
C             EACH YEAR (1 COL./YEAR) OF SFRIES.
C   3 - COLS 1-48 CUMULATIVE DAY NUMBER, BEGINNING WITH APRIL
C             (CUM.DAY NO. OF 0) AND ENDING WITH MARCH
C             (CUM.DAY NO. OF 334) FOR EACH MONTH OF A
C             NON LEAP YEAR. (4 COLS. PER VALUE)
C             THE VALUES ENTERED ON THE CARD ARE ORDERED
C             FROM JANUARY TO DECEMBER.
C 2) AREA CODES - UP TO 63 AREAS, 3 CARDS, 3 COLS. PER AREA STARTING IN
C   COL. 11 OF EACH CARD.
C 3) POPULATION CODES - MAX. OF 24, 2 CARDS, 3 COLS. PER POPULATION,
C   STARTING IN COL. 11 OF EACH CARD.
C 4) THOUSANDS OF EGGS PER SQUARE YARD OF SPAWN CORRESPONDING TO
C   INTENSITIES 1 TO 9, 5 COLS. PER VALUE, STARTING IN COL. 11
C 5) THOUSANDS OF EGGS PER FEMALE / 2.0 FOR NORTHERN AREAS PER
C   AGE 1 TO 9, 7 COLS. PER VALUE, STARTING IN COL. 11
C 6) THOUSANDS OF EGGS PER FISH FOR SOUTHERN AREAS - SAME FORMAT AS 5
C
C 7) AREA CODES - 62 POSSIBLE AREAS, 4 COLS. PER CODE, 20 CODES / CARD.
C 8) SUBPOPULATION CODES CORRESPONDING TO THE AREA CODES ABOVE, IN SAME
C   FORMAT. (INVISION THE AREA CODES AS AN ARRAY, THE I TH AREA CODE
C   HAVING A CORRESPONDING SUBPOPULATION CODE WHICH IS PLACED IN THE
C   I TH POSITION OF THE SUBPOPULATION ARRAY) - A ZERO VALUE IS
C   ENTERED WHEN THERE IS NO SUBPOPULATION FOR GIVEN AREA.
C 9) POPULATION CODES CORRESPONDING TO EACH AREA OF INPUT 7 (SAME FOR.

```

ASH34

ASH34 1  
ASH34 2  
ASH34 3  
ASH34 4  
ASH34 5  
ASH34 6  
ASH34 7  
ASH34 8  
ASH34 9  
ASH34 10  
ASH34 11  
ASH34 12  
ASH34 13  
ASH34 14  
ASH34 15  
ASH34 16  
ASH34 17  
ASH34 18  
ASH34 19  
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ASH34 36  
ASH34 37  
ASH34 38  
ASH34 39  
ASH34 40  
ASH34 41  
ASH34 42  
ASH34 43

C	10)	POPULATION - SUBPOPULATION CODES, 24 POSSIBLE VALUES, ALL POPULATIONS FOLLOWED BY ALL SUBPOPULATIONS, 4 COLS/VALUE STARTING IN COL. 1	ASH34 44 ASH34 45 ASH34 46
C	11)	INDEX VALUE OF THE ARRAY CREATED IN INPUT 10 OF EACH SUB-POPULATION LISTED IN INPUT 8 (A ZERO ENTRY IN 8 REMAINS A ZERO) -SAME FORMAT AS PER INPUT 7. E.G. IF SUBPOPULATION CODE 061 IS THE TWELVE VALUE LISTED IN INPUT 10, A 12 IS SUBSTITUTED FOR EVERY 061 APPEARING IN INPUT 8.	ASH34 47 ASH34 48 ASH34 49 ASH34 50 ASH34 51
C	12)	INDEX VALUE OF THE ARRAY CREATED IN INPUT 10 OF EACH POPULATION LISTED IN INPUT 9. (FORMAT AND LOGIC ANALOGOUS TO INPUT 11).	ASH34 52 ASH34 53 ASH34 54
C	13)	THE ALPHA-NUMERIC NAME CORRESPONDING TO EACH CODE OF INPUT 10. ONE CARD PER NAME, MAXIMUM OF 60 CHARACTERS (COLS. 1-60).	ASH34 55 ASH34 56
C	14)	POPULATION - SUBPOPULATION CODES, SAME FORMAT AS INPUT 10, BUT WITH THE ORDER CHANGED SUCH THAT EACH POPULATION IS FOLLOWED BY ITS SUBPOPULATIONS.	ASH34 57 ASH34 58 ASH34 59
C	15)	INDEX VALUE OF THE ARRAY CREATED IN INPUT 14 OF EACH SUB-POPULATION LISTED IN INPUT 8.	ASH34 60 ASH34 61
C	16)	INDEX VALUE OF THE ARRAY CREATED IN INPUT 14 OF EACH POPULATION LISTED IN INPUT 9. - FORMATS FOR INPUTS 15 AND 16 ARE THE SAME AS THAT GIVEN FOR INPUT 7.	ASH34 62 ASH34 63 ASH34 64
C	17)	ALPHA-NUMERIC NAME CORRESPONDING TO EACH CODE LISTED IN INPUT 14 - COLS 1-60, ONE CARD PER NAME.	ASH34 65 ASH34 66 ASH34 67
C	18)	ABBREVIATED POPULATION- SUBPOPULATION NAMES, ONE PER CARD IN ORDER CORRESPONDING TO INPUT 10, CENTERED IN COLUMNS 1-29.	ASH34 68 ASH34 69 ASH34 70
C		.....	ASH34 71
C		SPECIFICATIONS	ASH34 72
C		INTEGER SDAY(40),LY(40),IDAY(12),C,AREA(63),POP(24),P	ASH34 73
C		INTEGER SUBD(62),DIST(62),DCOD1(24),DCOD2(24)	ASH34 74
C		DIMENSION EPSYS(9),EPSFN(9),EPSFS(9)	ASH34 75
C		DIMENSION INDX3(62),INDX4(62),JYR(40),NAM(29)	ASH34 76
C		DIMENSION IAREA(62),INDX1(62),INDX2(62),NAM1(24,60),NAM2(24,60)	ASH34 77
C		DATA C,P/R,S/	ASH34 78 ASH34 79 ASH34 80
C		DEFINE FILE 1(13,320,U,K1)	ASH34 81
C		DEFINE FILE 5(3,93,U,K5)	ASH34 82
C		DEFINE FILE 3(24,29,U,K3)	ASH34 83 ASH34 84 ASH34 85
C		FORMATS	ASH34 86
C		5 FORMAT (2014)	ASH34 87
C		10 FORMAT (60A1)	ASH34 88
C		15 FORMAT (' ',20I4/)	ASH34 89
C		20 FORMAT (' ',5X,60A1/)	ASH34 90
C		25 FORMAT ('0IAREA')	ASH34 91
C		30 FORMAT ('0SUBD')	ASH34 92
C		35 FORMAT ('0DIST')	ASH34 93
C		40 FORMAT ('0DCOD1')	ASH34 94
C		45 FORMAT ('0INDX1')	ASH34 95
C		50 FORMAT ('0INDX2')	ASH34 96
C		55 FORMAT ('0DCOD2')	ASH34 97
C		60 FORMAT ('0INDX3')	ASH34 98
C		65 FORMAT ('0INDX4')	ASH34 99
C		70 FORMAT (I2,40I1)	ASH34 99



75 FORMAT (40I1) ASH34100  
80 FORMAT (12I4) ASH34101  
85 FORMAT (10X,23I3,1X) ASH34102  
90 FORMAT (10X,9F5.0) ASH34103  
95 FORMAT (10X,9F7.3) ASH34104  
100 FORMAT (1H1,113X,'PAGE',I3) ASH34105  
105 FORMAT (1H ,'\*FILE WEEKF'/) ASH34106  
110 FORMAT (1H ,'RECORD 1 - PARAMETERS FOR CALCULATION OF WEEK NUMBER ASH34107  
\*FROM SEASON, MONTH AND DAY BY SUBROUTINE WKNO'/)  
ASH34108  
115 FORMAT (1H ,14X,' IYR - YEAR BEFORE FIRST YEAR OF 40 YEAR SERIES =ASH34109  
\*','I3,' (YEARS IN SERIES SHOWN IN LINE 1 BELOW)) ASH34110  
120 FORMAT (1H ,15X,'LY LEAP YEARS IN PERIOD CODED 1, OTHER YEARS COASH34111  
\*DED 0 (LINE 2 BELOW)) ASH34112  
125 FORMAT (1H ,15X,'SDAY - CALENDAR DATE OF FIRST SATURDAY IN APRIL FASH34113  
\*OR EACH YEAR IN SERIES (LINE 3 BELOW)) ASH34114  
130 FORMAT (1H0,'YR',37I3,3I2) ASH34115  
135 FORMAT (1H0,15X,'IDAY - JULIAN DATE FOR FIRST DAY IN MONTH FOR SEAASH34116  
\*SON (APRIL TO MARCH)) ASH34117  
140 FORMAT (1H0,21X,'APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR')ASH34118  
145 FORMAT (1H0,20X,12I4/) ASH34119  
150 FORMAT (1H0,'RECORD 2 - LEGITIMATE AREA AND POPULATION NUMBERS') ASH34120  
155 FORMAT (1H0,11X,'AREAS') ASH34121  
160 FORMAT (1H0,11X,26I4) ASH34122  
165 FORMAT (1H0,11X,'POPULATIONS') ASH34123  
170 FORMAT (1H0,'RECORD 3 - PARAMETERS FOR ESTIMATING NUMBERS OF SPAWNASH34124  
\*ERS FROM SQUARE YARDS AND INTENSITY OF SPAWNINGS') ASH34125  
175 FORMAT (1H0,16X,'THOUSANDS OF EGGS PER SQUARE YARD OF SPAWNING AT ASH34126  
\*INTENSITY') ASH34127  
180 FORMAT (1H0,14X,'INTENSITY',5X,'VL',4X,'VL-L',5X,'L',6X,'L-M',6X, ASH34128  
\*'M',6X,'M-H',6X'H',5X,'H-VH',5X,'VH') ASH34129  
185 FORMAT (1H0,14X,'EPSYS',3X,9F8.0) ASH34130  
190 FORMAT (1H0,16X,'EPSFN - THOUSANDS OF EGGS PER SPawner AT AGE IN NASH34131  
\*ORTH (AREAS 010-110)) ASH34132  
195 FORMAT (1H0,16X,'EPSFS - EGGS PER SPawner AT AGE IN SOUTH (AREAS 1ASH34133  
\*10-290)) ASH34134  
200 FORMAT (1H0,14X,'AGE',6X,'1+',6X,'2+',6X,'3+',6X,'4+',6X,'5+',6X, ASH34135  
\*'7+',6X,'8+',6X,'9+') ASH34136  
205 FORMAT (1H0,14X,'EPSFN',9F8.3) ASH34137  
210 FORMAT (1H0,14X,'EPSFS',9F8.3/) ASH34138  
215 FORMAT (1H0,'LY',37I3,3I2) ASH34139  
220 FORMAT (1H0,'SD',37I3,3I2/) ASH34140  
225 FORMAT (1H ,'\*FILE REF') ASH34141  
230 FORMAT (1H0,'RECORD 1 - AREAS (IAREA) WITH CORRESPONDING SUBPOPULAASH34142  
\*TION NUMBERS (SUBD) AND POPULATION NUMBERS (DIST)) ASH34143  
235 FORMAT (1H0,'RECORD 2 - SUBPOPULATION (INDX1) AND POPULATION (INDXASH34144  
\*2) INDICES FOR DCOD1 ARRAYS FOR AREAS AS IN IAREA ABOVE') ASH34145  
240 FORMAT (1H , 'RECORDS 3-7 - POPULATION NAMES LISTED AS PER DCOD1 (NASH34146  
\*AM1)) ASH34147  
245 FORMAT (1H , 'RECORD 8 - SUBPOPULATION (INDX3) AND POPULATION (INDXASH34148  
\*4) INDICES FOR DCOD2 ARRAYS FOR AREAS AS IN IAREA ABOVE') ASH34149  
250 FORMAT (' RECORDS 9-13 - POPULATION NAMES LISTED AS PER DCOD2 (NAMASH34150  
\*2)) ASH34151  
255 FORMAT (29A1) ASH34152  
C ASH34153  
C READ AND STORE DATA FOR WEEKF ASH34154  
READ (C,70)IYR,LY ASH34155



READ (C,75) SDAY	ASH34156
READ (C,80) IDAY	ASH34157
READ (C,85) AREA	ASH34158
READ (C,85) POP	ASH34159
READ (C,90) EPSYS	ASH34160
READ (C,95) EPSFN	ASH34161
READ (C,95) EPSFS	ASH34162
WRITE (5'1) IYR,LY,SDAY,IDAY	ASH34163
WRITE (5'2) AREA,POP	ASH34164
WRITE (5'3) EPSYS,EPSFN,EPSFS	ASH34165
C	ASH34166
C READ AND STORE DATA FOR REF	ASH34167
READ (C,5) IAREA	ASH34168
READ (C,5) SUBD	ASH34169
READ (C,5) DIST	ASH34170
READ (C,5) DCOD1	ASH34171
READ (C,5) INDX1	ASH34172
READ (C,5) INDX2	ASH34173
DO 260 I = 1,24	ASH34174
260 READ (C,10) (NAM1(I,J),J=1,60)	ASH34175
READ (C,5) DCOD2	ASH34176
READ (C,5) INDX3	ASH34177
READ (C,5) INDX4	ASH34178
DO 265 I = 1,24	ASH34179
265 READ (C,10) (NAM2(I,J),J=1,60)	ASH34180
C	ASH34181
KI = 1	ASH34182
WRITE (1'KI) IAREA,SUBD,DIST	ASH34183
WRITE (1'KI) INDX1,INDX2,DCOD1	ASH34184
WRITE (1'KI) NAM1	ASH34185
WRITE (1'KI) INDX3,INDX4,DCOD2	ASH34186
WRITE (1'KI) NAM2	ASH34187
C READ AND STORE DATA FOR PNAME	ASH34188
K3 = 1	ASH34189
DO 270 I = 1,24	ASH34190
READ (C,255) NAM	ASH34191
WRITE (3'K3) NAM	ASH34192
270 CONTINUE	ASH34193
C	ASH34194
C PRINT WEEKF DATA FROM FILE 5	ASH34195
IPAGE = 0	ASH34196
READ (5'1) IYR,LY,SDAY,IDAY	ASH34197
READ (5'2) AREA,POP	ASH34198
READ (5'3) EPSYS,EPSFN,EPSFS	ASH34199
DO 275 I = 1,40	ASH34200
275 JYR(I) = IYR + I	ASH34201
IPAGE = IPAGE + 1	ASH34202
WRITE (P,100) IPAGE	ASH34203
WRITE (P,105)	ASH34204
WRITE (P,110)	ASH34205
WRITE (P,115) IYR	ASH34206
WRITE (P,120)	ASH34207
WRITE (P,125)	ASH34208
WRITE (P,130) JYR	ASH34209
WRITE (P,215) LY	ASH34210
WRITE (P,220) SDAY	ASH34211

WRITE (P,135)	ASH34212
WRITE (P,140)	ASH34213
WRITE (P,145) (IDAY(I),I=4,12),(IDAY(I),I=1,3)	ASH34214
WRITE (P,150)	ASH34215
WRITE (P,155)	ASH34216
WRITE (P,160) AREA	ASH34217
WRITE (P,165)	ASH34218
WRITE (P,160) POP	ASH34219
WRITE (P,170)	ASH34220
WRITE (P,175)	ASH34221
WRITE (P,180)	ASH34222
WRITE (P,185) EPSYS	ASH34223
WRITE (P,190)	ASH34224
WRITE (P,195)	ASH34225
WRITE (P,200)	ASH34226
WRITE (P,205) EPSFN	ASH34227
WRITE (P,210) EPSFS	ASH34228

C

C PRINT REFV DATA FROM FILE 1

KI = 1	ASH34229
READ (1*KI) IAREA, SUBD, DIST	ASH34230
KI = 2	ASH34231
READ (1*KI) INDX1, INDX2, DCOD1	ASH34232
KI = 3	ASH34233
READ (1*KI) NAM1	ASH34234
KI = 8	ASH34235
READ (1*KI) INDX3, INDX4, DCOD2	ASH34236
KI = 9	ASH34237
READ (1*KI) NAM2	ASH34238
IPAGE = IPAGE + 1	ASH34239
WRITE (P,100) IPAGE	ASH34240
WRITE (P,225)	ASH34241
WRITE (P,230)	ASH34242
WRITE (P,25)	ASH34243
WRITE (P,15) IAREA	ASH34244
WRITE (P,30)	ASH34245
WRITE (P,15) SUBD	ASH34246
WRITE (P,35)	ASH34247
WRITE (P,15) DIST	ASH34248
WRITE (P,235)	ASH34249
WRITE (P,45)	ASH34250
WRITE (P,15) INDX1	ASH34251
WRITE (P,50)	ASH34252
WRITE (P,15) INDX2	ASH34253
WRITE (P,40)	ASH34254
WRITE (P,15) DCOD1	ASH34255
IPAGE = IPAGE + 1	ASH34256
WRITE (P,100) IPAGE	ASH34257
WRITE (P,240)	ASH34258
WRITE (P,20) ((NAM1(I,J),J=1,60),I=1,24)	ASH34259
IPAGE = IPAGE + 1	ASH34260
WRITE (P,100) IPAGE	ASH34261
WRITE (P,245)	ASH34262
WRITE (P,60)	ASH34263
WRITE (P,15) INDX3	ASH34264
WRITE (P,65)	ASH34265
	ASH34266
	ASH34267

WRITE (P,15) INDX4	ASH34268
WRITE (P,55)	ASH34269
WRITE (P,15) DCOD2	ASH34270
IPAGE = IPAGE + 1	ASH34271
WRITE (P,100) IPAGE	ASH34272
WRITE (P,250)	ASH34273
WRITE (P,20) ((NAM2(I,J),J=1,60),I=1,24)	ASH34274
CALL EXIT	ASH34275
END	ASH34276

// DUP

\*DELETE

\*STORE

ASH34

WS UA

ASH34

```

// JOB
// DUP
*DFILE UA LISCF 77
// FOR
*IOCS(1403 PRINTER,2501 READER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH35
**ASH35, PROGRAM TO LOAD DISK DATA FILE LISCF.
C
C
C *****
C USE *FILES(4,LISCF) TO EXECUTE.
C
C 143 SECTORS OF DISK WORKING STORAGE REQUIRED.
C
C INPUT 1 CARD WITH DATE OF RUN IN BAI FORMAT (COLS.1-8) FREE TEXT.
C 2 'LB' CARDS SORTED ALPHABETICALLY BY BOAT NAME (COLS.63-80)
C WITH BOAT NO. (COLS.4-6) AND LICENCE NO. BY SEASON
C COLS. 7-12 - 1966-67 AND LATER
C COLS.16-21 - 1965-66
C COLS.25-30 - 1964-65
C COLS.34-39 - 1963-64
C COLS.43-48 - 1962-63 AND EARLIER
C COLS 52-57 - SECOND NO. FOR 1962-63 IF APPLICABLE
C 3 BLANK CARD TO INDICATE DATA TERMINATION.
C
C PRINTED OUTPUT
C 1 ALPHABETICAL LISTING BY BOAT NAME OF BOAT NOS. WITH
C 2 LISTING BY BOAT NO. OF LICENCE NO. BY SEASON AND BOAT NAME
C 3 LISTING BY LICENCE NO. OF BOAT NO. BY SEASON
C
C TO UPDATE FILE LISCF SEE LISTING OF PROGRAM ASH40.
C
C *****
C SPECIFICATIONS
C INTEGER C,P,PAGE1,PAGE2,PAGE3,FIRST,DATE(8)
C DIMENSION NAME(18),XLICN(6),YLICN(6),INAME(18),XNO(3000)
C DIMENSION NBS(5),MBS(5)
C DATA C,P/8,5/,PAGE1,PAGE2,PAGE3/0,1,1/,LINE,FIRST/55,1/
C DATA IBOAT,NYRS,KKK,NUMB,IFW,KK,N,NN/0,6,0,0,0,1,45,45/
C DATA XNO/3000*0.0/
C
C DEFINE FILE 4(1000,24,U,KK)
C DEFINE FILE 10(1000,42,U,K10)
C
C FORMATS
C 5 FORMAT(' ',F7.0)
C 10 FORMAT('+',14X,13)
C 15 FORMAT('+',26X,13)
C 20 FORMAT('+',38X,13)
C 25 FORMAT('+',50X,13)
C 30 FORMAT('+',62X,13)

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ASH35
ASH35 1
ASH35 2
ASH35 3
ASH35 4
ASH35 5
ASH35 6
ASH35 7
ASH35 8
ASH35 9
ASH35 10
ASH35 11
ASH35 12
ASH35 13
ASH35 14
ASH35 15
ASH35 16
ASH35 17
ASH35 18
ASH35 19
ASH35 20
ASH35 21
ASH35 22
ASH35 23
ASH35 24
ASH35 25
ASH35 26
ASH35 27
ASH35 28
ASH35 29
ASH35 30
ASH35 31
ASH35 32
ASH35 33
ASH35 34
ASH35 35
ASH35 36
ASH35 37
ASH35 38
ASH35 39
ASH35 40
ASH35 41
ASH35 42
ASH35 43

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35 FORMAT('+',74X,I3) ASH35 44
40 FORMAT (' ',14,52X,18A1) ASH35 45
45 FORMAT ('+',6X,F7.0) ASH35 46
50 FORMAT ('+',13X,F9.0) ASH35 47
55 FORMAT ('+',21X,F9.0) ASH35 48
60 FORMAT ('+',29X,F9.0) ASH35 49
65 FORMAT ('+',37X,F9.0) ASH35 50
70 FORMAT ('+',47X,F7.0) ASH35 51
75 FORMAT ('+',10X,'...') ASH35 52
80 FORMAT ('+',19X,'...') ASH35 53
85 FORMAT ('+',27X,'...') ASH35 54
90 FORMAT ('+',35X,'...') ASH35 55
95 FORMAT ('+',43X,'...') ASH35 56
100 FORMAT ('+',51X,'...') ASH35 57
105 FORMAT ('+',23X,F8.0) ASH35 58
110 FORMAT ('+',31X,F8.0) ASH35 59
115 FORMAT ('+',39X,F8.0) ASH35 60
120 FORMAT ('+',47X,F8.0) ASH35 61
125 FORMAT ('+',56X,F7.0) ASH35 62
130 FORMAT ('+',64X,F7.0) ASH35 63
135 FORMAT ('+',28X,'...') ASH35 64
140 FORMAT ('+',36X,'...') ASH35 65
145 FORMAT ('+',44X,'...') ASH35 66
150 FORMAT ('+',52X,'...') ASH35 67
155 FORMAT ('+',60X,'...') ASH35 68
160 FORMAT ('+',68X,'...') ASH35 69
165 FORMAT(3X,I3,5(F6.0,I3),F6.0,5X,18A1) ASH35 70
170 FORMAT(' ', 'ALPHABETICAL LISTING OF B.C. HERRING VESSELS WITH CORRASH35 71
    *RESPONDING BOAT',/, ' ', 'NUMBER (F.R.B.) AND LICENCE NUMBERS (ECON.BASH35 72
    *R.) FOR THE 1962-63 TO',/, ' ', '1966-67 SEASONS. (1966 67 LICENCE NASH35 73
    *UMBERS APPLY FOR SUBSEQUENT SEASONS.',/, ' ', 'SOME VESSELS HAD TWO ASH35 74
    *LICENCE NUMBERS IN 1962-63.)) ASH35 75
175 FORMAT ('0',2X,'BOAT NAME',8X,'BOAT',17X,'LICENCE NUMBERS',/ ' ',18XASH35 76
    *, 'NUMBER',1X,'1966-67 1965-66 1964-65 1963-64',5X,'1962-63'/) ASH35 77
180 FORMAT ('1',8A1,56X,'PAGE',I3) ASH35 78
185 FORMAT ('1',8A1,53X,'PAGE',I3) ASH35 79
190 FORMAT (8A1) ASH35 80
195 FORMAT (' ',18A1,2X,I3) ASH35 81
200 FORMAT(' ', 'B.C. HERRING VESSELS BY BOAT NUMBER (F.R.B.) WITH CORRASH35 82
    *RESPONDING LICENCE',/, ' ', 'NUMBERS (ECON.BR.) FOR THE 1962-63 TO 19ASH35 83
    *66-67 SEASONS.',/, ' ', '(1966-67 LICENCE NUMBERS APPLY TO SUBSEQUENASH35 84
    *T SEASONS. SOME VESSELS HAD',/, ' ', 'TWO LICENCE NUMBERS IN 1962-63ASH35 85
    *.)') ASH35 86
205 FORMAT ('0', ' BOAT',17X,'LICENCE NUMBERS',22X,'BOAT NAME',/, ' ', ASH35 87
    *'NUMBER', ' 1966-67 1965-66 1964-65 1963-64 1962-63'/) ASH35 88
210 FORMAT(' ', 'B.C. HERRING VESSELS BY LICENCE NUMBER (ECON.BR.) WITHASH35 89
    * CORRESPONDING',/, ' ', 'BOAT NUMBERS (F.R.B.) FOR THE 1962-63 TO 19ASH35 90
    *66-67 SEASONS. (1966-67',/, ' ', 'BOAT NUMBERS APPLY FOR SUBSEQUENT ASH35 91
    *SEASONS.)) ASH35 92
215 FORMAT ('0', 'LICENCE',26X,'BOAT NUMBERS',/, ' ', 'NUMBER',6X,'1966-6ASH35 93
    *7',5X,'1965-66',5X,'1964-65',5X,'1963-64',5X,'1962-63'/) ASH35 94
    ASH35 95
C INITIALIZATION ASH35 96
  DD 220 I=1,1000 ASH35 97
  WRITE (10'I') IBOAT,XLICN,NBS,NAME ASH35 98
220 CONTINUE ASH35 99
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DO 225 I = 1,1000	ASH35100
WRITE (4'I) IBOAT,XLICN,NBS	ASH35101
225 CONTINUE	ASH35102
K10 = 1	ASH35103
READ (C,190) DATE	ASH35104
C	ASH35105
C READ DATA AND PRINT ALPHABETICAL LISTING	ASH35106
230 READ (C,165) IBOAT,(XLICN(J),NBS(J),J=1,5),XLICN(6),NAME	ASH35107
IF (IBOAT)370,370,235	ASH35108
235 LINE = LINE + 1	ASH35109
IF (LINE - 45)245,245,240	ASH35110
240 LINE = 0	ASH35111
PAGE1 = PAGE1 + 1	ASH35112
WRITE (P,180) DATE,PAGE1	ASH35113
WRITE (P,170)	ASH35114
WRITE (P,175)	ASH35115
245 WRITE (P,195) NAME,IBOAT	ASH35116
DU 330 I = 1,6	ASH35117
IF (XLICN(I))250,295,250	ASH35118
250 GO TO (255,260,265,270,275,290),I	ASH35119
255 WRITE (P,105) XLICN(I)	ASH35120
GO TO 280	ASH35121
260 WRITE (P,110) XLICN(I)	ASH35122
GO TO 280	ASH35123
265 WRITE (P,115) XLICN(I)	ASH35124
GO TO 280	ASH35125
270 WRITE (P,120) XLICN(I)	ASH35126
GO TO 280	ASH35127
275 WRITE (P,125) XLICN(I)	ASH35128
280 IF (NBS(I))330,285,330	ASH35129
285 NBS(I) = 1	ASH35130
GO TO 330	ASH35131
290 WRITE (P,130) XLICN(I)	ASH35132
GO TO 330	ASH35133
295 GO TO (300,305,310,315,320,325),I	ASH35134
300 WRITE (P,135)	ASH35135
GO TO 330	ASH35136
305 WRITE (P,140)	ASH35137
GO TO 330	ASH35138
310 WRITE (P,145)	ASH35139
GO TO 330	ASH35140
315 WRITE (P,150)	ASH35141
GO TO 330	ASH35142
320 WRITE (P,155)	ASH35143
GO TO 330	ASH35144
325 WRITE (P,160)	ASH35145
330 CONTINUE	ASH35146
IF (FIRST)335,340,335	ASH35147
335 FIRST = J	ASH35148
GO TO 365	ASH35149
340 KT = K10 - 1	ASH35150
K10H = K10	ASH35151
READ (10*KT) JBOAT,YLICN,MBS,INAME	ASH35152
IF (IBOAT-JBOAT)345,365,365	ASH35153
345 KT = KT - 1	ASH35154
IF (KT)355,355,350	ASH35155



350 READ (10*KT) JBOAT,YLICN,MBS,INAME	ASH35156
IF (IROAT-JBOAT)345,355,355	ASH35157
355 IX = K10H - KT - 1	ASH35158
DO 360 I=1,IX	ASH35159
KF1 =K10H - I + 1	ASH35160
KF2 = KF1 - 1	ASH35161
READ (10*KF2) JBOAT,YLICN,MBS,INAME	ASH35162
WRITE (10*KF1)JBOAT,YLICN,MBS,INAME	ASH35163
360 CONTINUE	ASH35164
WRITE (10*KF2)IBOAT,XLICN,NBS,NAME	ASH35165
K10 = K10H + 1	ASH35166
GO TO 230	ASH35167
365 WRITE (10*K10)IBOAT,XLICN,NBS,NAME	ASH35168
GO TO 230	ASH35169
C	ASH35170
C READ FILE , PRINT LISTING BY ROAT NUMBER AND STOREDATA ON LISCF (5)	ASH35171
370 WRITE (P,180) DATE,PAGE2	ASH35172
WRITE (P,200)	ASH35173
WRITE (P,205)	ASH35174
KK = 1	ASH35175
DO 480 L=1,999	ASH35176
READ (10*L) IBOAT,{XLICN(J),J=1,6},{NBS(J),J=1,5},{NAME(J),J=1,18}	ASH35177
IF (IBOAT)485,485,375	ASH35178
375 IF (L-N)385,380,380	ASH35179
380 N=N+45	ASH35180
PAGE2 = PAGE2 + 1	ASH35181
WRITE (P,180) DATE,PAGE2	ASH35182
WRITE (P,200)	ASH35183
WRITE (P,205)	ASH35184
385 WRITE (P,40) IROAT,{NAME(J),J=1,18}	ASH35185
DO 460 I=1,6	ASH35186
IF {XLICN(I)}390,425,390	ASH35187
390 GO TO {375,400,405,410,415,420},I	ASH35188
395 WRITE (P,45) XLICN(I)	ASH35189
GO TO 460	ASH35190
400 WRITE (P,50) XLICN(I)	ASH35191
GO TO 460	ASH35192
405 WRITE (P,55) XLICN(I)	ASH35193
GO TO 460	ASH35194
410 WRITE (P,60) XLICN(I)	ASH35195
GO TO 460	ASH35196
415 WRITE (P,65) XLICN(I)	ASH35197
GO TO 460	ASH35198
420 WRITE (P,70) XLICN(I)	ASH35199
GO TO 460	ASH35200
425 GO TO {430,435,440,445,450,455},I	ASH35201
430 WRITE (P,75)	ASH35202
GO TO 460	ASH35203
435 WRITE (P,80)	ASH35204
GO TO 460	ASH35205
440 WRITE (P,85)	ASH35206
GO TO 460	ASH35207
445 WRITE (P,90)	ASH35208
GO TO 460	ASH35209
450 WRITE (P,95)	ASH35210
GO TO 460	ASH35211

455	WRITE (P,100)	ASH35212
460	CONTINUE	ASH35213
	DO 470 K=1,NYRS	ASH35214
	IF (XLICN(K))465,470,465	ASH35215
465	IFW = 1	ASH35216
	NUMB=NUMB+1	ASH35217
	XNO(NUMB)=XLICN(K)	ASH35218
470	CONTINUE	ASH35219
	IF (IFW)475,480,475	ASH35220
475	IFW = 0	ASH35221
	WRITE (4*KK) IBOAT,XLICN,NBS	ASH35222
480	CONTINUE	ASH35223
C		ASH35224
C	READ FILE AND PRINT LISTING BY LICENCE NUMBER	ASH35225
485	NP=NUMB	ASH35226
	MM = KK - 1	ASH35227
490	DO 505 I=2,NP	ASH35228
	IF (XNO(I-1)-XNO(I))505,495,500	ASH35229
495	XNO(I-1)=0.	ASH35230
	GO TO 505	ASH35231
500	TEMP=XNO(I-1)	ASH35232
	XNO(I-1)=XNO(I)	ASH35233
	XNO(I)=TEMP	ASH35234
505	CONTINUE	ASH35235
	NP=NP-1	ASH35236
	IF (NP-1)510,510,490	ASH35237
510	WRITE (P,185) DATE,PAGE3	ASH35238
	WRITE(P,210)	ASH35239
	WRITE(P,215)	ASH35240
	PAGE3 = PAGE3 + 1	ASH35241
	DO 520 I=2,NUMB	ASH35242
	IF (XNO(I-1)-XNO(I))520,515,520	ASH35243
515	XNO(I-1)=0.	ASH35244
520	CONTINUE	ASH35245
	DO 585 J=1,NUMB	ASH35246
	KK=1	ASH35247
	IF (XNO(J))585,585,525	ASH35248
525	KKK=KKK+1	ASH35249
	IF (KKK-NN)535,535,530	ASH35250
530	WRITE (P,185) DATE,PAGE3	ASH35251
	PAGE3 = PAGE3 + 1	ASH35252
	WRITE(P,210)	ASH35253
	WRITE(P,215)	ASH35254
	NN=NN+45	ASH35255
535	WRITE(P,5) XNO(J)	ASH35256
540	READ (4*KK) IBOAT,XLICN,NBS	ASH35257
	DO 580 I=1,NYRS	ASH35258
	IF (XNO(I)-XLICN(I))580,545,580	ASH35259
545	GO TO (550,555,560,565,570,570,575),I	ASH35260
550	WRITE(P,10) IBOAT	ASH35261
	GO TO 580	ASH35262
555	WRITE(P,15) IBOAT	ASH35263
	GO TO 580	ASH35264
560	WRITE(P,20) IBOAT	ASH35265
	GO TO 580	ASH35266
565	WRITE(P,25) IBOAT	ASH35267

GO TO 580				ASH35268
570 WRITE(P,30) I00AT				ASH35269
GO TO 580				ASH35270
575 WRITE(P,35) I00AT				ASH35271
580 CONTINUE				ASH35272
IF(KK-MM)540,540,585				ASH35273
585 CONTINUE				ASH35274
CALL EXIT				ASH35275
END				ASH35276
// DUP				
*DELETE			ASH35	
*STORE	WS	UA	ASH35	

```

// JOB
// FOR
*LIST ALL
*UCS(1442 PUNCH,2501 READER,TYPEWRITER,1403 PRINTER)
*EXTENDED PRECISION
*ONE WORD INTEGERS
*NAME ASH36
** ASH36, TRANSFERS HERRING SAMP. DATA FROM 1 FISH/CARD TO 10 FISH/CARD
C
C *****
C THIS PROGRAM WILL CONVERT UP TO 999 FISH PER SAMPLE FROM A ONE FISH PCASH36 1
C CARD TO A 10 FISH PER CARD FORMAT. ASH36 2
C FOR RDS SAMPLES (4 FISH PER CARD) A MAXIMUM OF 100 FISH PER SAMPLE ASH36 3
C MAY BE PROCESSED, EACH SAMPLE MUST HAVE A -5 IN COLUMNS 3 AND 4 AT ASH36 4
C ITS TERMINATION. A 9999 IN COLS. 1 TO 4 AFTER THE -5 OF THE LAST SAMPASH36 5
C WILL FORCE A CALL EXIT. ASH36 6
C INPUT ASH36 7
C 1 CARD WITH NBAR(COLS.59-60), FIRST PAGE NO.(COLS.78-80) AND ASH36 8
C COLUMN 1 WITH '1' FOR FRB SAMPLES AND '2' FOR RDB SAMPLES. ASH36 9
C 2 SAMPLING DATA CARDS (1 FISH/CARD) SORTED BY SAMPLE (COLS.7-9,ASH36 10
C 4 AND 16-17) ASH36 11
C OR ASH36 12
C 2 DOF SAMPLING DATA CARDS (4 FISH/CARD) SORTED BY PAGE NUMBER ASH36 13
C (COLS.1-4). LAST CARD OF SET HAS -5 IN COLS.3-4. ASH36 14
C LAST CARD IN DECK HAS -99 IN COLS. 2-4. ASH36 15
C WITH BLANK CARD ASH36 16
C CARD OUTPUT (FOR EACH SAMPLE) TURN ON DATA SWITCH 3 TO BYPASS. ASH36 17
C 1 HEADER CARD WITH SAMPLE DATA ('H' IN COL.80) ASH36 18
C 2 DATA CARDS WITH SEASON, SAMPLE NO. AND SPECIMEN DATA ASH36 19
C FOR 10 FISH ('S' IN COL.80) ASH36 20
C ***** ASH36 21
C C SPECIFICATIONS ASH36 22
C INTEGER PSOUR,P,CT,RLEN(4),RSEX(4),RMT(4),RAGE(4),KAGE(4) ASH36 23
C INTEGER C,H,FIRST,SEAS,PER,AREA,DAY,SN,BOAT,SOUR,GEAR,PRES,SEX ASH36 24
C INTEGER AGE,PNO,UN,PAGE,TYPE,PPER,PWT,WT,Y1,Y2,Y3,Y4,RWT(4),RTWT ASH36 25
C INTEGER PSEAS,SAMP,PARCA,PGEAR,PLOC,PPRES,PMDN,PDAY,PBOAT,PNA ASH36 26
C INTEGER FN1,FN10,PLEN(999),PSEX(999),PMAT(999),IAGE(999),T ASH36 27
C DIMENSION IFNO(4) ASH36 28
C DATA C,P,H,T/8,5,9,1/ ASH36 29
C DATA INF,FIRST,M1,UN,SAMP,LINE,TYPE/999,0,2,1,0,55,1/ ASH36 30
C FORMATS ASH36 31
C 5 FORMAT(3I1,11,2X,I3,4I2,I3,2I1,1X,I1,9X,2I3,2I1,I2) ASH36 32
C 10 FORMAT(2I3,I1,1X,2I4,I3,2I2,I3,2I1,I2,I7,I4,I1,37X,'H') ASH36 33
C 15 FORMAT(2I3,I1,I2,10(I3,2I1,I2)'S') ASH36 34
C 20 FORMAT(' ') ASH36 35
C 25 FORMAT(11,57X,I2,17X,I3) ASH36 36
C 30 FORMAT(I4,1X,3I1,7X,I4,I4,2I3,1X,A3,I4,I2,2I3,I2,6X,I5) ASH36 37
C 35 FORMAT(I4,4(I3,I3,I4,3I1,1A1,5X)) ASH36 38
C 40 FORMAT(1H1,'TABLE',I3,'. LISTING OF 19',2I1,'-',2I1,' SAMPLES BY ASH36 39

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*NEW AND OLD SAMPLE NUMBERS.' ,7X,'PAGE',I3//1H,'SAMP. OLD AREA PER. ASH36 49
* TYPE LOC. MON. DAY BOAT GEAR SDR. PRES. WEIGHT UNIT NO.OF FISH/' ASH36 50
*1H ,1X,'NO.' ,2X,'NO.' ,64X,'WT.' ,3X,'ALL' ) ASH36 51
45 FORMAT (1H ,I3,2X,A3,I6,2I4,I6,I5,I4,I6,2I4,I6,I9,I4,2I6) ASH36 52
50 FORMAT ('SEASON READ (' ,I3,') DIFFERS FROM SEASON BEING PROCESSED ASH36 53
* (' ,I3,') )/'CORRECT ERROR OR TURN ON DATSW 1 TO FINISH PROCESSING' ASH36 54
*) ASH36 55
55 FORMAT ('TURN ON DATSW 3 TO BYPASS CARD OUTPUT') ASH36 56
C ASH36 57
C INITIALIZATION ASH36 58
WRITE (1,55) ASH36 59
PAUSE 3 ASH36 60
CALL DATSW (3,M3) ASH36 61
READ (C,25) CT,NTAB,PAGE ASH36 62
GO TO (245,60), CT ASH36 63
C ASH36 64
C READ RDS HEADER CARD ASH36 65
40 PND = 0 ASH36 66
PNA = 0 ASH36 67
SAMP = SAMP + 1 ASH36 68
RTWT = 0 ASH36 69
DO 65 I = 1,INF ASH36 70
PLEN(I) = 0 ASH36 71
IAGE(I) = 0 ASH36 72
PSEX(I) = 0 ASH36 73
PMAT (I) = 0 ASH36 74
65 CONTINUE ASH36 75
INF = 0 ASH36 76
NCD = 1 ASH36 77
70 READ (C,30) IDEN,Y3,Y1,Y2,PAREA,PLOC,PMON,PDAY,PSN,PBOAT,PPER,IGR ASH36 78
*,ISR,PPRES,PWT ASH36 79
IF (IDEN+5)75,7C,75 ASH36 80
75 IF (IDEN - 9999)80,355,80 ASH36 81
80 PSEAS = Y3*100+Y1*10+Y2 ASH36 82
IF (Y2)90,85,90 ASH36 83
85 Y4 = Y3 + 1 ASH36 84
GO TO 95 ASH36 85
90 Y4 = Y3 ASH36 86
95 IF (ISR-10)100,100,105 ASH36 87
100 PSOUR = 2 ASH36 88
GO TO 120 ASH36 89
105 IF (ISR-49)110,110,115 ASH36 90
110 PSOUR = 1 ASH36 91
GO TO 120 ASH36 92
115 PSOUR = 3 ASH36 93
120 IF (IGR-6)125,130,135 ASH36 94
125 PGEAR = 9 ASH36 95
GO TO 175 ASH36 96
130 PGEAR = 3 ASH36 97
GO TO 175 ASH36 98
135 IF (IGR-25)140,140,145 ASH36 99
140 PGEAR = 0 ASH36100
GO TO 175 ASH36101
145 IF (IGR-45)150,150,155 ASH36102
150 PGEAR = 4 ASH36103
GO TO 175 ASH36104
```

155 IF (IGR-48)160,165,170	ASH36105
160 PGEAR = 8	ASH36106
GO TO 175	ASH36107
165 PGEAR = 5	ASH36108
GO TO 175	ASH36109
170 PGEAR = 7	ASH36110
C	ASH36111
C READ RDS DATA CARDS (4 FISH PER CARD)	ASH36112
175 READ (C,35) JDEN,(IFNO(J),RLEN(J),RWT(J),RSEX(J),RMAT(J),KAGE(J),	ASH36113
*RAGE(J),J=1,4)	ASH36114
IF (JDEN+5)180,235,180	ASH36115
180 IF (JDEN-IDEN)235,185,235	ASH36116
185 DO 230 J =1,4	ASH36117
IF (RLEN(J))195,190,195	ASH36118
190 IF (IFNO(J))235,235,230	ASH36119
195 PNA = PNA + 1	ASH36120
INF = INF + 1	ASH36121
IF (RWT(J))200,205,200	ASH36122
200 PNO = PNO + 1	ASH36123
RTWT = RTWT + RWT(J)	ASH36124
205 IF (RAGE(J) + 4032)210,210,215	ASH36125
210 IAGE(PNA) = 0	ASH36126
GO TO 225	ASH36127
215 IF (RAGE(J) + 1728)220,220,210	ASH36128
220 IAGE(PNA) = (RAGE(J) + 4032) / 256 + KAGE(J)*10	ASH36129
225 PLEN (PNA) = RLEN(J)	ASH36130
PSEX(PNA) = RSEX(J)	ASH36131
PMAT(PNA) = RMAT(J)	ASH36132
230 CONTINUE	ASH36133
IF (IFNO(4) - 100)175,235,235	ASH36134
235 IF (PWT)285,240,285	ASH36135
240 PWT = RTWT / 10	ASH36136
GO TO 285	ASH36137
C	ASH36138
C READ SINGLE FISH CARDS	ASH36139
245 READ (C,5) Y3,Y1,Y2,PER,AREA,LOC,MON,DAY,SN,BOAT,SOUR,GEAR,PRES,	ASH36140
*LEN,WT,SEX,MAT,AGE	ASH36141
SEAS = Y3*100 + Y1*10 + Y2	ASH36142
IF (FIRST)270,250,270	ASH36143
250 FIRST = 1	ASH36144
IF (Y2)260,255,260	ASH36145
255 Y4 = Y3 + 1	ASH36146
GO TO 265	ASH36147
260 Y4 = Y3	ASH36148
265 JSEAS = SEAS	ASH36149
ASAMP = (FLOAT(AREA))*100.0 + FLOAT(PER)*100000.0 + SN	ASH36150
GO TO 335	ASH36151
270 IF (SEAS-JSEAS)275,280,275	ASH36152
275 WRITE (T,50) SEAS,JSEAS	ASH36153
PAUSE 1	ASH36154
CALL DATSW (1,M1)	ASH36155
GO TO (285,245),M1	ASH36156
280 ASAMP = (FLOAT(AREA))*100.0 + FLOAT(PER)*100000.0 + SN	ASH36157
C	ASH36158
C PUNCH HEADER CARD FOR SAMPLE AND LIST SAMPLES BY OLD AND NEW NUMBERS	ASH36159
IF (PSAMP-ASAMP)285,345,285	ASH36160



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285 GO TO (295,290),M3 ASH36161
290 WRITE (H,10) PSEAS,SAMP,TYPE,PAEA,PLOC,PMON,PDAY,PGEAR,PBOAT,PSO ASH36162
  *UR,PPRES,PPER,PWT,PNO,UN ASH36163
295 IF (LINE - 48)305,305,300 ASH36164
300 WRITE (P,40) MTAB,Y3,Y1,Y4,Y2,PAGE ASH36165
  LINE = 0 ASH36166
  PAGE = PAGE + 1 ASH36167
305 WRITE (P,45) SAMP,PSN,PAEA,PPER,TYPE,PLOC,PMON,PDAY,PBOAT,PGEAR, ASH36168
  *PSOUR,PPRES,PWT,UN,PNO,PNA ASH36169
  LINE = LINE + 1 ASH36170
C ASH36171
C PUNCH SPECIMEN DATA CARDS ASH36172
  GO TO (325,310), M3 ASH36173
310 FN1 = 1 ASH36174
  FN10 = 10 ASH36175
315 WRITE (H,15) PSEAS,SAMP,TYPE,NCD,(PLEN(I),PSEX(I),PMAT(I),IAGE(I) ASH36176
  *,I=FN1,FN10) ASH36177
  IF (FN10 - INF)320,325,325 ASH36178
320 FN1 = FN1 + 10 ASH36179
  FN10 = FN10 + 10 ASH36180
  NCD = NCD+1 ASH36181
  GO TO 315 ASH36182
325 GO TO (330,6C), CT ASH36183
330 GO TO (355,335), M1 ASH36184
C ASH36185
C INITIALIZE SAMPLE VARIABLES ASH36186
335 PSAMP = ASAMP ASH36187
  PWT = 0 ASH36188
  PNO = 0 ASH36189
  PNA = 0 ASH36190
  PSEAS = SEAS ASH36191
  PAEA = AREA ASH36192
  PGEAR = GEAR ASH36193
  PLOC = LUC ASH36194
  PPRES = PRES ASH36195
  PMON = MUN ASH36196
  PDAY = DAY ASH36197
  PBOAT = BOAT ASH36198
  PPER = PER ASH36199
  PSOUR = SOUR ASH36200
  SAMP = SAMP + 1 ASH36201
  PSN = SN ASH36202
  DO 340 I=1,INF ASH36203
    PLEN(I) = 0 ASH36204
    PSEX(I) = 0 ASH36205
    PMAT(I) = 0 ASH36206
340 IAGE(I) = 0 ASH36207
  INF = 0 ASH36208
  NCD = 1 ASH36209
  GO TO (345,60), CT ASH36210
C ASH36211
C ACCUMULATE DATA BY SAMPLE ASH36212
345 INF = INF + 1 ASH36213
  PLEN(INF) = LFN ASH36214
  PSEX(INF) = SEX ASH36215
  PMAT(INF) = MAT ASH36216
```

IAGE(INF) = AGE	
PNA = PNA + 1	ASH36217
IF (WT)350,245,350	ASH36218
350 PWT = PWT + WT	ASH36219
PNO = PNO + 1	ASH36220
GO TO 245	ASH36221
355 WRITE (H,20)	ASH36222
CALL EXIT	ASH36223
END	ASH36224
// DUP	ASH36225
*DELETE	ASH36
*STORE WS UA	ASH36

ASH37

```

// JOH
// DUP
*DFILE          UA R37 1220
// FOR
*JUCS(1403 PRINTER,2501 READER,1442 PUNCH,TYPEWRITER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH37
**ASH37, REPORT FOR SPECIMEN SAMPLES AND SUMMARY BY TOTAL SAMPLE.
C
C .....
C
C USE *FILES(5,WCKF),(10,R37),(12,R37) TO EXECUTE
C
C DISK DATA FILE R37 REQUIRES 1220 SECTORS OF USERS AREA.
C (THIS AREA IS DEPENDENT UPON THE MAX. NUMBER OF CARDS TO BE READ,
C 1 RECORD PER CARD, PLUS 100 RECORDS FOR OUTPUT BUFFER)
C - 91 ADDITIONAL SECTORS REQUIRED IN WORKING STORAGE
C
C THE FUNCTIONS OF THIS PROGRAM ARE, TO GIVE A DATA REPORT OF EACH FISH
C SAMPLED WITHIN A SAMPLE FOR ALL SAMPLES TAKEN DURING A SEASON,
C TO GIVE A SUMMARY BY SAMPLE NUMBER OF EACH SAMPLE, AND TO RE-SORT
C LATTER BY AREA AND WEEK. THE PROGRAM ALSO GIVES THE NUMBER OF FISH
C AT AGE AND TOTAL NUMBER OF FISH SAMPLED (TO ACCOUNT FOR UNAGED
C FISH) BY LENGTH GROUP FOR EACH SAMPLE.
C
C OUTPUT
C -----
C A) PUNCHED OUTPUT OF NUMBER OF FISH AT AGE AND TOTAL FISH, BY
C LENGTH GROUP AND SAMPLE - CARD CODE LG. TURN ON DATA SWITCH 3
C TO BYPASS.
C *** CARD CODE LG IS REQUIRED FOR FURTHER ANALYSIS.
C
C B) LISTING OF SPECIMEN DATA (AGE, LENGTH, SEX AND MATURITY) BY
C SAMPLE NUMBER. - DATA SWITCH 1 ON TO BYPASS.
C
C C) LISTING OF HEADER CARD INFORMATION (AREA, LOCALITY, WEEK, GEAR,
C BOAT, SOURCE, PRESERVATION, PERIOD, NUMBER OF FISH, SAMPLE
C WEIGHT AND UNITS OF WEIGHT -1-GRAMS, 2-POUNDS) BY SAMPLE NUMBER
C - DATA SWITCH 2 ON TO BYPASS
C
C D) LISTING OF ABOVE BY SAMPLE SORTED BY WEEK WITHIN AREA.
C - DATA SWITCH 4 ON TO BYPASS.
C
C INPUT
C -----
C 1) TABLE AND PAGE CONTROL CARD
C COLS 1-3 BLANK
C 4-6 INITIAL PAGE NUMBER OF OUTPUT B
C 7-9 TABLE VALUE OF OUTPUT C
C 10-12 INITIAL PAGE VALUE FOR ABOVE
C 13-15 TABLE VALUE FOR OUTPUT D
C 16-18 INITIAL PAGE VALUE FOR ABOVE
C
C 2) SEASON TO BE PROCESSED (E.G. 701 FOR 1970-71 DATA) COLS 1-3.

```

ASH37 1  
ASH37 2  
ASH37 3  
ASH37 4  
ASH37 5  
ASH37 6  
ASH37 7  
ASH37 8  
ASH37 9  
ASH37 10  
ASH37 11  
ASH37 12  
ASH37 13  
ASH37 14  
ASH37 15  
ASH37 16  
ASH37 17  
ASH37 18  
ASH37 19  
ASH37 20  
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ASH37 38  
ASH37 39  
ASH37 40  
ASH37 41  
ASH37 42  
ASH37 43  
ASH37 44  
ASH37 45

C 3) DATA CARDS - CODES H AND S. ASH37 46  
C - THE H CARD PRECEEDS ALL S CARDS OF SAMPLE NUMBER AND TYPE. ASH37 47  
C - IF MORE THAN ONE SAMPLE TYPE OF THE SAME SAMPLE NUMBER OCCURS ASH37 48  
C PLACE THE SETS IN ASCENDING ORDER BY TYPE NUMBER (COL.7) ASH37 49  
C - FOR ORDERLY APPEARANCE OF OUTPUT B, DATA SHOULD BE INPUTTED ASH37 50  
C BY ASCENDING SAMPLE NUMBER (COLS.4-6) ASH37 51  
C \*\*\* MAXIMUM SAMPLE NUMBER ACCEPTED IS 610 ASH37 52  
C \*\*\* MAXIMUM NUMBER OF SAMPLES PER AREA IS 106, MAX OF 5999 CARDS. ASH37 53  
C \*\*\* SAMPLE TYPES MAY BE OF ONLY THREE CODES - 1,2 AND 3. ASH37 54  
C ASH37 55  
C 4) END OF DATA INDICATOR - 999 IN COLS 1-3. ASH37 56  
C ASH37 57  
C PROGRAM WILL PRODUCE A PAUSE 999 AT END OF PRINT OUT SECTION ASH37 58  
C TO INDICATE PUNCH OUTPUT TO FOLLOW. THE PROGRAM MAY BE ABORTED AT ASH37 59  
C THIS POINT, AND THE PUNCH OUTPUT OBTAINED AT A LATER STAGE BY ASH37 60  
C PROGRAM PCH37, OR PRESS START TO ENTER PUNCH ROUTINE. THE PAUSE ASH37 61  
C MAY BE BYPASSED BY TURNING ON DATA SWITCH 12 BEFORE PUNCH STAGE, - ASH37 62  
C PUNCH ROUTINE IS THEN ENTERED WITH NO INTERRUPTION. ASH37 63  
C ASH37 64  
C PROGRAM RD37 MAY BE USED TO LOAD FILE R37 PREVIOUS TO THE EXECUTION ASH37 65  
C OF THIS PROGRAM. UNDER THIS CONDITION ONLY INPUTS 1 AND 2 ARE ASH37 66  
C REQUIRED, WITH DATA SWITCH 10 ON. ASH37 67  
C ASH37 68  
C SUBROUTINE WKND IS USED TO CONVERT DAY AND MONTH OF CALENDAR YEAR TO ASH37 69  
C WEEK NUMBER OF FISCAL YEAR. ASH37 70  
C ASH37 71  
C NOTE FOLLOWING ... ASH37 72  
C SAMPLE WEIGHTS OF OVER 32766 ARE NOT ALLOWED. ASH37 73  
C AREA 79 IS CONVERTED TO AREA NUMBER 71 WITH 100 ADDED TO LOC. READ. ASH37 74  
C IF INTEGER VALUE OF AREA / 10 EQUALS 79, AREA CODE IS CONVERTED TO ASH37 75  
C AREA 290. ASH37 76  
C IF BOAT NUMBER IS READ AS ZERO OR NEGATIVE IT IS SET TO 999. ASH37 77  
C REGRESSION OF  $Y = 4.907 + 0.9939X$  IS USED TO CONVERT LENGTH OF A ASH37 78  
C FRESH FISH (Y) TO THAT OF A FROZEN FISH (X). ASH37 79  
C FRESH IS INDICATED BY PRESERVATION = 1 ASH37 80  
C TYPE 2 AND 3 SAMPLES ARE NOT ASSUMED TO HAVE AGED FISH. ASH37 81  
C ASH37 82  
C ..... ASH37 83  
C ASH37 84  
C SPECIFICATIONS ASH37 85  
C INTEGER C,P,H,PAGE1,PAGE2,DSEAS,AREA,LOC,DAY,FISH(10,4),GEAR,BOAT ASH37 86  
C INTEGER SOUR,PRES,ARAY1(14),ARAY2(14),ARAY3(14),FAA(48,10),T ASH37 87  
C INTEGER NARCA(62),PAGE3,WGT,WI,TYPE,TYPE1,TYPE2,WEEK,OUT(3,20) ASH37 88  
C DIMENSION LGR(48,2),NOF(48,2),NTEST(106,2),IN(44),ISUM(3,20) ASH37 89  
C DATA C,P,H,T/R,5,9,1/,TYPE1,TYPE2/'H','S/' ASH37 90  
C DATA K12,K10,I12,I12R/1,1,1,1/,LINE,IFR,ILAST/56,0,0/ ASH37 91  
C DATA ARAY1/14\*0/,NTEST/212\*0/,DSEAS/0/ ASH37 92  
C ASH37 93  
C DEFINE FILE 1(610,42,U,K1) ASH37 94  
C DEFINE FILE 3(62,106,U,K1) ASH37 95  
C DEFINE FILE 5(3,93,U,K1) ASH37 96  
C DEFINE FILE 10 (6100,60,U,K10) ASH37 97  
C DEFINE FILE 12 (6100,60,U,K12) ASH37 98  
C ASH37 99  
C FORMATS ASH37 100  
C 5 FORMAT (6I3) ASH37101

10 FORMAT (3I1) ASH37102  
15 FORMAT (2I3,I1,2X,10(I3,2I1,I2),A1) ASH37103  
20 FORMAT ('1SPECIMEN DATA BY SAMPLE NUMBER AND TYPE, 19',2I1,'-',2I1,ASH37104  
\*'.',6IX,'PAGE A',I3//) ASH37105  
25 FORMAT ('0') ASH37106  
30 FORMAT (' ',I4,5X,I1,4X,I3,5X,I3,6X,I2,4X,I2,5X,I2,4X,I2,5X,I2,4X,IASH37107  
\*3,4X,I2,8X,I2,8X,I6,4X,I1,8X,I5) ASH37108  
35 FORMAT (' NUMBER TYPE AREA LOCALITY WEEK MONTH DAY PERIOD GASH37109  
\*EAR POAT SOURCE PRESERVATION WEIGHT UNITS NUMBER OF FISH') ASH37110  
40 FORMAT ('0',6X,'FISH NO.',5(3X,'LEN. SEX MAT. AGE')) ASH37111  
45 FORMAT (' ',6X,I3,'-',I3,5(4X,I3,3X,I1,4X,I1,3X,I2)) ASH37112  
50 FORMAT (' ',5X,I4,'-',I4,3X,I3,3X,I1,4X,I1,3X,I2,4(4X,I3,3X,I1,4X,IASH37113  
\*1,3X,I2)) ASH37114  
55 FORMAT ('1TABLE ',I2,'. LISTING OF SAMPLES BY SAMPLE NUMBER, 19',ASH37115  
\*2I1,'-',2I1,35X,'PAGE ',I3) ASH37116  
60 FURMAT ('+',55X,'.') ASH37117  
65 FORMAT ('+'56X,'(CONTINUED).') ASH37118  
70 FORMAT ('OSAMP.',2X,'SAMP.',81X,'NO.OF/' NO.',3X,'TYPE',3X,'AREAASH37119  
\* LOC. WEEK MONTH DAY PERIOD GEAR BOAT SOURCE PRES. WEIGHASH37120  
\*T UNITS FISH') ASH37121  
75 FORMAT (' ',I3,5X,I1,5X,I3,3X,I3,4X,I2,4X,I2,4X,I2,5X,I2,5X,I2,4X,ASH37122  
\*I3,4X,I1,6X,I1,5X,I6,4X,I1,4X,I4) ASH37123  
80 FORMAT ('1TABLE ',I2,'. LIST OF 19',2I1,'-',2I1,' SAMPLES BY AREAASH37124  
\* AND WEEK.',6X,'PAGE ',I3//OAREA WEEK SAMP. MON DAY LOC. TYPE PRASH37125  
\*ES. GEAR SR. WEIGHT UNIT FISH') ASH37126  
85 FORMAT (' ',I3,3X,I2,2X,I3,3X,I2,3X,I2,2X,I3,4X,I1,4X,I1,3X,I2,4X,ASH37127  
\*I1,2X,I6,3X,I1,2X,I4) ASH37128  
90 FORMAT (3I3,I2,I3,I2,2I6,10I4,I6,I2,2X,'LG') ASH37129  
95 FORMAT (' ') ASH37130  
100 FORMAT (///TURNING ON THE FOLLOWING DATA SWITCHES WILL BYPASS THE ASH37131  
\*PROCEDURES LISTED/' 1 - LISTING OF SPECIMEN DATA/' 2 - LISTING OASH37132  
\*F SAMPLES BY SAMPLE NUMBER/' 3 - PUNCH OUTPUT OF FREQUENCY AT AGEASH37133  
\* BY LENGTH GROUP/' 10 - READ IN PROCEDURE/' 12 - PAUSE BEFORE PUASH37134  
\*NCHING') ASH37135  
105 FORMAT (///IF DATA HAS BEEN PREVIOUSLY LOADED, TURN ON DATA SWITCHASH37136  
\* 10/'A \*FILES(5,WEEKF),(10,R37),(12,R37) CARD SHOULD HAVE BEEN REASH37137  
\*AD/' YOUR INPUT WILL NOW CONSIST OF/' A TABLE - PAGE VALUE CARDASH37138  
\*/' A SEASON TO BE PROCESSED CARD/' SOME BLANK CARDS') ASH37139  
110 FORMAT (///SEASON READ',I4,' IS INCONSISTENT WITH SEASON BEING PROASH37140  
\*CESSED ('',I3,'')) ASH37141  
115 FORMAT (///IF DATA IS TO BE READ NOW, MAKE SURE DATA SWITCH 10 IS ASH37142  
\*OFF (DOWN POSITION)/' YOUR INPUT WILL CONSIST OF/' A \* FILES(5,ASH37143  
\*WEEKF),(10,R37),(12,R37) CARD (IT SHOULD HAVE ALREADY BEEN READ)'/ASH37144  
\* A TABLE - PAGE VALUE CARD/' A SEASON TO BE PROCESSED CARD/' ASH37145  
\* THE DATA/' A CARD WITH 999 PUNCHED IN COLS. 1 - 3/' SOME BLANASH37146  
\*KS') ASH37147  
120 FORMAT (///CARD TYPE',A2,' IS INCORRECT') ASH37148  
125 FORMAT (///SEASON ON FILE ',I3,', DIFFERS FROM THAT ON HEADER ',IASH37149  
\*3,' - CHECK BOTH') ASH37150  
130 FORMAT (///LENGTH ',I3,' IS OUT OF RANGE OF TEST ARRAY (0-400)) ASH37151  
135 FORMAT (///A PAUSE 999 WILL OCCUR JUST BEFORE PUNCHING (IF DESIREASH37152  
\*D) WILL TAKE PLACE/' THIS PAUSE MAY BE BYPASSED BY TURNING ON DAASH37153  
\*TA SWITCH 12') ASH37154  
140 FORMAT (///FILE R37 IS TOO SMALL - UPDATE') ASH37155  
145 FORMAT (///SAMPLE TYPE ',I3,' IS INCORRECT') ASH37156  
150 FORMAT (///SAMPLES HAVE EXCEEDED 106IN NUMBER FOR AREA ',I3,' JOB ASH37157



*IS TERMINATED*)	ASH37158
155 FORMAT (///'AREA ',I3,' IS INCORRECT')	ASH37159
160 FORMAT (///'PUNCH RECORDS HAVE EXCEEDED READ RECORDS, SAMPLE ',I3/'	ASH37160
*READY PUNCH'/'TO CLEAR FILES, PUNCHING WILL NOW BEGIN'/'DO NOT ABOASH37161	
*ORT')	ASH37162
165 FORMAT (///'PUNCH OUTPUT IS READY TO BE EXECUTED'/' READY PUNCH ANASH37163	
*D PRESS START')	ASH37164
C	ASH37165
C INTIALIZATION	ASH37166
C	ASH37167
C THE VECTOR LGR IS A TABLE LOOK UP FOR LENGTH GROUP CLASSIFICATIONS.	ASH37168
LGR(I,1) = 0	ASH37169
LGR(I,2) = 80	ASH37170
IT1 = 81	ASH37171
DO 170 I = 2,8	ASH37172
IT2 = IT1 + 5	ASH37173
LGR(I,1) = IT1	ASH37174
LGR(I,2) = IT2	ASH37175
IT1 = IT2 + 1	ASH37176
170 CONTINUE	ASH37177
IT1 = 123	ASH37178
DO 175 I = 9,47	ASH37179
IT2 = IT1 + 2	ASH37180
LGR(I,1) = IT1	ASH37181
LGR(I,2) = IT2	ASH37182
IT1 = IT2 + 1	ASH37183
175 CONTINUE	ASH37184
LGR(48,1) = 240	ASH37185
LGR(48,2) = 900	ASH37186
C	ASH37187
WRITE (T,105)	ASH37188
WRITE (T,115)	ASH37189
WRITE (T,100)	ASH37190
WRITE (T,135)	ASH37191
PAUSE 1	ASH37192
CALL DATSW (10,M10)	ASH37193
DO 180 I=1,610	ASH37194
WRITE (I'I) ARAY1,ARAY1,ARAY1	ASH37195
180 CONTINUE	ASH37196
READ (5'2) NAREA	ASH37197
DO 185 I = 1,62	ASH37198
WRITE (3'I)(NTEST(J,1),J=1,106)	ASH37199
185 CONTINUE	ASH37200
C	ASH37201
C TO READ PAGE VALUE	ASH37202
READ (C,5) NTAR1,PAGE1,NTAB2,PAGE2,NTAB3,PAGE3	ASH37203
C	ASH37204
C TO READ SEASON TO BE PROCESSED	ASH37205
READ (C,10) IDEC,IYR1,IYR2	ASH37206
IF (IYR2)195,190,195	ASH37207
190 IDEC1 = IDEC + 1	ASH37208
GO TO 200	ASH37209
195 IDEC1 = IDEC	ASH37210
200 ISEAS = IDEC * 100 + IYR1 * 10 + IYR2	ASH37211
GO TO (245,205), M10	ASH37212
C	ASH37213



C	CARD READ IN PROCEDURE.	ASH37214
	205 DD 230 I = 101,6099	ASH37215
	210 READ (C,15) IN	ASH37216
	IF (IN(1) - 999)215,235,215	ASH37217
	215 IF (IN(1) - 1SEAS)220,225,220	ASH37218
	220 WRITE (T,110) IN(1),1SEAS	ASH37219
	PAUSE 1	ASH37220
	GO TO 210	ASH37221
	225 WRITE (10'I) IN	ASH37222
	230 CONTINUE	ASH37223
	WRITE (T,14C)	ASH37224
	GO TO 905	ASH37225
	235 K10 = 1	ASH37226
	DD 240 J = 1,6100	ASH37227
	WRITE (10'J) DSEAS	ASH37228
	240 CONTINUE	ASH37229
C		ASH37230
C	TO READ MAIN DATA	ASH37231
	245 DD 685 I10 = 101,6100	ASH37232
	READ(10'I10) DSEAS,ISAMP,JTYPE,((FISH(I,J),J=1,4),I=1,10),TYPE	ASH37233
	IF (DSEAS)255,250,255	ASH37234
	250 ILAST = 1	ASH37235
	GO TO 515	ASH37236
	255 IF (DSEAS - 1SEAS)260,265,260	ASH37237
	260 WRITE (T,125) DSEAS,1SEAS	ASH37238
	PAUSE 1	ASH37239
	GO TO 905	ASH37240
	265 IF (TYPE - TYPE1)270,455,270	ASH37241
	270 IF (TYPE - TYPE2)275,280,275	ASH37242
	275 WRITE (T,120) TYPE	ASH37243
	PAUSE 2	ASH37244
	GO TO 685	ASH37245
C		ASH37246
C	TO ALLOCATE FISH AT AGE AND NUMRERS OF FISH TO A LENGTH GROUP	ASH37247
	280 II = 0	ASH37248
	DD 345 I = 1,10	ASH37249
	IF (FISH(I,1))350,350,285	ASH37250
	285 II = II + 1	ASH37251
	IF (PRES - 1)295,290,290	ASH37252
C		ASH37253
C	CONVERT FRESH TO FROZEN LENGTH.	ASH37254
	290 FISH(I,1) = IFIX((FLOAT(FISH(I,1)) - 4.907) / 0.9939 + 0.501)	ASH37255
	295 DU 300 K = 1,48	ASH37256
	IF ((LGR(K,1) - FISH(I,1))*1*(FISH(I,1)-LGR(K,2)))300,305,305	ASH37257
	300 CONTINUE	ASH37258
	WRITE (T,130) FISH(I,1)	ASH37259
	PAUSE 3	ASH37260
	GO TO 685	ASH37261
C		ASH37262
C	NOTE THAT ONLY TYPE 1 SAMPLES ARE ASSUMED TO BE AGED.	ASH37263
	305 GO TO (310,340,340), ITYPE	ASH37264
	310 INC = FISH(I,4)	ASH37265
	IF (INC)315,340,315	ASH37266
	315 IF (INC - 20)325,320,320	ASH37267
	320 FISH(I,4) = 0	ASH37268
	GO TO 340	ASH37269

325 IF (INC - 10)335,335,330	
330 INC = 10	ASH37270
C	ASH37271
335 FAA(K,INC) = FAA(K,INC) + 1	ASH37272
NOF(K,1) = NOF(K,1) + 1	ASH37273
340 NOF(K,2) = NOF(K,2) + 1	ASH37274
345 CONTINUE	ASH37275
C	ASH37276
C TO PRINT INDIVIDUAL FISH DATA	ASH37277
350 CALL DATSW(1,M1)	ASH37278
GO TO (685,355), M1	ASH37279
355 IF (LINE - 54)365,365,360	ASH37280
360 WRITE (P,20) IDEC,IYR1,IDECL,IYR2,PAGE1	ASH37281
PAGE1 = PAGE1 + 1	ASH37282
WRITE (P,35)	ASH37283
WRITE(P,30) ISAMP,JTYPE,AREA,LOC,WEEK,MUN,DAY,IPER,GEAR,BOAT,SOUR	ASH37284
*,PRES,WGT,IU,NF	ASH37285
WRITE (P,40)	ASH37286
LINE = 7	ASH37287
365 IF (II - 5)370,390,390	ASH37288
370 IT1 = IT + (II - 1)	ASH37289
IF (IT1 - 999)380,380,375	ASH37290
375 WRITE (P,50) IT,IT1,((FISH(I,J),J=1,4),I=1,II)	ASH37291
GO TO 385	ASH37292
380 WRITE (P,45) IT,IT1,((FISH(I,J),J=1,4),I=1,II)	ASH37293
385 LINE = LINE + 1	ASH37294
IT = IT1 + 1	ASH37295
GO TO 685	ASH37296
390 IT1 = IT + 4	ASH37297
IF (IT1 - 999)400,400,395	ASH37298
395 WRITE (P,50) IT,IT1,((FISH(I,J),J=1,4),I=1,5)	ASH37299
GO TO 405	ASH37300
400 WRITE (P,45) IT,IT1,((FISH(I,J),J=1,4),I=1,5)	ASH37301
405 LINE = LINE + 1	ASH37302
IF (II - 10)410,435,435	ASH37303
410 IF (II - 5)685,685,415	ASH37304
415 IT = IT1 + 1	ASH37305
IT1 = IT + (II - 6)	ASH37306
IF (IT1 - 999)425,425,420	ASH37307
420 WRITE (P,50) IT,IT1,((FISH(I,J),J=1,4),I=6,II)	ASH37308
GO TO 430	ASH37309
425 WRITE (P,45) IT,IT1,((FISH(I,J),J=1,4),I=6,II)	ASH37310
430 LINE = LINE + 1	ASH37311
IT = IT1 + 1	ASH37312
GO TO 685	ASH37313
435 IT = IT1 + 1	ASH37314
IT1 = IT + 4	ASH37315
IF (IT1 - 999)445,445,440	ASH37316
440 WRITE (P,50) IT,IT1,((FISH(I,J),J=1,4),I=6,10)	ASH37317
GO TO 450	ASH37318
445 WRITE (P,45) IT,IT1,((FISH(I,J),J=1,4),I=6,10)	ASH37319
450 IT = IT1 + 1	ASH37320
LINE = LINE + 1	ASH37321
C	ASH37322
C TO RETURN TO PROCESS NEXT CARD	ASH37323
GO TO 685	ASH37324
	ASH37325

C		ASH37326
C	CARD IS HEADER CARD, TO PRINT, PUNCH AND STORE AS DESIRED	ASH37327
	455 ITYPE= JTYPE	ASH37328
	AREA = FISH(1,1)	ASH37329
	LOC = FISH(1,3)* 100 + FISH(1,4)	ASH37330
C		ASH37331
	IF ( AREA - 79)465,460,465	ASH37332
	460 AREA = 71	ASH37333
	LOC = LOC + 100	ASH37334
C		ASH37335
	465 IF (AREA/10 - 79)475,470,475	ASH37336
	470 AREA = 290	ASH37337
C		ASH37338
	475 MON = FISH(2,1)	ASH37339
	DAY = FISH(2,2)* 10 + FISH(2,3)	ASH37340
	GEAR = FISH(2,4)	ASH37341
	BOAT = FISH(3,1)	ASH37342
	IF (BOAT)480,480,485	ASH37343
	480 BOAT = 999	ASH37344
	485 SUUR = FISH(3,2)	ASH37345
	PRES = FISH(3,3)	ASH37346
	IPER = FISH(3,4)	ASH37347
	WGT = FISH(4,1) * 10000 + FISH(4,2) * 1000 + FISH(4,3) * 100 + FISH(4,4)	ASH37348
	*SH(4,4)	ASH37349
	NF = FISH(5,1) * 10 + FISH(5,2)	ASH37350
	IU = FISH(5,3)	ASH37351
C		ASH37352
	CALL WKNO(IDEC,IYR1,MON,DAY,WEEK)	ASH37353
	CALL DATSW (1,M1)	ASH37354
	GO TO (510,490), M1	ASH37355
	490 IF (LINE - 45)495,495,500	ASH37356
	495 WRITE (P,25)	ASH37357
	LINE = LINE + 2	ASH37358
	GO TO 505	ASH37359
	500 WRITE (P,20) IDEC,IYR1,IDECL,IYR2,PAGE1	ASH37360
	PAGE1 = PAGE1 + 1	ASH37361
	LINE = 3	ASH37362
	505 WRITE (P,35)	ASH37363
	WRITE(P,30)ISAMP,JTYPE,AREA,LOC,WEEK,MON,DAY,IPER,GEAR,BOAT,SOUR,	ASH37364
	*PRES,WGT,IU,NF	ASH37365
	WRITE (P,40)	ASH37366
	LINE = LINE + 4	ASH37367
	510 IT = 1	ASH37368
	IF (IFR)515,595,515	ASH37369
	515 CALL DATSW (3,M3)	ASH37370
	GO TO (600,520), M3	ASH37371
C		ASH37372
C	TO LOAD FILE R37 WITH PUNCH OUTPUT	ASH37373
	520 DO 570 N = 1,48	ASH37374
	IF (NOF(N,2))570,570,525	ASH37375
	525 IF (I12 - 3)560,560,530	ASH37376
	530 IF (I12R - I10)555,555,535	ASH37377
C		ASH37378
C	TO CLEAR BUFFER AREA AND REPACK FILE IF PUNCH RECORDS HAVE EXCEEDED	ASH37379
C	THE READ RECORD.	ASH37380
	535 WRITE (T,160) JSAMP	ASH37381

DO 545 JJ = 1,100	ASH37362
READ (12'JJ) OUT	ASH37383
DO 540 JK = 1,3	ASH37384
WRITE (H,90) (OUT(JK,JL),JL=1,20)	ASH37385
540 CONTINUE	ASH37386
545 CONTINUE	ASH37387
I12R = 1	ASH37388
DO 550 JJ = 101,110	ASH37389
READ (12'JJ) OUT	ASH37390
WRITE (12'I12R) OUT	ASH37391
I12R = I12R + 1	ASH37392
550 CONTINUE	ASH37393
C	ASH37394
555 WRITE (12'I12R) ISUM	ASH37395
I12R = I12R + 1	ASH37396
I12 = 1	ASH37397
560 ISUM(I12,1) = ISEAS	ASH37398
ISUM(I12,2) = IAREA	ASH37399
ISUM(I12,3) = ILOC	ASH37400
ISUM(I12,4) = IWK	ASH37401
ISUM(I12,5) = JSAMP	ASH37402
ISUM(I12,6) = N	ASH37403
ISUM(I12,7) = NOF(N,1)	ASH37404
ISUM(I12,8) = NOF(N,2)	ASH37405
J = 1	ASH37406
DO 565 JJ = 9,18	ASH37407
ISUM(I12,JJ) = FAA(N,J)	ASH37408
J = J + 1	ASH37409
565 CONTINUE	ASH37410
ISUM(I12,19) = WT	ASH37411
ISUM(I12,20) = IUN	ASH37412
I12 = I12 + 1	ASH37413
570 CONTINUE	ASH37414
IF (ILAST)595,595,575	ASH37415
575 IF (I12 - 4)580,590,590	ASH37416
580 DO 585 J = I12,3	ASH37417
DO 585 JJ = 1,20	ASH37418
ISUM(J,JJ) = 0	ASH37419
585 CONTINUE	ASH37420
WRITE (12'I12R) ISUM	ASH37421
GO TO 690	ASH37422
590 WRITE (12'I12R) ISUM	ASH37423
DSEAS = 0	ASH37424
I12R = I12R + 1	ASH37425
WRITE (12'I12R) DSEAS	ASH37426
GO TO 690	ASH37427
595 IAREA = AREA	ASH37428
JSAMP = ISAMP	ASH37429
ILOC = LOC	ASH37430
IFR = 1	ASH37431
IWK = WEEK	ASH37432
WT = WGT	ASH37433
IUN = IU	ASH37434
600 IF (ILAST)605,605,690	ASH37435
605 DO 615 L = 1,48	ASH37436
NOF(L,1) = 0	ASH37437

	NOF(L,2)=0	ASH37438
	DO 610 LF=1,10	ASH37439
610	FAA(L,LF) = 0	ASH37440
615	CONTINUE	ASH37441
	CALL DATSW (2,M2)	ASH37442
	GO TO (650,620),M2	ASH37443
620	IF (ITYPE -3)630,630,625	ASH37444
625	WRITE (T,145) ITYPE	ASH37445
	PAUSE 5	ASH37446
	GO TO 685	ASH37447
C		ASH37448
C	TO STORE SAMPLE DATA BY SAMPLE ON FILE 1	ASH37449
630	READ (1'ISAMP) ARAY1,ARAY2,ARAY3	ASH37450
	GO TO (635,640,645), ITYPE	ASH37451
635	WRITE (1'ISAMP) ITYPE,AREA,LOC,WEEK,MON,DAY,IPER,GEAR,BOAT,SOUR,PRASH37452	ASH37453
	*ES,WGT,IU,NF,ARAY2,ARAY3	ASH37454
	GO TO 650	ASH37455
640	WRITE (1'ISAMP) ARAY1,ITYPE,AREA,LOC,WEEK,MON,DAY,IPER,GEAR,BOAT,SASH37456	ASH37457
	*OUR,PRES,WGT,IU,NF,ARAY3	ASH37458
	GO TO 650	ASH37459
645	WRITE (1'ISAMP) ARAY1,ARAY2,ITYPE,AREA,LOC,WEEK,MON,DAY,IPER,GEAR,ASH37460	ASH37461
	*BOAT,SOUR,PRES,WGT,IU,NF	ASH37462
650	CALL DATSW(4,M4)	ASH37463
	GO TO (685,655), M4	ASH37464
C		ASH37465
C	TO STORE SAMPLE NUMBER BY AREA ON FILE 3	ASH37466
655	DO 680 L = 1,62	ASH37467
	IF (AREA - NAREA(L))680,650,680	ASH37468
660	READ (3'L)(NTEST(J,1),J=1,106)	ASH37469
	DO 675 J = 1,106	ASH37470
	IF (ISAMP - NTEST(J,1))665,685,665	ASH37471
665	IF (NTEST(J,1))675,670,675	ASH37472
670	NTEST( J,1) = ISAMP	ASH37473
	WRITE (3'L)(NTEST(M,1),M=1,106)	ASH37474
	GO TO 685	ASH37475
675	CONTINUE	ASH37476
	WRITE (T,150) AREA	ASH37477
	GO TO 905	ASH37478
680	CONTINUE	ASH37479
	WRITE (T,155) AREA	ASH37480
C		ASH37481
C	RETURN AND READ NEW CARD	ASH37482
685	CONTINUE	ASH37483
C		ASH37484
C	TO LIST SAMPLES BY SAMPLE MUNBER	ASH37485
690	CALL DATSW(2,M2)	ASH37486
	GO TO (740,695),M2	ASH37487
695	WRITE (P,55) NTAB2,IDEC,IYR1,IDEC1,IYR2,PAGE2	ASH37488
	WRITE (P,60)	ASH37489
	WRITE (P,70)	ASH37490
	LINE = 6	ASH37491
	PAGE2 = PAGE2 + 1	ASH37492
	DO 735 I=1,610	ASH37493
	READ (1'I) ARAY1,ARAY2,ARAY3	
	IF (LINE - 46)705,705,700	
700	WRITE (P,55) NTAB2,IDEC,IYR1,IDEC1,IYR2,PAGE2	



WRITE (P,65)	ASH37494
WRITE (P,70)	ASH37495
LINE = 6	ASH37496
PAGE2 = PAGE2 + 1	ASH37497
705 IF (ARRAY1(1))715,715,710	ASH37498
710 WRITE (P,75) I,ARRAY1	ASH37499
LINE = LINE + 1	ASH37500
715 IF (ARRAY2(1))725,725,720	ASH37501
720 WRITE (P,75) I,ARRAY2	ASH37502
LINE = LINE + 1	ASH37503
725 IF (ARRAY3(1))735,735,730	ASH37504
730 WRITE (P,75) I,ARRAY3	ASH37505
LINE = LINE + 1	ASH37506
735 CONTINUE	ASH37507
C TO PRINT LISTING OF SAMPLES BY AREA AND WEEK	ASH37508
740 CALL DATSW(4,M4)	ASH37509
GO TO (865,745), M4	ASH37510
745 PAGE3 = PAGE2	ASH37511
LINE = 55	ASH37512
DU 860 I = 1,62	ASH37513
READ (3*1) (NTEST(J,1),J=1,106)	ASH37514
IF (NTEST(1,1))860,860,750	ASH37515
C	ASH37516
C TO ASSIGN WEEK TO SAMPLE.	ASH37517
750 DO 785 IJ = 1,106	ASH37518
NTEST(IJ,2) = 0	ASH37519
IF (NTEST(IJ,1))785,785,755	ASH37520
755 ISAMP = NTEST(IJ,1)	ASH37521
READ (1*ISAMP) ARAY1, ARAY2, ARAY3	ASH37522
IF (ARAY1(4))765,765,760	ASH37523
760 NTEST(IJ,2) = ARAY1(4)	ASH37524
GO TO 785	ASH37525
765 IF (ARAY2(4))775,775,770	ASH37526
770 NTEST(IJ,2) = ARAY2(4)	ASH37527
GO TO 785	ASH37528
775 IF (ARAY3(4))785,785,780	ASH37529
780 NTEST(IJ,2) = ARAY3(4)	ASH37530
785 CONTINUE	ASH37531
DU 805 KK = 1,106	ASH37532
ITEST = 1	ASH37533
DO 800 J = 2,106	ASH37534
IF (NTEST(J,2)-NTEST(J-1,2))790,800,800	ASH37535
790 IF (NTEST(J,2))800,800,795	ASH37536
795 ISAMP = NTEST(J-1,1)	ASH37537
IWK = NTEST(J-1,2)	ASH37538
NTEST(J-1,1) = NTEST(J,1)	ASH37539
NTEST(J-1,2) = NTEST(J,2)	ASH37540
NTEST(J,1) = ISAMP	ASH37541
NTEST(J,2) = IWK	ASH37542
ITEST = 0	ASH37543
800 CONTINUE	ASH37544
IF (ITEST)810,805,810	ASH37545
805 CONTINUE	ASH37546
810 DO 855 J = 1,106	ASH37547
INC = NTEST(J,1)	ASH37548
IF (INC)860,860,815	ASH37549



```
315 READ (1,INC) ARAY1,ARAY2,ARAY3                                ASH37550
    IF (LINE = 43)825,825,820                                    ASH37551
820 WRITE (P,80) NTAB3, IDEC,IYR1,IDEC1,IYR2,PAGE3             ASH37552
    LINE = 0                                                    ASH37553
    PAGE3 = PAGE3 + 1                                           ASH37554
825 IF (ARAY1(1))835,835,830                                    ASH37555
830 WRITE (P,85) NAREA(I),NTEST(J,2),NTEST(J,1),ARAY1(5),ARAY1(6),ARA ASH37556
    *Y1(3),ARAY1(1),ARAY1(11),ARAY1(8),ARAY1(10),ARAY1(12),ARAY1(13),ARA ASH37557
    *AY1(14)                                                    ASH37558
    LINE = LINE + 1                                             ASH37559
835 IF (ARAY2(1))845,845,840                                    ASH37560
840 WRITE (P,85) NAREA(I),NTEST(J,2),NTEST(J,1),ARAY2(5),ARAY2(6),ARA ASH37561
    *Y2(3),ARAY2(1),ARAY2(11),ARAY2(8),ARAY2(10),ARAY2(12),ARAY2(13),ARA ASH37562
    *AY2(14)                                                    ASH37563
    LINE = LINE + 1                                             ASH37564
845 IF (ARAY3(1))855,855,850                                    ASH37565
850 WRITE (P,85) NAREA(I),NTEST(J,2),NTEST(J,1),ARAY3(5),ARAY3(6),ARA ASH37566
    *Y3(3),ARAY3(1),ARAY3(11),ARAY3(8),ARAY3(10),ARAY3(12),ARAY3(13),ARA ASH37567
    *AY3(14)                                                    ASH37568
    LINE = LINE + 1                                             ASH37569
855 CONTINUE                                                    ASH37570
860 CONTINUE                                                    ASH37571
865 CALL DATSW(3,M3)                                           ASH37572
    GO TO (905,870), M3                                         ASH37573
870 CALL DATSW(12,M12)                                         ASH37574
    GO TO (875,900), M12                                        ASH37575
875 DO 890 I = 1,6100                                           ASH37576
    READ (12'I) ISUM                                           ASH37577
    DO 885 J = 1,3                                             ASH37578
    IF (ISUM(J,1))895,895,880                                   ASH37579
880 WRITE (H,90) (ISUM(J,K),K=1,20)                            ASH37580
885 CONTINUE                                                    ASH37581
890 CONTINUE                                                    ASH37582
895 WRITE (H,95)                                               ASH37583
    GO TO 905                                                  ASH37584
900 WRITE (T,165)                                             ASH37585
    PAUSE 999                                                 ASH37586
    GO TO 875                                                  ASH37587
905 CALL EXIT                                                 ASH37588
    END                                                       ASH37589

// DUP
*DELETE                ASH37
*STORE                WS UA ASH37
```

```
// JOB
// FOR
*IOCS(2501 READER,TYPEWRITER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME RD37
** RD37 - PROGRAM TO LOAD DATA FILE R37 FOR PROGRAM ASH37.
C .....RD37 2
C RD37 3
C USE *FILES(1,R37) TO EXECUTE. RD37 4
C RD37 5
C INPUT RD37 6
C 1 - SEASON TO BE PROCESSED , E.G. 567, COLS. 1 - 3 RD37 7
C 2 - TEN FISH PER CARD SAMPLING DATA, SORTED BY (IN THE FOLLOWING ORDER)RD37 8
C 1) SAMPLE TYPE (COL. 7) RD37 9
C 2) SAMPLE NUMBER (COL. 4 - 6) RD37 10
C FOR ONE SEASON (THAT DEFINED BY THE SEASON TO BE PROCESSED CARD) RD37 11
C 3 - A 999 CARD (COLS. 1 - 3) RD37 12
C RD37 13
C .....RD37 14
C INTEGER C,T
C DIMENSION IN(44)
C DATA KI,C,T/1,8,1/
C DEFINE FILE 1 (6100,60,U,KI)
C 5 FORMAT (I3)
C 10 FORMAT (2I3,I1,2X,I3,I2,I1,A1)
C 15 FORMAT (///'SEASON READ ',I3,' DIFFERS FROM THAT OF HEADER CARD ',I3,'
C *3/' CORRECT AND REPLACE')
C 20 FORMAT (///'DATA HAS OVERFLOWED FILE SIZE')
C 25 FORMAT (///'R37 DATA LOAD COMPLETED','I6,' RECORDS')
C
C READ (C,5) ISEAS
C DO 50 I = 101,6099
C 30 READ (C,10) IN
C IF (IN(1) - 999)35,55,35
C 35 IF (IN(1) - ISEAS)40,45,40
C 40 WRITE (T,15) IN(1),ISEAS
C PAUSE 1
C GO TO 30
C 45 WRITE (1'I) IN
C 50 CONTINUE
C WRITE (T,20)
C GO TO 65
C 55 ISEAS = 0
C DO 60 J = 1,6100
C WRITE (1'J) ISEAS
C 60 CONTINUE
C I = (I - 1) - 100
C WRITE (T,25) I
C 65 CALL EXIT
C END
// DUP
*DELETE RD37
*STORE WS UA RD37
```

```
// JOB
// FOR
*IOCS(1442 PUNCH,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME PCH37
** PCH37 - PROGRAM TO PUNCH OUTPUT OF ASH37 STORED ON FILE R37
C
C.....
C USE *FILES(1,R37) TO EXECUTE.
C
C NO INPUT REQUIRED.
C.....
C
C      INTEGER H
C      DIMENSION ISUM(3,20)
C      DATA KI,H/1,9/
C      DEFINE FILE 1(6100,60,U,KI)
C
C      5 FORMAT (3I3,I2,I3,I2,2I6,10I4,I6,I2,2X,'LG')
C      10 FORMAT (' ')
C
C      DD 25 I = 1,6100
C      READ (1,I) ISUM
C      DD 20 J = 1,3
C      IF (ISUM(J,1))30,30,15
C      15 WRITE (H,5) (ISUM(J,K),K=1,20)
C      20 CONTINUE
C      25 CONTINUE
C
C      30 WRITE (H,10)
C      CALL EXIT
C      END
// DUP
*DELETE          PCH37
*STORE           WS UA PCH37
```

PCH37 1  
PCH37 2  
PCH37 3  
PCH37 4  
PCH37 5  
PCH37 6  
PCH37 7  
PCH37 8  
PCH37 9  
PCH37 10  
PCH37 11  
PCH37 12  
PCH37 13  
PCH37 14  
PCH37 15  
PCH37 16  
PCH37 17  
PCH37 18  
PCH37 19  
PCH37 20  
PCH37 21  
PCH37 22  
PCH37 23  
PCH37 24  
PCH37 25  
PCH37 26  
PCH37 27  
PCH37 28

```

// JOB
// FOR
*IOCS(TYPEWRITER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH3B
** CALLING PROGRAM FOR SAMPLING DATA AGE COMPOSITION ANALYSIS
C
C
C *****
C USE *FILES(1,R3B) TO EXECUTE.
C
C PROGRAM FUNCTION IS TO INITIATE AGE COMPOSITION ANALYSIS OF SAMPLING
C DATA AND TO DETERMINE IF DISK DATA FILE R3B HAS BEEN PREVIOUSLY
C LOADED. IF SO, A LINK TO THE FIRST PROGRAM OF THE ANALYSIS
C (PAC3B) IS EXECUTED, OTHERWISE A LINK TO THE READ-IN PROGRAM (RD3B)
C IS ORDERED.
C
C FOR COMPLETE DATA INPUT DESCRIPTION SEE LISTING OF PROGRAM RD3B.
C
C *****
C
C INTEGER T
C DATA T/1/
C
C WRITE (T,5)
C 5 FORMAT(///TURN ON FOLLOWING DATASWITCHES TO BYPASS ITEMS LISTED//)
C * 1 - PRELIMINARY AGE COMP BY SAMPLE/' 2 - FREQ AT LENGTH AND AGE
C * BY SAMPLE/' 3 - PERCENT LENGTH DIST BY AGE FOR AREA/' 4 - NORMAL
C * PROBS BY AREA/' 5 - NO.OF FISH AGED BY SAMPLE/' 6 - FINAL AGE
C * OMP BY SAMPLE/' 7 - AVER. AGE COMP BY AREA AND WEEK/' 8 - PUNCH
C * OUTPUT OF 7/' 10 - READ IN DATA PROCEDURE')
C
C PAUSE 1
C CALL DATSW(10,M1)
C GO TO (15,10), M1
C 10 CALL LINK (RD3B)
C 15 CALL LINK (PAC3B)
C END
// DUP
*DELETE
*STORE WS UA

```

ASH3B

ASH3B 1  
ASH3B 2  
ASH3B 3  
ASH3B 4  
ASH3B 5  
ASH3B 6  
ASH3B 7  
ASH3B 8  
ASH3B 9  
ASH3B 10  
ASH3B 11  
ASH3B 12  
ASH3B 13  
ASH3B 14  
ASH3B 15  
ASH3B 16  
ASH3B 17  
ASH3B 18  
ASH3B 19  
ASH3B 20  
ASH3B 21  
ASH3B 22  
ASH3B 23  
ASH3B 24  
ASH3B 25  
ASH3B 26  
ASH3B 27  
ASH3B 28  
ASH3B 29  
ASH3B 30  
ASH3B 31  
ASH3B 32

```

// JOB
// DUP
*DFILE UA R38 1296
// FOR
*IDCS(2501 READER,TYPEWRITER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME RD38
** RD38, PROGRAM TO LOAD DATA FILE R38 FOR PROGRAM ASH38
C
C ..... RD38 1
C ..... RD38 2
C THIS PROGRAM MAY BE EXECUTED ON A STAND ALONE BASIS USING RD38 3
C *FILES(1,R38) RD38 4
C RD38 5
C RD38 6
C THE FUNCTION OF THIS PROGRAM IS TO LOAD DISK DATA FILE R38 WITH DATA RD38 7
C FOR ANALYSIS BY PROGRAMS OF THE ASH38 SERIES (PAC38, FAL38, RD38 8
C PLD38, AGE38, PRB38, ACS38, AND ACW38) RD38 9
C RD38 10
C INPUT RD38 11
C ----- RD38 12
C 1) TABLE AND PAGE VALUES FOR THE FOLLOWING. (FORMAT OF 1413) RD38 13
C (6 COLUMNS PER ITEM IN ORDER AND AS LISTED BELOW - FIRST THREE RD38 14
C COLUMNS CONTAIN TABLE VALUE RIGHT ORIENTED IN FIELD, SECOND RD38 15
C THREE COLUMNS CONTAIN INITIAL PAGE NUMBER FOR ITEM ALSO RIGHT RD38 16
C ORIENTED IN FIELD) RD38 17
C A) PRELIMINARY PERCENT AGE COMPOSITION BY SAMPLE (FROM RD38 18
C FISH AGED FROM SCALES). RD38 19
C B) FREQUENCY AT AGE AND LENGTH GROUP BY SAMPLE. RD38 20
C C) AVERAGE PERCENT LENGTH DISTRIBUTION BY AGE FOR AREA. RD38 21
C D) NORMAL PROBABILITY TABLES USED IN AGING UNKNOWN. RD38 22
C E) PROBABLE AGE DISTRIBUTION OF FISH OF UNKNOWN AGE, BY RD38 23
C LENGTH GROUP AND SAMPLE. RD38 24
C F) ADJUSTED PERCENT AGE COMPOSITION BY SAMPLE. RD38 25
C G) AVERAGE ADJUSTED PERCENT AGE COMPOSITION BY AREA AND RD38 26
C WEEK. RD38 27
C RD38 28
C A ZERO TABLE OR PAGE VALUE WILL CAUSE AN AUTOMATIC INCREMENT OF RD38 29
C ONE FROM THE LAST TABLE AND/OR PAGE VALUE PRINTED. RD38 30
C RD38 31
C 2) SEASON TO BE PROCESSED, COLUMNS 1-3. EG. 567 (1956-57) RD38 32
C RD38 33
C 3) FREQUENCY AT AGE BY LENGTH GROUP DATA CARDS, SORTED BY RD38 34
C A) SAMPLE NUMBER (COLS. 12-14) A TOTAL MAX. OF 605 SAMPLES. RD38 35
C B) WITHIN WEEK (COLS. 10-11) RD38 36
C C) WITHIN AREA (COLS. 4-6) RD38 37
C THESE ARE CARD CODE 'LG' AS PRODUCED FROM ASH37. RD38 38
C RD38 39
C 4) DATA TERMINATION INDICATOR, 999 IN COLS. 1-3 RD38 40
C RD38 41
C TO FACILITATE A LOAD R38 ONLY FUNCTION (ACTUAL ANALYSIS TO BE RUN AT RD38 42
C A LATER DATE) THIS PROGRAM WILL CALL EXIT IF DATA SWITCH 12 IS ON. RD38 43
C OTHERWISE A LINK TO PROGRAM PAC38 WILL OCCUR. RD38 44
C RD38 45

```

```
C BECAUSE THE FORMAT OF DISK DATA FILE R38 IS ALTERED IN THE ANALYSIS, RD38 46
C (BY PROGRAMS AGE38 AND ACS38) A CHECK IS MADE TO DETERMINE IF RD38 47
C A FORMAT OVERLAP COULD OCCUR. IF SO, THIS PROGRAM WILL TERMINATE RD38 48
C WITH A MESSAGE EXPLAINING THE POSSIBLE TROUBLE. RE-SUBMIT DATA, RD38 49
C PLACING AREA BLOCKS OF LESS DATA AHEAD OF BLOCKS OF LARGER DATA. RD38 50
C RD38 51
C ..... RD38 52
C
C INTEGER C,T RD38 53
C DIMENSION IN(14),INN(10),IFREQ(48,10),IUKN(48) RD38 54
C DATA C,T/8,1,IML,IREC,IFR,KI,IFA,ICT,JCT/48,83,0,1,0,83,2/ RD38 55
C RD38 56
C
C DEFINE FILE 1(1296,320,U,KI) RD38 57
C RD38 58
C RD38 59
C FORMATS RD38 60
C 5 FORMAT (14I3) RD38 61
C 10 FORMAT (3I1) RD38 62
C 15 FORMAT (///TABLE AND PAGE VALUES -,14I3/'SEASON TO BE PROCESSED IRD38 63
C *S ',I3///'IF EXIT IS DESIRED AFTER DATA HAS BEEN LOADED ONTO FILE,RD38 64
C * TURN ON DATASWITCH 12') RD38 65
C 20 FORMAT (3I3,I2,I3,I2,2I6,10I4) RD38 66
C 25 FORMAT (///'SEASON READ ',I3,', DIFFERS FROM HEADER CARD ('',I3,'')/RD38 67
C *'CORRECT AND REPLACE') RD38 68
C 30 FORMAT (///'LOADING OF ',I3,' DATA TO FILE R38 IS COMPLETED'/'LAST RD38 69
C *SAMPLE STORED WAS ',I4) RD38 70
C 35 FORMAT (///' AREA ',I3,', WILL CAUSE DATA FILE FORMAT OVERLAP'/'SUBRD38 71
C *MIT AREA IN DIFFERENT ORDER') RD38 72
C RD38 73
C
C READ (C,5) IN RD38 74
C READ (C,10) IDEC,IYR1,IYR2 RD38 75
C ISEAS = IDEC * 100 + IYR1 * 10 + IYR2 RD38 76
C WRITE (1'1) IN,IDEC,IYR1,IYR2 RD38 77
C WRITE (T,15) IN,ISEAS RD38 78
C RD38 79
C
C JAREA = -1 RD38 80
C JLLOC = -1 RD38 81
C JWK = -1 RD38 82
C JSAMP = -1 RD38 83
C DO 40 I = 3,83,2 RD38 84
C WRITE (1'1) JAREA,JLLOC,JWK,JSAMP RD38 85
C 40 CONTINUE RD38 86
C RD38 87
C
C TO READ DATA CARDS RD38 88
C 45 READ (C,20) JSEAS,JAREA,JLLOC,JWK,JSAMP,N,NOA,NOF,INN RD38 89
C IF (JSEAS - 999)50,95,50 RD38 90
C 50 IF (JSEAS - ISEAS)55,60,55 RD38 91
C 55 WRITE (T,25) JSEAS,ISEAS RD38 92
C PAUSE 1 RD38 93
C GO TO 45 RD38 94
C RD38 95
C
C 60 IF (IFR)80,65,80 RD38 96
C RD38 97
C
C 65 DO 70 I = 1,IML RD38 98
C IUKN(I) = 0 RD38 99
C DO 70 J = 1,10 RD38 100
C IFREQ(I,J) = 0 RD38 101
```



70 CONTINUE	RD38 102
IFR = 1	RD38 103
IAREA = JAREA	RD38 104
ILOC = JLOC	RD38 105
IWK = JWK	RD38 106
ISAMP = JSAMP	RD38 107
IF (IFA)75,75,80	RD38 108
75 IFA = 1	RD38 109
KAREA = JAREA	RD38 110
C	RD38 111
80 IF (ISAMP - JSAMP)95,85,95	RD38 112
C	RD38 113
85 IUKN(N) =(NOF - NOA) + IUKN(N)	RD38 114
DO 90 J = 1,10	RD38 115
IFREQ(N,J) = IFREQ(N,J) + INN(J)	RD38 116
90 CONTINUE	RD38 117
GO TO 45	RD38 118
C	RD38 119
95 IREC = IREC + 2	RD38 120
C	RD38 121
C TEST FOR POSSIBLE FORMAT OVER LAP.	RD38 122
IF (JAREA - KAREA)105,100,105	RD38 123
100 JCT = JCT + 1	RD38 124
GO TO 120	RD38 125
105 KAREA = JAREA	RD38 126
IF (JCT - ICT)115,110,110	RD38 127
110 WRITE (T,35) IAREA	RD38 128
CALL EXIT	RD38 129
115 ICT = IREC	RD38 130
120 WRITE (1'REC) IAREA,ILOC,IWK,ISAMP,IFREQ,IUKN	RD38 131
IF (JSEAS - 999)65,125,65	RD38 132
C	RD38 133
125 IREC=IREC + 2	RD38 134
JSEAS = 0	RD38 135
WRITE (1'REC) JSEAS	RD38 136
WRITE (T,30) ISEAS,ISAMP	RD38 137
CALL DATSW(12,M12)	RD38 138
GO TO (135,130),M12	RD38 139
130 CALL LINK(PAC3B)	RD38 140
135 CALL EXIT	RD38 141
END	RD38 142
// DUP	
*DELETE	RD38
*STORE	WS UA RD38

```
// JOB
// FOR
*IOCS(1403 PRINTER,DISK)
*UNE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME PAC38
** PAC38, PROGRAM TO CALCULATE PRELIMINARY AGE COMPOSITION BY SAMPLE
C
C .....
C THIS PROGRAM IS LINKED FROM RD38 OR ASH38, AND WILL LINK TO FAL38
C
C EXECUTION OF THIS PROGRAM MAY BE BYPASSED BY TURNING ON DATA SWITCH 1
C
C PROGRAM MAY BE EXECUTED ON A STAND ALONE BASIS USING *FILES(1,R38)
C
C .....
C
C INTEGER P
C DIMENSION IFREQ(48,10),AWC(10),AAC(10),ISC(10),IN(14),ACOMP(10)
C DATA P/5/,KI,IREC,IFR,IFP,IML/1,83,0,0,48/
C
C DEFINE FILE 1(1296,320,U,KI)
C
C FORMATS
C 5 FORMAT('1TABLE 8',I2,','. PRELIMINARY PERCENT AGE COMPOSITION BY SAPAC38 19
C *MPLE (FOR FISH AGED FROM SCALES), 19',211,'-',211,','. PAGE ',I3)PAC38 20
C 10 FORMAT('0AREA WEEK SAMPLE LOC.',38X,'A G E',38X,'NO.OF/' ',18X,10PAC38 21
C *(6X,I1,'+',)5X,'FISH'/)
C 15 FORMAT ('0',214,2(3X,I3),1X,10(1X,F7.3),I6)
C 20 FORMAT (' ',11X,'AVERAGE',3X,10(1X,F7.3),I6/)
C 25 FORMAT (' ',5X,'AVERAGE', 9X,10(1X,F7.3),I6/)
C 30 FORMAT (' ',6X,I2,2(3X,I3),1X,10(1X,F7.3),I6)
C 35 FORMAT (' ',8X,2(3X,I3),1X,10(1X,F7.3),I6)
C 40 FORMAT (' ')
C
C READ (1'1) IN,IDECL,IYR1,IYR2
C NTAR = IN(1)
C IPAGE= IN(2)
C IF (IYR2)50,45,50
C 45 IDECL = IDECL + 1
C GO TO 55
C 50 IDECL = IDECL
C 55 CALL DATSW(1,M1)
C GO TO (250,60),M1
C
C 60 IREC = IREC + 2
C READ (1'REC) JAREA,JLOC,JWK,JSAMP,IFREQ
C IF (JAREA)95,95,65
C 65 NOF = 0
C DO 70 I = 1,10
C ISC(I) = 0
C DO 70 J = 1,14
C NOF = NOF + IFREQ(J,I)
C PAC38 47
```

	ISC(I) = ISC(I) + IFREQ(J,I)	PAC38 48
70	CONTINUE	PAC38 49
	IF (NOF)60,60,75	PAC38 50
C		PAC38 51
75	IF (IFR)90,80,90	PAC38 52
80	WRITE (P,5) NTAB,IDECL,IYR1,IDECL,IYR2,IPAGE	PAC38 53
	IPAGE = IPAGE + 1	PAC38 54
	WRITE (P,10)(I,I=0,9)	PAC38 55
	LINE = 5	PAC38 56
	DO 85 I = 1,10	PAC38 57
	ACOMP(I) = FLOAT(ISC(I)) / FLOAT(NOF) * 100.0	PAC38 58
	AAC(I) = ACOMP(I)	PAC38 59
	AWC(I) = ACOMP(I)	PAC38 60
	ACOMP(I) = ACOMP(I) + 0.000501	PAC38 61
95	CONTINUE	PAC38 62
	NW = 1	PAC38 63
	NS = 1	PAC38 64
	NOFS = NOF	PAC38 65
	NOFW = NOF	PAC38 66
	IWT = 1	PAC38 67
	IAT = 1	PAC38 68
	IFR = 1	PAC38 69
	IAREA = JAREA	PAC38 70
	IWK = JWK	PAC38 71
	WRITE (P,15) JAREA,JWK,JSAMP,JLOC,ACOMP,NOF	PAC38 72
	LINE = LINE + 2	PAC38 73
	GO TO 60	PAC38 74
C		PAC38 75
90	IF (IAREA - JAREA)95,155,95	PAC38 76
C		PAC38 77
95	IF (NS - 1)110,110,100	PAC38 78
100	DO 105 I = 1,10	PAC38 79
105	ACOMP(I) = AWC(I) / FLOAT(IWT) + 0.000501	PAC38 80
	WRITE (P,20) ACOMP,NOFS	PAC38 81
	LINE = LINE + 2	PAC38 82
	GO TO 115	PAC38 83
110	WRITE (P,40)	PAC38 84
	LINE = LINE + 1	PAC38 85
115	IF (NW - 1)130,130,120	PAC38 86
120	DO 125 I = 1,10	PAC38 87
	ACOMP(I) = AAC(I) / FLOAT(IAT) + 0.000501	PAC38 88
125	CONTINUE	PAC38 89
	WRITE (P,25) ACOMP,NOFW	PAC38 90
	LINE = LINE + 2	PAC38 91
130	IF ( JAREA)250,250,135	PAC38 92
C		PAC38 93
135	IF (LINE - 48)145,145,140	PAC38 94
140	WRITE (P,5) NTAB,IDECL,IYR1,IDECL,IYR2,IPAGE	PAC38 95
	IPAGE = IPAGE + 1	PAC38 96
	WRITE (P,10)(I,I=0,9)	PAC38 97
	LINE = 5	PAC38 98
145	DO 150 I = 1,10	PAC38 99
	ACOMP(I) = FLOAT(ISC(I)) / FLOAT(NOF) * 100.0	PAC38100
	AAC(I) = ACOMP(I)	PAC38101
	AWC(I) = ACOMP(I)	PAC38102
	ACOMP(I) = ACOMP(I) + 0.000501	PAC38103

150 CONTINUE	PAC38104
WRITE (P,15) JAREA,JWK,JSAMP,JLOC,ACOMP,NOF	PAC38105
LINE = LINE + 2	PAC38106
IAREA =JAREA	PAC38107
IWK =JWK	PAC38108
NS = 1	PAC38109
NW = 1	PAC38110
IWT = 1	PAC38111
IAT = 1	PAC38112
NOFW = NOF	PAC38113
NOFS = NOF	PAC38114
GO TO 60	PAC38115
C	PAC38116
155 IF (JWK - IWK)160,215,160	PAC38117
C	PAC38118
160 IF (NS - 1)175,175,165	PAC38119
165 DO 170 I = 1,10	PAC38120
ACOMP(I) = AWC(I) / FLOAT(IWT)+ 0.000501	PAC38121
170 CONTINUE	PAC38122
WRITE (P,20) ACOMP,NOFS	PAC38123
LINE = LINE + 2	PAC38124
GO TO 180	PAC38125
175 WRITE (P,40)	PAC38126
LINE = LINE + 1	PAC38127
180 IF (LINE - 48)190,190,185	PAC38128
185 WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE	PAC38129
IPAGE = IPAGE + 1	PAC38130
WRITE (P,10) (I,I=0,9)	PAC38131
LINE = 5	PAC38132
IFP = 1	PAC38133
190 DO 195 I = 1,10	PAC38134
ACOMP(I) = FLOAT(ISC(I)) / FLOAT(NOF) * 100.0	PAC38135
AWC(I) = ACOMP(I)	PAC38136
AAC(I) = AAC(I) + ACOMP(I)	PAC38137
ACOMP(I) = ACOMP(I) + 0.000501	PAC38138
195 CONTINUE	PAC38139
IF (IFP)205,205,200	PAC38140
200 WRITE (P,15) JAREA,JWK,JSAMP,JLOC,ACOMP,NOF	PAC38141
IFP = 0	PAC38142
LINE = LINE + 2	PAC38143
GO TO 210	PAC38144
205 WRITE (P,30) JWK,JSAMP,JLOC,ACOMP,NOF	PAC38145
LINE = LINE + 1	PAC38146
210 NOFS = NOF	PAC38147
NOFW = NOFW + NOF	PAC38148
IWK = JWK	PAC38149
NS = 1	PAC38150
NW = NW + 1	PAC38151
IWT = 1	PAC38152
IAT = IAT + 1	PAC38153
GO TO 60	PAC38154
C	PAC38155
215 DO 220 I = 1,10	PAC38156
ACOMP(I) = FLOAT(ISC(I)) / FLOAT(NOF) * 100.0	PAC38157
AAC(I) = AAC(I) + ACOMP(I)	PAC38158
AWC(I) = AWC(I) + ACOMP(I)	PAC38159

ACOMP(I) = ACOMP(I) + 0.000501	PAC38160
220 CONTINUE	PAC38161
IF (LINE - 48)230,230,225	PAC38162
225 WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE	PAC38163
IPAGE = IPAGE + 1	PAC38164
WRITE (P,10)(I,I=0,9)	PAC38165
LINE = 5	PAC38166
IFP = 1	PAC38167
230 IF (IFP)240,240,235	PAC38168
235 WRITE (P,15) JAREA,JWK,JSAMP,JLOC,ACOMP,NOF	PAC38169
IFP = 0	PAC38170
LINE = LINE + 2	PAC38171
GO TO 245	PAC38172
240 WRITE (P,35) JSAMP,JLOC,ACOMP,NOF	PAC38173
LINE = LINE + 1	PAC38174
245 NS = NS + 1	PAC38175
NOFS = NOFS + NOF	PAC38176
NOFW = NOFW + NOF	PAC38177
IWT = IWT + 1	PAC38178
IAT = IAT + 1	PAC38179
GO TO 60	PAC38180
250 IN(2) = IPAGE	PAC38181
WRITE (1'1) IN,IDEC,IYR1,IYR2	PAC38182
CALL LINK (FAL38)	PAC38183
END	PAC38184
// DUP	
*DELETE	PAC38
*STORE	WS UA PAC38

FAL38

```
// JOB
// FOR
*IOCS(DISK,1403 PRINTER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME FAL38
**FAL38, PROGRAM TO PRINT FREQUENCY AT AGE AND LENGTH GROUP BY SAMPLE.
```

```
C ..... FAL38 1
C ..... FAL38 2
C ..... FAL38 3
C PROGRAM IS LINKED FROM PAC38 (OR MAY BE EXECUTED ON A STAND ALONE FAL38 4
C BASIS USING *FILES(1,R38)) AND WILL LINK TO PROGRAM PLD38. FAL38 5
C DATA SWITCH 2 ON WILL BYPASS THE EXECUTION OF THIS PROGRAM. FAL38 6
C ..... FAL38 7
C PROGRAM WILL PRINT THE FREQUENCY OF FISH FOUND AT A GIVEN LENGTH AND FAL38 8
C AGE. ONLY THOSE LENGTH GROUPS FROM THE FIRST OF NON ZERO FAL38 9
C FREQUENCY TO THE LAST OF NON ZERO FREQUENCY ARE GIVEN. FAL38 10
C THE FREQUENCY OF UNKNOWNNS (NOT AGED) ARE ALSO PRINTED BY LENGTH FAL38 11
C GROUP. FAL38 12
C ..... FAL38 13
C SUBROUTINE PUTI REQUIRED - INTEGER TO A1 CONVERSION FAL38 14
C ..... FAL38 15
C ..... FAL38 16
C ..... FAL38 17
C ..... FAL38 18
C ..... FAL38 19
C ..... FAL38 20
C ..... FAL38 21
C ..... FAL38 22
C ..... FAL38 23
C ..... FAL38 24
C ..... FAL38 25
C FORMATS FAL38 26
5 FORMAT('1TABLE B',I2,'.',I2,'. FREQUENCY AT AGE AND LENGTH GROUP FAL38 26
*FOR SAMPLE ',I3,', 19',2I1,'-',2I1,'. PAGE ',I4/' ',15X,'(AREA ', FAL38 27
'I3,', LOCALITY ',I3,')') FAL38 28
10 FORMAT('LENGTH GROUP',32X,'A G E'/' NO. RANGE',2X,10(4X,I1,'+'), FAL38 29
*2X,'UNKN. ALL'/'') FAL38 30
15 FORMAT (' ',I2,2X,I3,'-',I3,1X,72A1) FAL38 31
20 FORMAT ('0','ALL',9X,72A1) FAL38 32
C ..... FAL38 33
C ..... FAL38 34
C ..... FAL38 35
C ..... FAL38 36
C ..... FAL38 37
25 NTAB = IN(1) + 1 FAL38 38
30 IF (IPAGE)35,35,40 FAL38 39
35 IPAGE = IN(2) FAL38 40
40 IF (IYR2)50,45,50 FAL38 41
45 IDEC1 = IDEC + 1 FAL38 42
GO TO 55 FAL38 43
50 IDEC1 = IDEC FAL38 44
55 CALL DATSW(2,M2) FAL38 45
GO TO (180,60), M2 FAL38 46
C ..... FAL38 47
```



C LENGTH GROUP RANGES

```
60 IREF(1,1) = 0
   IREF(1,2) = 80
   IT1 = 81
   DO 65 I = 2,8
     IT2 = IT1 + 5
     IREF(I,1) = IT1
     IREF(I,2) = IT2
     IT1 = IT2 + 1
65 CONTINUE
   IT1 = 123
   DO 70 I = 9,47
     IT2 = IT1 + 2
     IREF(I,1) = IT1
     IREF(I,2) = IT2
     IT1 = IT2 + 1
70 CONTINUE
   IREF(48,1) = 240
   IREF(48,2) = 900
```

FAL38 48  
FAL38 49  
FAL38 50  
FAL38 51  
FAL38 52  
FAL38 53  
FAL38 54  
FAL38 55  
FAL38 56  
FAL38 57  
FAL38 58  
FAL38 59  
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FAL38 96  
FAL38 97  
FAL38 98  
FAL38 99  
FAL38100  
FAL38101  
FAL38102  
FAL38103

```
C
75 IREC = IREC + 2
   READ (1,IREC) JAREA,JLOC,JWK,JSAMP,IFREQ,IUKN
   IF (JAREA)180,180,80
80 DO 95 I = 1,IML
   IF (IUKN(I))85,85,100
85 DO 90 J = 1,10
   IF (IFREQ(I,J))90,90,100
90 CONTINUE
95 CONTINUE
   GO TO 75
100 IST = I
C ABOVE TEST HAS FOUND FIRST NONE ZERO LENGTH GROUP
C BELOW WILL TEST FOR THE LAST NONE ZERO LENGTH GROUP
   K = IML
   DO 115 I = 1,IML
     IF (IUKN(K))105,105,120
105 DO 110 J = 1,10
     IF (IFREQ(K,J))110,110,120
110 CONTINUE
     K = K - 1
115 CONTINUE
     GO TO 75
120 ILAST = K
C
DO 125 I = 1,12
TOTAL(I) = 0
125 CONTINUE
```

```
C
WRITE(P,5)NTAB,JSAMP,JSAMP,IDEC,IYR1,IDEC1,IYR2,IPAGE,JAREA,JLOC
WRITE(P,10)(I,I=0,9)
IPAGE = IPAGE + 1
DO 155 I = IST,ILAST
DO 130 J = 1,72
PRNT(J) = IBLNK
130 CONTINUE
ITOT = 0
```

```
DO 135 J = 1,10
  ILINE(J) = IFREQ(I,J)
  TOTAL(J) = TOTAL(J) + IFREQ(I,J)
  ITOT = ITOT + IFREQ(I,J)
135 CONTINUE
  ILINE(11) = IUKN(I)
  ILINE(12) = ITOT + IUKN(I)
  TOTAL(11) = TOTAL(11) + IUKN(I)
  TOTAL(12) = TOTAL(12) + ILINE(12)
C
DO 150 J = 1,12
  K = (J-1) * 6 + 1
  L = K + 5
  IF (ILINE(J))140,140,145
140 M = K + 4
  PRNT(M) = IPRD
  M = M + 1
  PRNT(M) = IPRD
  GO TO 150
145 CALL PUTI(PRNT,K,L,ILINE(J),0)
150 CONTINUE
C
WRITE (P,15) I,IREF(I,1),IREF(I,2),PRNT
155 CONTINUE
C
DO 160 I = 1,72
  PRNT(I) = IBLNK
160 CONTINUE
DO 175 I = 1,12
  J = (I-1) * 6 + 1
  K = J + 5
  IF (TOTAL(I))165,165,170
165 M = J + 4
  PRNT(M) = IPRD
  M = M + 1
  PRNT(M) = IPRD
  GO TO 175
170 CALL PUTI(PRNT,J,K,TOTAL(I),0)
175 CONTINUE
C
WRITE (P,20) PRNT
C
GO TO 75
C
180 IN(3) = NTAB
  IN(4) = IPAGE
  WRITE (1'1) IN,IDEC,IYR1,IYR2
  CALL LINK(PLD38)
  END
// DUP
*DELETE          FAL38
*STORE           WS UA FAL38
```

FAL38104  
FAL38105  
FAL38106  
FAL38107  
FAL38108  
FAL38109  
FAL38110  
FAL38111  
FAL38112  
FAL38113  
FAL38114  
FAL38115  
FAL38116  
FAL38117  
FAL38118  
FAL38119  
FAL38120  
FAL38121  
FAL38122  
FAL38123  
FAL38124  
FAL38125  
FAL38126  
FAL38127  
FAL38128  
FAL38129  
FAL38130  
FAL38131  
FAL38132  
FAL38133  
FAL38134  
FAL38135  
FAL38136  
FAL38137  
FAL38138  
FAL38139  
FAL38140  
FAL38141  
FAL38142  
FAL38143  
FAL38144  
FAL38145  
FAL38146  
FAL38147  
FAL38148  
FAL38149  
FAL38150  
FAL38151  
FAL38152

// JOB  
 // ASM PUTI  
 \*LIST

			PUTI	1
			PUTI	2
	HDNG	INTEGER TO A1 CONVERSION	PUTI	3
	ENT	PUTI (KARD, I, J, INT, IEDIT)	PUTI	4
	ENT	PUTZ (KARD, I, J, INT, IEDIT)	PUTI	5
*	INT	IS CONVERTED TO A1 AND PUT IN KARD(I) THRU	PUTI	6
*	KARD(J)	. IEDIT INDICATES THE NUMBER OF IMPLIED	PUTI	7
*	DECIMAL PLACES	- ZERO OR NEGATIVE FOR NO DECIMAL	PUTI	8
*	POINT,	POSITIVE FOR NUMBER OF PLACES. LEADING	PUTI	9
*	ZEROS	REPLACED BY BLANKS - USE IEDIT GREATER THAN	PUTI	10
*	FIELD WIDTH	FOR NO ZERO SUPPRESSION. LEADING	PUTI	11
*	MINUS SIGN	IF INT IS NEGATIVE.	PUTI	12
*			PUTI	13
*	DAVE DILLARD,	BARTON-ASCHMAN ASSOCIATES, INC.	PUTI	14
*	1771 W. HOWARD ST.,	CHICAGO, IL 60626	PUTI	15
*			PUTI	17
NARG	EQU	5	PUTI	18
KARD	EQU	0-NARG	PUTI	19
I	EQU	1-NARG	PUTI	20
J	EQU	2-NARG	PUTI	21
INT	EQU	3-NARG	PUTI	22
IEDIT	EQU	4-NARG	PUTI	23
*			PUTI	24
PUTI	EQU	*	PUTI	25
PUTZ	EQU	*	PUTI	26
ARGAD	DC	*--*	PUTI	27
	STX	1 XRI	PUTI	28
	LDX	11 ARGAD	PUTI	29
	MDX	1 NARG	PUTI	30
	STX	1 RETRN	PUTI	31
	LD	11 I	PUTI	32
	BNP	L DONE	PUTI	33
	S	11 J	PUTI	34
	A	MINUS	PUTI	35
	BNN	L DONE	PUTI	36
	STO	NCHAR	PUTI	37
	LD	1 KARD	PUTI	38
	S	11 I	PUTI	39
	S	M2	PUTI	40
	STO	A1	PUTI	41
	LD	11 IEDIT	PUTI	42
MINUS	EQU	*-1	PUTI	43
	STO	NDEC	PUTI	44
	LD	11 INT	PUTI	45
M2	EQU	*-1	PUTI	46
	STO	INTGR	PUTI	47
	STO	SIGN	PUTI	48
	LDX	L1 *-*	PUTI	49
NCHAR	EQU	*-1	PUTI	50
*			PUTI	51
DIV10	EQU	*	PUTI	52
	LD	INTGR	PUTI	53
	SRT	16	PUTI	54
	D	TEN	PUTI	55

	STO		INTGR		PUTI	56
	XCH				PUTI	57
	BP	L	POS		PUTI	58
	EOR		MINUS		PUTI	59
	S		MINUS		PUTI	60
POS	EQU		*		PUTI	61
	SLA		8		PUTI	62
	OR		ZERO		PUTI	63
*					PUTI	64
PUT	EQU		*		PUTI	65
	STO	L1	**		PUTI	66
A1	EQU		*-1		PUTI	67
	MDX	1	1		PUTI	68
	B		DECNT		PUTI	69
*					PUTI	70
DONE	EQU		*		PUTI	71
	LDX	L1	**		PUTI	72
XR1	EQU		*-1		PUTI	73
	B	L	**		PUTI	74
RETRN	EQU		*-1		PUTI	75
*					PUTI	76
DECNT	EQU		*		PUTI	77
	LD		NDEC		PUTI	78
	BNP	L	CHECK		PUTI	79
	A		MINUS		PUTI	80
	STO		NDEC		PUTI	81
	BNZ	L	DIV10		PUTI	82
	LD		POINT		PUTI	83
	B		PUT		PUTI	84
*					PUTI	85
CHECK	EQU		*		PUTI	86
	MDM	L	INTGR,0		PUTI	87
	B		DIV10		PUTI	88
	LD		SIGN		PUTI	89
	SKP		-		PUTI	90
	B		PAD		PUTI	91
	LD		DASH		PUTI	92
	STO		SIGN		PUTI	93
	B		PUT		PUTI	94
*					PUTI	95
PAD	EQU		*		PUTI	96
	LD		BLANK		PUTI	97
	B		PUT		PUTI	98
*					PUTI	99
SIGN	DC		**		PUTI	100
NDEC	DC		**		PUTI	101
INTGR	DC		**		PUTI	102
TEN	DC		10		PUTI	103
ZERO	EBC		.0 .		PUTI	104
DASH	EBC		.-		PUTI	105
BLANK	EBC		. .		PUTI	106
POINT	EBC		.. .		PUTI	107
END					PUTI	108
					PUTI	109
// DUP PUTI					PUTI	110
*DELETE					PUTI	111
*STORE	WS	UA			PUTI	111

```

// JOB
// FOR
*IOCS(1403 PRINTER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME PLD38
** PLD38, PROGRAM TO CALCULATE AND PRINT PERCENT LENGTH DISTRIBUTION
C .....
C PROGRAM CALCULATES THE AVERAGE (OVER ALL SAMPLES) PERCENT LENGTH
C DISTRIBUTION AT AGE BY AREA.
C PLD38 IS LINKED FROM PROGRAM FAL38 (OR MAY BE EXECUTED ON A STAND
C ALONE BASIS USING *FILES(1,R38), AND WILL LINK TO PROGRAM AGE38.
C THE EXECUTION OF THIS PROGRAM MAY BE BYPASSED BY TURNING ON DATA-
C SWITCH THREE.
C THESE SUBROUTINES MOVE, PUT AND EDIT FOR ZERO SUPPRESS PROCEDURE.
C THESE PROGRAMS ARE FOUND IN THE I.B.M. 1130 COMMERCIAL SUBROUTINE
C PACKAGE SE 25X
C .....
C INTEGER P,HOLD(7)
C DIMENSION IFREQ(48,10),MASK(8),IPRN(88),PLD(48,11)
C DIMENSION IREF(48,2),IN(14)
C DATA P/5/,KI,IML,LINE,IREC,IFR,IBLNK,IPRD/1,48,55,83,0,' ','.'/
C DATA MASK/' ',' ',' ',' ',' ',' ',' ',' ',' ',' ' /
C DEFINE FILE 1(1296,320,U,KI)
C FORMATS
C 5 FORMAT('1TABLE 0',I2,'. PERCENT LENGTH DISTRIBUTION AT AGE BY ARE
C *A, 19',2I1,'-',2I1,' ',33X,'PAGE ',I4)
C 10 FORMAT ('0AREA LENGTH GROUP',40X,'A G E'/' ',7X,'NO. RANGE',10(6
C *X,I1,'+') ,5X,'ALL')
C 15 FORMAT ('0',I4,3X,I2,2X,I3,'-',I3,88A1)
C 20 FORMAT (' ',7X,I2,2X,I3,'-',I3,88A1)
C READ (1') IN,IDEC,IYR1,IYR2
C NTAB = IN(5)
C IPAGE= IN(6)
C IF (NTAB)25,25,30
C 25 NTAB = IN(3) + 1
C 30 IF (IPAGE)35,35,40
C 35 IPAGE = IN(4)
C 40 IF (IYR2)50,45,50
C 45 IDEC1 = IDEC + 1
C GO TO 55
C 50 IDEC1 = IDEC
C 55 CALL DATSW(3,M3)
PLD38 1
PLD38 2
PLD38 3
PLD38 4
PLD38 5
PLD38 6
PLD38 7
PLD38 8
PLD38 9
PLD38 10
PLD38 11
PLD38 12
PLD38 13
PLD38 14
PLD38 15
PLD38 16
PLD38 17
PLD38 18
PLD38 19
PLD38 20
PLD38 21
PLD38 22
PLD38 23
PLD38 24
PLD38 25
PLD38 26
PLD38 27
PLD38 28
PLD38 29
PLD38 30
PLD38 31
PLD38 32
PLD38 33
PLD38 34
PLD38 35
PLD38 36
PLD38 37
PLD38 38
PLD38 39
PLD38 40
PLD38 41
PLD38 42
PLD38 43
PLD38 44
PLD38 45
PLD38 46
PLD38 47

```

	GO TO (265,60), M3	PLD38 48
C		PLD38 49
C	IREF CONTAINS LENGTH GROUP RANGE	PLD38 50
	60 IREF(1,1) = 0	PLD38 51
	IREF(1,2) = 80	PLD38 52
	IT1 = 81	PLD38 53
	DO 65 I = 2,8	PLD38 54
	IT2 = IT1 + 5	PLD38 55
	IREF(I,1) = IT1	PLD38 56
	IREF(I,2) = IT2	PLD38 57
	IT1 = IT2 + 1	PLD38 58
	65 CONTINUE	PLD38 59
	IT1 = 123	PLD38 60
	DO 70 I = 9,47	PLD38 61
	IT2 = IT1 + 2	PLD38 62
	IREF(I,1) = IT1	PLD38 63
	IREF(I,2) = IT2	PLD38 64
	IT1 = IT2 + 1	PLD38 65
	70 CONTINUE	PLD38 66
	IREF(48,1) = 240	PLD38 67
	IREF(48,2) = 900	PLD38 68
C		PLD38 69
C	TO READ DATA	PLD38 70
C		PLD38 71
	75 IREC = IREC + 2	PLD38 72
	READ (1*IREC) JAREA, JLOC, JWK, JSAMP, IFREQ	PLD38 73
	IF (JAREA)140,140,80	PLD38 74
	80 IF (IFR)85,85,95	PLD38 75
	85 IFR = 1	PLD38 76
C		PLD38 77
C	TO INITIALIZE	PLD38 78
	DO 90 I = 1,IML	PLD38 79
	DO 90 J = 1,11	PLD38 80
	PLD(I,J) = 0.0	PLD38 81
	90 CONTINUE	PLD38 82
	N = 0	PLD38 83
	IAREA = JARCA	PLD38 84
C		PLD38 85
	95 IF (IAREA - JAREA)140,100,140	PLD38 86
C		PLD38 87
C	TO FIND PERCENT LENGTH DISTRIBUTION FOR SAMPLE AND ADD TO TOTAL (AREA)	PLD38 88
C		PLD38 89
	100 IGRND = 0	PLD38 90
	DO 120 J = 1,10	PLD38 91
	ITOT = 0	PLD38 92
	DO 105 I = 1,IML	PLD38 93
	IGRND = IGRND + IFREQ(I,J)	PLD38 94
	ITOT = ITOT + IFREQ(I,J)	PLD38 95
	105 CONTINUE	PLD38 96
	IF (ITOT)120,120,110	PLD38 97
	110 DO 115 I = 1,IML	PLD38 98
	PLD(I,J) = PLD(I,J) + FLOAT(IFREQ(I,J)) / FLOAT(ITOT) * 100.0	PLD38 99
	115 CONTINUE	PLD38100
	120 CONTINUE	PLD38101
	IF (IGRND)75,75,125	PLD38102
	125 N = N + 1	PLD38103



DO 135 I = 1,IML	PLD38104
ITOT = 0	PLD38105
DO 130 J = 1,10	PLD38106
ITOT = ITOT + IFREQ(I,J)	PLD38107
130 CONTINUE	PLD38108
PLD(I,11) = PLD(I,11) + FLOAT(ITOT) / FLOAT(IGRND) * 100.0	PLD38109
135 CONTINUE	PLD38110
C	PLD38111
C RETURN AND READ NEW SAMPLE	PLD38112
GO TO 75	PLD38113
C	PLD38114
C AREA HAS CHANGED, TO CALCULATE AVERAGE OVER SAMPLES AND PRINT.	PLD38115
C	PLD38116
140 IF (N)260,260,145	PLD38117
C	PLD38118
C TO FIND FIRST AND LAST NON ZERO LENGTH GROUPS	PLD38119
145 DO 165 J = 1,10	PLD38120
TOT = 0.0	PLD38121
DO 150 I = 1,IML	PLD38122
PLD(I,J) = PLD(I,J) / FLOAT (N)	PLD38123
TOT = TOT + PLD(I,J)	PLD38124
150 CONTINUE	PLD38125
IF (TOT - 0.0000501)165,165,155	PLD38126
155 DO 160 I = 1,IML	PLD38127
PLD(I,J) = PLD(I,J) / TOT * 100.0	PLD38128
160 CONTINUE	PLD38129
165 CONTINUE	PLD38130
DO 170 I = 1,IML	PLD38131
PLD(I,11) = PLD(I,11) / FLOAT (N)	PLD38132
170 CONTINUE	PLD38133
I = IML	PLD38134
DO 180 K = 1,IML	PLD38135
DO 175 J = 1,11	PLD38136
IF (PLD(I,J) - 0.00499)175,175,185	PLD38137
175 CONTINUE	PLD38138
I=i - 1	PLD38139
180 CONTINUE	PLD38140
GO TO 260	PLD38141
185 ILAST = I	PLD38142
DO 195 I = 1,IML	PLD38143
DO 190 J = 1,11	PLD38144
IF (PLD(I,J) - 0.00499)190,190,200	PLD38145
190 CONTINUE	PLD38146
195 CONTINUE	PLD38147
GO TO 260	PLD38148
200 IST = I	PLD38149
C	PLD38150
IFP = 0	PLD38151
IF (LINE - 44)210,210,205	PLD38152
205 WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE	PLD38153
IPAGE = IPAGE + 1	PLD38154
WRITE (P,10){L ,L =0,9}	PLD38155
LINE = 4	PLD38156
210 DO 255 I = IST,ILAST	PLD38157
DO 215 J = 1,88	PLD38158
IPRN(J) = IBLNK	PLD38159

215 CONTINUE		PLD38160
DO 230 J = 1,11		PLD38161
K = (J-1) * 8 + 1		PLD38162
L = K + 7		PLD38163
IF (PLD(I,J) - 0.00499)220,220,225		PLD38164
220 M = K + 5		PLD38165
IPRN(M) = IPRD		PLD38166
M = M + 1		PLD38167
IPRN(M) = IPRD		PLD38168
GO TO 230		PLD38169
225 PLD(I,J) = PLD(I,J) * 100.0		PLD38170
CALL MOVE (MASK,1,8,IPRN,K)		PLD38171
CALL PUT (HOLD,1,7,PLD(I,J),0.5,0)		PLD38172
CALL EDIT (HOLD,1,7,IPRN,K,L)		PLD38173
230 CONTINUE		PLD38174
IF (LINE - 48)240,240,235 -		PLD38175
235 IFP = 0		PLD38176
WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE		PLD38177
IPAGE = IPAGE + 1		PLD38178
WRITE (P,10)(L,L=0,9)		PLD38179
LINE = 4		PLD38180
240 IF (IFP)245,245,250		PLD38181
245 WRITE (P,15) IAREA,I,IREF(I,1),IREF(I,2),IPRN		PLD38182
IFP = 1		PLD38183
LINE = LINE + 2		PLD38184
GO TO 255		PLD38185
250 WRITE (P,20) I,IREF(I,1),IREF(I,2),IPRN		PLD38186
LINE = LINE + 1		PLD38187
255 CONTINUE		PLD38188
C		PLD38189
260 IF (JAREA)265,265,85		PLD38190
265 IN(5) = NTAB		PLD38191
IN(6) = IPAGE		PLD38192
WRITE (1'1) IN,IDEC,IYR1,IYR2		PLD38193
CALL LINK(AGE38)		PLD38194
END		PLD38195
// DUP		
*DELETE	PLD38	
*STORE	WS UA	PLD38

```
// JOB
// FOR
*IOCS(1403 PRINTER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME AGE38
** AGE38, PROGRAM TO CALCULATE AND STORE ADJUSTED AGE COMPS BY SAMPLE.
C
C .....
C PROGRAM TO SELECT NORMAL PROBABILITY TABLES TO AGE UNSCALED FISH, TO
C YIELD THE CALCULATED AGE DISTRIBUTIONS OF THESE FISH, AND TO
C CALCULATE AN AGE COMPOSITION BY SAMPLE WHICH INCLUDES THE
C PREVIOUSLY UNAGED FISH.-
C THIS PROGRAM IS LINKED FROM PLD38 (OR MAY BE EXECUTED ON A STAND
C ALONE BASIS BY USING *FILES(1,R38) AND WILL LINK TO PROGRAM PRB38.
C BECAUSE THIS PROGRAM MODIFIES DISK DATA FILE R38, ITS EXECUTION
C MAY NOT BE BYPASSED - THE PRINT OUT MAY HOWEVER BE SUPPRESSED BY
C TURNING ON DATA SWITCH FIVE.
C THE PRINT OUT CONSISTS OF THE SAMPLE NUMBER, AREA, LOCALITY, WEEK,
C PROBABILITY TABLE NUMBER USED IN AGING THE UNSCALED FISH, THE
C LENGTH GROUP NUMBER, THE NUMBER OF FISH FOUND TO BE UNAGED , AND
C THE PROBABLE AGE DISTRIBUTION OF THE UNKNOWNNS.
C PROGRAM REQUIRES SURROUTINE AGE.
C .....
C
C INTEGER P
C DIMENSION IN(14),IFREQ(48,10),IUKN(48),MASTR(48,10)
C COMMON P,IDEC,IYR1,IDEC1,IYR2,LINE,NTAB,IPAGE
C COMMON AMEAN(10),VAR(10),MREC,JREC,ITAB,IWAC(12),ISWT
C DATA IML,KI,ISW,IREC,IFR/48,1,0,83,0/
C
C DEFINE FILE 1(1296,320,U,KI)
C
C CALL DATSW(5,ISWT)
C JREC = 2
C ITAB = 0
C P = 5
C LINE = 55
C
C READ (1'1) IN,IDEC,IYR1,IYR2
C NTAB = IN(9)
C IPAGE = IN(10)
C IF (NTAB)5,5,10
C 5 NTAB = IN(5) + 1
C 10 IF (IPAGE)15,15,20
C 15 IPAGE = IN(6)
C 20 IF (IYR2)25,25,30
C 25 IDEC1 = IDEC + 1
```

AGE38 1  
AGE38 2  
AGE38 3  
AGE38 4  
AGE38 5  
AGE38 6  
AGE38 7  
AGE38 8  
AGE38 9  
AGE38 10  
AGE38 11  
AGE38 12  
AGE38 13  
AGE38 14  
AGE38 15  
AGE38 16  
AGE38 17  
AGE38 18  
AGE38 19  
AGE38 20  
AGE38 21  
AGE38 22  
AGE38 23  
AGE38 24  
AGE38 25  
AGE38 26  
AGE38 27  
AGE38 28  
AGE38 29  
AGE38 30  
AGE38 31  
AGE38 32  
AGE38 33  
AGE38 34  
AGE38 35  
AGE38 36  
AGE38 37  
AGE38 38  
AGE38 39  
AGE38 40  
AGE38 41  
AGE38 42  
AGE38 43  
AGE38 44  
AGE38 45  
AGE38 46  
AGE38 47

	GO TO 35	AGE38 48
C	30 IDEC1 = IDEC	AGE38 49
		AGE38 50
	35 IREC = IREC + 2	AGE38 51
	NREC = IREC	AGE38 52
	40 READ (1,NREC) JAREA, JLOC, JWK, JSAMP, IFREQ, IUKN	AGE38 53
	IF (IFR)45,45,110	AGE38 54
	45 IFR = 1	AGE38 55
	ITEST = 0	AGE38 56
	IF (ISW)50,50,70	AGE38 57
	50 IWK = JWK	AGE38 58
	IF(JAREA)455,455,55	AGE38 59
	55 IAREA = JAREA	AGE38 60
	KREC = IREC	AGE38 61
	IFSH = 0	AGE38 62
	JLAST = 0	AGE38 63
	IDIR = 0	AGE38 64
	ISA = 0	AGE38 65
	ISW = 0	AGE38 66
	LWK = JWK	AGE38 67
	DO 60 I = 1,12	AGE38 68
	IWAC(I) = 0	AGE38 69
	60 CONTINUE	AGE38 70
	DO 65 I = 1,IML	AGE38 71
	DO 65 J = 1,10	AGE38 72
	MASTR(I,J) = 0	AGE38 73
	65 CONTINUE	AGE38 74
	GO TO 110	AGE38 75
C		AGE38 76
	70 IF(JAREA - IAREA)75,85,75	AGE38 77
	75 ISA = ISA + 1	AGE38 78
	IF (ISA - 2195,80,80	AGE38 79
	80 ICUM = 3	AGE38 80
	GO TO 265	AGE38 81
C		AGE38 82
	85 IF(IABS(JWK-LWK)-3)90,95,95	AGE38 83
	90 IWK = JWK	AGE38 84
	GO TO 110	AGE38 85
C		AGE38 86
	95 JLAST = JLAST + 1	AGE38 87
	IF (JLAST - 21105,100,100	AGE38 88
	100 ICUM = 3	AGE38 89
	GO TO 265	AGE38 90
C		AGE38 91
	105 IDIR = IDIR + 1	AGE38 92
	ISW = ISW + 1	AGE38 93
	GO TO 425	AGE38 94
C		AGE38 95
	110 IF (JAREA - IAREA)195,115,195	AGE38 96
	115 IF (JWK - IWK)195,120,195	AGE38 97
	120 DO 130 I = 1,IML	AGE38 98
	IF (IUKN(I))130,130,125	AGE38 99
	125 ITEST = 1	AGE38100
	GO TO 135	AGE38101
	130 CONTINUE	AGE38102
C		AGE38103

135	IGO = 0	AGE38104
	DO 150 I = 1,IML	AGE38105
	DO 145 J = 1,10	AGE38106
	IF (IFREQ(I,J))145,145,140	AGE38107
140	IGO = 1	AGE38108
	MASTR(I,J) = MASTR(I,J) + IFREQ(I,J)	AGE38109
	IFSH = IFSH + IFREQ(I,J)	AGE38110
145	CONTINUE	AGE38111
150	CONTINUE	AGE38112
	IF (IGO - 1)175,155,175	AGE38113
155	DO 170 I = 1,12	AGE38114
	IF (IWAC(I) - JWK)160,175,160	AGE38115
160	IF (IWAC(I))165,165,170	AGE38116
165	IWAC(I) = JWK	AGE38117
	GO TO 175	AGE38118
170	CONTINUE	AGE38119
	CALL EXIT	AGE38120
C		AGE38121
175	IF (ISW)35,35,180	AGE38122
180	IF (ISW-(ISW/2*2))190,185,190	AGE38123
195	NREC = NREC - 2	AGE38124
	GO TO 40	AGE38125
190	NREC = NREC + 2	AGE38126
	GO TO 40	AGE38127
C		AGE38128
195	IF (ISW)215,215,200	AGE38129
200	IF (ISW-(ISW/2*2))210,205,210	AGE38130
205	ILT = NREC	AGE38131
	GO TO 230	AGE38132
210	IRT = NREC	AGE38133
	GO TO 230	AGE38134
C		AGE38135
215	LREC = NREC - 2	AGE38136
	IF (ITEST)220,220,230	AGE38137
220	ICUM = 0	AGE38138
	DO 225 MREC = KREC,LREC,2	AGE38139
	CALL AGE(ICUM)	AGE38140
225	CONTINUE	AGE38141
	IFR = 0	AGE38142
	NREC = IREC	AGE38143
	ISW = 0	AGE38144
	GO TO 40	AGE38145
C		AGE38146
230	ICUM = 0	AGE38147
	DO 235 I = 1,IML	AGE38148
	DO 235 J = 1,10	AGE38149
	IFREQ(I,J) = MASTR(I,J)	AGE38150
235	CONTINUE	AGE38151
C		AGE38152
240	L = 10 - ICUM	AGE38153
	DO 260 J = 2,L	AGE38154
	ITEST = 0	AGE38155
	DO 250 I = 1,IML	AGE38156
	IF (IFREQ(I,J))250,250,245	AGE38157
245	ITEST = ITEST + 1	AGE38158
250	CONTINUE	AGE38159

	IF (ITEST - 5)255,260,260	AGE38160
255	IF ( J - 7)370,355,355	AGE38161
260	CONTINUE	AGE38162
	GO TO 290	AGE38163
C		AGE38164
265	L = 10	AGE38165
	DO 270 I = 1,IML	AGE38166
	DO 270 J = 1,10	AGE38167
	IFREQ(I,J) = MASTR(I,J)	AGE38168
270	CONTINUE	AGE38169
	J = 9	AGE38170
	IF (ICUM)290,290,275	AGE38171
275	DO 285 M = 1,ICUM	AGE38172
	DO 280 I = 1,IML	AGE38173
	IFREQ(I,J) = MASTR(I,J) + MASTR(I,L)	AGE38174
280	CONTINUE	AGE38175
	J = J - 1	AGE38176
	L = L - 1	AGE38177
285	CONTINUE	AGE38178
290	ITAB = ITAB + 1	AGE38179
	K = 10 - ICUM	AGE38180
C		AGE38181
C	TO FIND MEAN LENGTH GROUP FOR EACH AGE	AGE38182
	DO 310 J = 1,K	AGE38183
	IN(J) = 0	AGE38184
	AMEAN(J) = 0.0	AGE38185
	DO 295 I = 1,IML	AGE38186
	IN(J) = IN(J) + IFREQ(I,J)	AGE38187
	AMEAN(J) = AMEAN(J) + FLOAT( I*IFREQ(I,J))	AGE38188
295	CONTINUE	AGE38189
	IF (IN(J))300,300,305	AGE38190
300	AMEAN(J) = 0.0	AGE38191
	GO TO 310	AGE38192
305	AMEAN(J) = AMEAN(J) / FLOAT(IN(J))	AGE38193
310	CONTINUE	AGE38194
C		AGE38195
C	TO FIND THE LENGTH GRP. VARIANCE FOR EACH AGE	AGE38196
	DO 330 J = 1,K	AGE38197
	VAR(J) = 0.0	AGE38198
	DO 315 I = 1,IML	AGE38199
	VAR(J) = VAR(J) + FLOAT(IFREQ(I,J))*(FLOAT(I)-AMEAN(J))*(FLOAT(I)-	AGE38200
	*AMEAN(J))	AGE38201
315	CONTINUE	AGE38202
	IF (IN(J))320,320,325	AGE38203
320	VAR(J) = 0.0	AGE38204
	GO TO 330	AGE38205
325	VAR(J) = VAR(J) / FLOAT(IN(J)-1)	AGE38206
330	CONTINUE	AGE38207
C		AGE38208
	IF (ICUM)345,345,335	AGE38209
335	I = K + 1	AGE38210
	DO 340 J = 1,10	AGE38211
	AMEAN(J) = 0.0	AGE38212
	VAR(J) = 0.0	AGE38213
340	CONTINUE	AGE38214
C		AGE38215



345	DO 350 NREC = KREC,LREC,2	AGE38216
	CALL AGE(ICUM)	AGE38217
350	CONTINUE	AGE38218
C		AGE38219
	IFR = 0	AGE38220
	NREC = IREC	AGE38221
	ISW = 0	AGE38222
	GO TO 40	AGE38223
C		AGE38224
C	ATTEMPT TO COMBINE AGE GROUPS (FROM 9+ TO 6+)	AGE38225
355	ICUM = ICUM + 1	AGE38226
	IF (ICUM - 3)360,360,370	AGE38227
360	J = 10 - ICUM	AGE38228
	K = J + 1	AGE38229
	DO 365 I = 1,IML	AGE38230
	IFREQ(I,J) = IFREQ(I,J) + IFREQ(I,K)	AGE38231
365	CONTINUE	AGE38232
	GO TO 240	AGE38233
C		AGE38234
370	IF (IFSH - 500)380,380,375	AGE38235
375	ICUM = 3	AGE38236
	GO TO 265	AGE38237
C		AGE38238
380	IF (IAREA - JAREA)385,410,385	AGE38239
385	ISA = ISA + 1	AGE38240
	IF (ISA - 2)395,390,390	AGE38241
390	ICUM = 3	AGE38242
	GO TO 265	AGE38243
C		AGE38244
395	IF (IDIR)405,405,400	AGE38245
400	ICUM = 3	AGE38246
	GO TO 265	AGE38247
C		AGE38248
405	ISW = 2	AGE38249
	IDIR = 1	AGE38250
	JLAST = 1	AGE38251
	GO TO 425	AGE38252
C		AGE38253
410	IF (IDIR)420,415,420	AGE38254
415	ISW = ISW + 1	AGE38255
	GO TO 425	AGE38256
420	ISW = ISW + 2	AGE38257
C		AGE38258
425	IFR = 0	AGE38259
	IF (ISW - 2)430,435,440	AGE38260
430	NREC = LREC + 2	AGE38261
	GO TO 40	AGE38262
435	NREC = KREC - 2	AGE38263
	GO TO 40	AGE38264
440	IF (ISW - (ISW/2*2))450,445,450	AGE38265
445	NREC = ILT	AGE38266
	GO TO 40	AGE38267
450	NREC = IRT	AGE38268
	GO TO 40	AGE38269
C		AGE38270
455	JAREA = 0	AGE38271

```
WRITE (1'JREC) JAREA  
READ (1'1) IN,IDEC,IYR1,IYR2  
IN(9) = NTAB  
IN(10) = IPAGE  
WRITE (1'1) IN,IDEC,IYR1,IYR2  
CALL LINK(PRB38)  
END
```

```
AGE38272  
AGE38273  
AGE38274  
AGE38275  
AGE38276  
AGE38277  
AGE38278
```

```
// DUP  
*DELETE AGE38  
*STORE WS UA AGE38
```

```

// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
SUBROUTINE AGE(ICUM)
C
C .....
C SUBROUTINE OF AGE78 TO YIELD THE PROBABLE AGE DISTRIBUTION OF UNSCALED
C FISH BY LENGTH GROUP AND SAMPLE. THE SUBROUTINE ALSO PERFORMS
C THE TASKS OF STORING AND PRINTING (IF DESIRED) THE NEW AGE
C COMPOSITION OF THE SAMPLE (THE NEW AGE COMPOSITION CONTAINS BOTH
C THE ORIGINAL NUMBER OF AGED FISH PLUS THE CALCULATED NUMBER AT AGE
C OF THE PREVIOUSLY UNSCALED FISH).
C .....
C
C INTEGER P
C DIMENSION ACUM(10)
C DIMENSION WORK(10),ACOMP(10),IFREQ(48,10),IUKN(48),PROB(10)
C COMMON P,IDEC,IYR1,IDEC1,IYR2,LINE,NTAB,IPAGE
C COMMON AMEAN(10),VAR(10),MREC,JREC,ITAB,IWAC(12),ISWT
C DATA IML/48/
C
C FORMATS
10 FORMAT('1TABLE R',I2,'. PROBABLE AGE DISTRIBUTION FOR UNAGED FISHAGE
* BY LENGTH GROUPS WITHIN SAMPLES, 19',2I1,'-',2I1,'.',11X,'PAGE ',AGE
* I3/' ',13X,'(' - AGE COMPOSITION DERIVED FROM OTHER LENGTH GROUPS.
* )')
15 FORMAT('0SAMPLE AREA LOC. WEEK PROB. LENGTH GRP. NO.OF',22X,'ALLOCAGE
*ATED FREQUENCY AT AGE'/',22X,'TABLE NUMBER FISH',4X,I1,'+',AGE
*9(5X,I1,'+')
15 FORMAT ('0',2X,I3,3X,I3,I4,I5,5X,'NO UNAGED FISH')
20 FORMAT ('0',2X,I3,3X,I3,I4,I5,5X,'UNABLE TO AGE')
25 FORMAT ('0',2X,I3,3X,I3,I4,I5,3X,I3,5X,'',I2,7X,I3,10(1X,F6.2))
30 FORMAT (' ',31X,'',I2,7X,I3,10(1X,F6.2))
35 FORMAT ('0',2X,I3,3X,I3,I4,I5,3X,I3,6X,I2,7X,I3,10(1X,F6.2))
40 FORMAT (' ',32X,I2,7X,I3,10(1X,F6.2))
C
C ILAST = 0
C IFP = 0
C READ (1,MREC) JARCA,JLOC,JWK,JSAMP,IFREQ,IUKN
C DO 45 I = 1,IML
C IF (IUKN(I))45,45,75
C 45 CONTINUE
C
C SAMPLE REQUIRES NO AGE DETERMINATION
C
C GO TO (75,50), ISWT
50 IF (LINE - 48)60,60,55
55 WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE
C IPAGE = IPAGE + 1
C WRITE (P,10) (I,I=0,9)

```

AGE 1  
AGE 2  
AGE 3  
AGE 4  
AGE 5  
AGE 6  
AGE 7  
AGE 8  
AGE 9  
AGE 10  
AGE 11  
AGE 12  
AGE 13  
AGE 14  
AGE 15  
AGE 16  
AGE 17  
AGE 18  
AGE 19  
AGE 20  
AGE 21  
AGE 22  
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AGE 26  
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AGE 29  
AGE 30  
AGE 31  
AGE 32  
AGE 33  
AGE 34  
AGE 35  
AGE 36  
AGE 37  
AGE 38  
AGE 39  
AGE 40  
AGE 41  
AGE 42  
AGE 43  
AGE 44  
AGE 45  
AGE 46  
AGE 47  
AGE 48

LINE = 4	AGE	49
60 IF (ILAST - 2170,65,70	AGE	50
65 WRITE (P,20) JSAMP,JAREA,JLOC,JWK	AGE	51
LINE = LINE + 2	AGE	52
GO TO 600	AGE	53
70 WRITE (P,15) JSAMP,JAREA,JLOC,JWK	AGE	54
LINE = LINE + 2	AGE	55
ILAST = 1	AGE	56
MTAB = 0	AGE	57
C TO FIND AGE COMPOSITION	AGE	58
75 ITOT = 0	AGE	59
DO 85 I = 1,10	AGE	60
WORK(I) = 0.0	AGE	61
DO 80 J = 1,IML	AGE	62
WORK(I) = WORK(I) + FLOAT (IFREQ(J,I))	AGE	63
ITOT = ITOT + IFREQ(J,I)	AGE	64
80 CONTINUE	AGE	65
85 CONTINUE	AGE	66
IF (ITOT)90,90,95	AGE	67
90 ILAST = 2	AGE	68
GO TO 50	AGE	69
95 DO 100 I = 1,10	AGE	70
ACOMP(I) = WORK(I) / FLOAT(ITOT) * 100.0	AGE	71
100 CONTINUE	AGE	72
IF(ILAST - 1)110,105,110	AGE	73
105 WRITE (1,JREC) JAREA,JLOC,JWK,JSAMP,ACOMP,AMEAN,VAR,ICUM,IWAC,MTAB	AGE	74
JREC = JREC + 1	AGE	75
GO TO 600	AGE	76
C	AGE	77
C TO AGE FISH OF UNKNOWN AGE AT LENGTH GROUP I	AGE	78
C	AGE	79
110 K = 10 - ICUM	AGE	80
DO 585 I = 1,IML	AGE	81
IF (IUKN(I))585,585,115	AGE	82
C TO FIND PROBABILITIES	AGE	83
115 TOTAL = 0.0	AGE	84
DO 140 J = 1,10	AGE	85
IF (AMEAN(J) - 0.501)120,120,125	AGE	86
120 PROB(J) = 0.0	AGE	87
GO TO 140	AGE	88
125 PROB(J) = (1.0/SQRT(2.0*3.1416*VAR(J)))*EXP(-1.0/(2.0*VAR(J))*(F	AGE	89
*DAT(I)-AMEAN(J))*(FLOAT(I)-AMEAN(J)))	AGE	90
IF (PROB(J) - 0.01)130,135,135	AGE	91
130 PROB(J) = 0.0	AGE	92
135 TOTAL = TOTAL + PROB(J)	AGE	93
140 CONTINUE	AGE	94
IF (TOTAL - 0.01)145,460,460	AGE	95
C	AGE	96
C ZERO PROBABILITY, TO AGE ACCORDING TO AVERAGE COMP. OF SEASON-AREA.	AGE	97
145 IF (I - 8)150,150,160	AGE	98
C	AGE	99
C A ZERO PLUS FISH	AGE	100
150 IGO = 2	AGE	101
PROB(I) = FLOAT(IUKN(I))	AGE	102
DO 155 IJ = 2,10	AGE	103
155 PROB(IJ) = 0.0	AGE	104

	GO TO 530	AGE 105
C	TO TEST FOR GAP IN PROBABILITY TABLE	AGE 106
	160 DO 180 II = I,IML	AGE 107
	DO 175 IJ = 1,10	AGE 108
	IF (AMEAN(IJ) - 0.501)175,175,165	AGE 109
	165 PROB(IJ) = (1.0/SQRT(2.0*3.1416*VAR(IJ)))*EXP(-1.0/(2.0*VAR(IJ)))*(	AGE 110
	*(FLOAT(II)-AMEAN(IJ))*(FLOAT(II)-AMEAN(IJ)))	AGE 111
	IF (PROB(IJ) - 0.01)175,170,170	AGE 112
	170 IK = II	AGE 113
	JK = IJ	AGE 114
	GO TO 185	AGE 115
	175 CONTINUE	AGE 116
	180 CONTINUE	AGE 117
	MTAB = 2	AGE 118
	GO TO 250	AGE 119
	195 II = I	AGE 120
	DO 210 IM = 1,IML	AGE 121
	IF (II)215,215,190	AGE 122
	DO 205 IJ = 1,10	AGE 123
	IF (AMEAN(IJ) - 0.501)205,205,195	AGE 124
	195 PROB(IJ) = (1.0/SQRT(2.0*3.1416*VAR(IJ)))*EXP(-1.0/(2.0*VAR(IJ)))*(	AGE 125
	*(FLOAT(II)-AMEAN(IJ))*(FLOAT(II)-AMEAN(IJ)))	AGE 126
	IF (PROB(IJ) - 0.01)205,200,200	AGE 127
	200 IL = II	AGE 128
	JL = IJ	AGE 129
	GO TO 220	AGE 130
	205 CONTINUE	AGE 131
	II = II - 1	AGE 132
	210 CONTINUE	AGE 133
	215 MTAB = 1	AGE 134
	GO TO 250	AGE 135
	220 DO 225 IJ = 1,10	AGE 136
	225 PROB(IJ) = 0.0	AGE 137
	IGO = 2	AGE 138
	IF ((IK-I)-(I-IL))230,240,235	AGE 139
	230 PROB(JK) = FLOAT(IUKN(I))	AGE 140
	GO TO 530	AGE 141
	235 PROB(JL) = FLOAT(IUKN(I))	AGE 142
	GO TO 530	AGE 143
	240 DO 245 IJ = JL,JK	AGE 144
	245 PROB(IJ) = FLOAT(IUKN(I)) / FLOAT(JK-JL+1)	AGE 145
	GO TO 530	AGE 146
	250 IGO = -1	AGE 147
	KAREA = JAREA	AGE 148
	KREC = MREC	AGE 149
	ND = 1	AGE 150
	DO 255 IJ = 1,10	AGE 151
	255 ACUM(IJ) = ACOMP(IJ)	AGE 152
	260 IF (IGO)265,270,305	AGE 153
	265 KREC = KREC - 2	AGE 154
	GO TO 275	AGE 155
	270 KREC = KREC + 2	AGE 156
	275 READ (1*KREC) MAREA,MLOC,MWK,MSAMP,IFREQ	AGE 157
	IF (MAREA - KAREA)305,280,305	AGE 158
	280 ITOT = 0	AGE 159
		AGE 160

DO 290 IJ = 1,10	AGE 161
PROB(IJ) = 0.0	AGE 162
DO 285 II = 1,IML	AGE 163
PROB(IJ) = PROB(IJ) + FLOAT(IFREQ(II,IJ))	AGE 164
ITOT = ITOT + IFREQ(II,IJ)	AGE 165
285 CONTINUE	AGE 166
290 CONTINUE	AGE 167
IF (ITOT)260,260,295	AGE 168
295 DO 300 IJ = 1,10	AGE 169
300 ACUM(IJ) = ACUM(IJ) + (PROB(IJ) / FLOAT(ITOT)) * 100.0	AGE 170
NO = NO + 1	AGE 171
GO TO 260	AGE 172
305 IGO = IGO + 1	AGE 173
IF (IGO)275,310,315	AGE 174
310 KREC = MREC	AGE 175
GO TO 260	AGE 176
315 DO 320 IJ = 1,10	AGE 177
320 ACUM(IJ) = ACUM(IJ) / FLOAT(NO)	AGE 178
GO TO (325,390), MTAB	AGE 179
325 DO 340 II = 1,IML	AGE 180
DO 335 IJ = 1,10	AGE 181
IF (AMEAN(IJ) - 0.501)335,335,330	AGE 182
330 TOTAL = (1.0/SQRT(2.0*3.1416*VAR(IJ))) * EXP(-1.0/(2.0*VAR(IJ))) * ((FLAG	AGE 183
*DAT(II)-AMEAN(IJ)) * (FLOAT(II)-AMEAN(IJ)))	AGE 184
IF (TOTAL - 0.01)335,345,345	AGE 185
335 CONTINUE	AGE 186
340 CONTINUE	AGE 187
345 IK = IJ - 1	AGE 188
IF (IK)350,350,355	AGE 189
350 IK = 1	AGE 190
355 TOTAL = 0.0	AGE 191
DO 360 IJ = 1,IK	AGE 192
360 TOTAL = TOTAL + ACUM(IJ)	AGE 193
IF (TOTAL - 0.00005)365,365,375	AGE 194
365 DO 370 IJ = 1,10	AGE 195
370 PROB(IJ) = 0.0	AGE 196
PROB(IK) = FLOAT(IUKN(I))	AGE 197
GO TO 455	AGE 198
375 DO 380 IJ = 1,IK	AGE 199
380 PROB(IJ) = ACUM(IJ) / TOTAL * FLOAT(IUKN(I))	AGE 200
IK = IK + 1	AGE 201
DO 385 IJ = IK,10	AGE 202
385 PROB(IJ) = 0.0	AGE 203
GO TO 455	AGE 204
390 II = IML	AGE 205
DO 405 IK = 1,IML	AGE 206
DO 400 IJ = 1,10	AGE 207
IF (AMEAN(IJ) - 0.501)400,400,395	AGE 208
395 TOTAL = (1.0/SQRT(2.0*3.1416*VAR(IJ))) * EXP(-1.0/(2.0*VAR(IJ))) * ((FL	AGE 209
*DAT(II)-AMEAN(IJ)) * (FLOAT(II)-AMEAN(IJ)))	AGE 210
IF (TOTAL - 0.01)400,410,410	AGE 211
400 CONTINUE	AGE 212
II = II - 1	AGE 213
405 CONTINUE	AGE 214
410 IK = IJ + 1	AGE 215
IF (IK - 10)420,420,415	AGE 216



415	IK = 10	AGE	217
420	TOTAL = 0.0	AGE	218
	DO 425 IJ = IK,10	AGE	219
425	TOTAL = TOTAL + ACUM(IJ)	AGE	220
	IF (TOTAL - 0.0000501)430,430,440	AGE	221
430	DO 435 IJ = 1,10	AGE	222
435	PROB(IJ) = 0.0	AGE	223
	PROB(IK) = FLOAT(IUKN(I))	AGE	224
	GO TO 455	AGE	225
440	DO 445 IJ = IK,10	AGE	226
445	PROB(IJ) = ACUM(IJ) / TOTAL * FLOAT(IUKN(I))	AGE	227
	IK = IK - 1	AGE	228
	DO 450 IJ = 1,IK	AGE	229
450	PROB(IJ) = 0.0	AGE	230
455	IGO = 2	AGE	231
	GO TO 530	AGE	232
C		AGE	233
460	IF (AMEAN(I) - 0.501)465,465,480	AGE	234
465	IF (I - 8)470,470,480	AGE	235
C		AGE	236
C	A ZERO PLUS FISH	AGE	237
470	IGO = 1	AGE	238
	PROB(I) = FLOAT(IUKN(I))	AGE	239
	DO 475 J = 2,10	AGE	240
	PROB(J) = 0.0	AGE	241
475	CONTINUE	AGE	242
	GO TO 530	AGE	243
C		AGE	244
480	DO 485 J = 1,10	AGE	245
	PROB(J) = PROB(J) / TOTAL	AGE	246
485	CONTINUE	AGE	247
C		AGE	248
	IF (ICUM)490,490,505	AGE	249
490	TOTAL = 0.0	AGE	250
	DO 495 J = 1,10	AGE	251
	PROB(J) = PROB(J) * ACOMP(J)	AGE	252
	TOTAL = TOTAL + PROR(J)	AGE	253
495	CONTINUE	AGE	254
	DO 500 J = 1,10	AGE	255
500	PROB(J) = PROB(J) / TOTAL * FLOAT(IUKN(I))	AGE	256
	IGO = 1	AGE	257
	GO TO 530	AGE	258
C		AGE	259
505	TOTAL = 0.0	AGE	260
	DO 510 J = K,10	AGE	261
	TOTAL = TOTAL + ACOMP(J)	AGE	262
510	CONTINUE	AGE	263
	IGO = K - 1	AGE	264
	TOT = 0.0	AGE	265
	DO 515 J = 1,IGO	AGE	266
	PROR(J) = PROR(J) * ACOMP(J)	AGE	267
	TOT = TOT + PROR(J)	AGE	268
515	CONTINUE	AGE	269
	PROB(K) = PROR(K) * TOTAL	AGE	270
	TOT = TOT + PROB(K)	AGE	271
	DO 520 J = 1,IGO	AGE	272

520	PROB(J) = PROB(J) / TOT * FLOAT(IUKN(I))	AGE	273
	APROB = PROB(K)	AGE	274
	DO 525 J = K,10	AGE	275
525	PROR(J) = (APROB/TOT) * (ACOMP(J)/TOTAL) * FLOAT(IUKN(I))	AGE	276
	IGO = 1	AGE	277
530	DO 535 IJ = 1,10	AGE	278
	WORK(IJ) = WORK(IJ) + PROR(IJ)	AGE	279
	PROR(IJ) = PROR(IJ) + 0.00501	AGE	280
535	CONTINUE	AGE	281
	GO TO (585,540), ISWT	AGE	282
C		AGE	283
C	TO PRINT	AGE	284
540	IF (LINC - 48)550,550,545	AGE	285
545	WRITE (P,5) NTAR,IDEC,IYR1,IDEC1,IYR2,IPAGE	AGE	286
	IPAGE = IPAGE + 1	AGE	287
	WRITE (P,10)(J,J=0,9)	AGE	288
	LINE = 4	AGE	289
	IFP = 0	AGE	290
550	GO TO (570,555), IGO	AGE	291
555	IF (IFP)560,560,565	AGE	292
560	IFP = 1	AGE	293
	WRITE (P,25) JSAMP,JAREA,JLOC,JWK,ITAB,I,IUKN(I),PROR	AGE	294
	LINE = LINE + 2	AGE	295
	GO TO 585	AGE	296
565	WRITE (P,30) I,IUKN(I),PROR	AGE	297
	LINE = LINE + 1	AGE	298
	GO TO 585	AGE	299
570	IF (IFP)575,575,580	AGE	300
575	IFP = 1	AGE	301
	WRITE (P,35) JSAMP,JAREA,JLOC,JWK,ITAB,I,IUKN(I),PROR	AGE	302
	LINE = LINE + 2	AGE	303
	GO TO 585	AGE	304
580	WRITE (P,40) I,IUKN(I),PROR	AGE	305
	LINE = LINE + 1	AGE	306
585	CONTINUE	AGE	307
C		AGE	308
C	TO CALCULATE FINAL AGE COMPOSITION AND STORE	AGE	309
	TOTAL = 0.0	AGE	310
	DO 590 I = 1,10	AGE	311
	TOTAL = TOTAL + WORK(I)	AGE	312
590	CONTINUE	AGE	313
	DO 595 I = 1,10	AGE	314
	ACOMP(I) = WORK(I) / TOTAL * 100.0	AGE	315
595	CONTINUE	AGE	316
	WRITE (11,JREC) JAREA,JLOC,JWK,JSAMP,ACOMP,AMEAN,VAR,ICUM,IWAC,ITAB	AGE	317
	JREC = JREC + 1	AGE	318
600	RETURN	AGE	319
	END	AGE	320
//	DUP		
*	DELETE	AGE	
*	STORE	WS UA AGE	

```

// JOB
// FOR
*IOCS(1403 PRINTER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME PRB38
** PRB38, PROGRAM TO PRINT PROBABILITY TABLES USED IN AGE DETERMINATION.
C
C ..... PRB38 1
C ..... PRB38 2
C ..... PRB38 3
C PROGRAM IS LINKED FROM AGE38 AND TO ACS38 PRB38 4
C ..... PRB38 5
C EXECUTION OF THIS PROGRAM MAY BE BYPASSED BY TURNING ON DATA SWITCH 4. PRB38 6
C ..... PRB38 7
C THE PURPOSE OF THIS PROGRAM IS TO PROVIDE A PRINTED LISTING OF THE PRB38 8
C PROBABILITY TABLES USED IN AGE38. PRB38 9
C THE NORMAL PROBABILITY OF EACH AGE IS LISTED BY LENGTH GROUP NUMBER PRB38 10
C WITH THE SECOND PORTION OF THE TABLE NUMBER CORRESPONDING TO THE PRB38 11
C NORMAL PROBABILITY TABLE NUMBER GIVEN ON THE OUTPUT OF AGE38. PRB38 12
C PROBABILITIES LESS THAN 0.01 ARE GIVEN AS ZERO. PRB38 13
C ..... PRB38 14
C ..... PRB38 15
C ..... PRB38 16
C INTEGER P PRB38 17
C DIMENSION ACOMP(10),AMEAN(10),VAR(10),IWAC(12),PROB(10),IN(14) PRB38 18
C DATA P/5/,KI,IML,IREC,IFR/1,48,1,0/ PRB38 19
C ..... PRB38 20
C DEFINE FILE 1(1296,320,U,KI) PRB38 21
C ..... PRB38 22
C FORMATS PRB38 23
C 5 FORMAT('1TABLE B',I2,',',I3,',. NORMAL PROBABILITIES OF LENGTH AT PRB38 24
C *AGE, 19',2I1,',-',2I1,',',18X,'PAGE ',I4) PRB38 25
C 10 FORMAT ('0AREA WEEKS USED FOR ACCUMULATED FREQUENCIES - ',12I3) PRB38 26
C 15 FORMAT (' ',I4,' AGE GROUPS COMBINED - NONE') PRB38 27
C 20 FORMAT (' ',I4,' AGE GROUPS COMBINED - ',5I3) PRB38 28
C 25 FORMAT('0LENGTH GROUP',37X,'A G E'/ ' ',8X,10(6X,I1,'+')) PRB38 29
C 30 FORMAT (' ',4X,I2,4X,10(2X,F6.2)) PRB38 30
C ..... PRB38 31
C READ (1'1) IN,IDEC,IYR1,IYR2 PRB38 32
C NTAB = IN(7) PRB38 33
C IPAGE = IN(8) PRB38 34
C IF (NTAB)35,35,40 PRB38 35
C 35 NTAB = IN(9) + 1 PRB38 36
C 40 IF (IPAGE)45,45,50 PRB38 37
C 45 IPAGE = IN(10) PRB38 38
C 50 IF (IYR2)55,55,60 PRB38 39
C 55 IDEC1 = IDEC + 1 PRB38 40
C GO TO 65 PRB38 41
C 60 IDEC1 = IDEC PRB38 42
C 65 CALL DATSW(4,M4) PRB38 43
C GO TO (150,70),M4 PRB38 44
C ..... PRB38 45
C 70 IREC = IREC + 1 PRB38 46
C READ (1'REC) JAREA,JLOC,JWK,JSAMP,ACOMP,AMEAN,VAR,JCUM,IWAC,JTAB PRB38 47

```

IF (JAREA)150,150,75	PRB38 48
75 IF (JTAB)70,70,80	PRB38 49
80 IF (IFR)35,85,90	PRB38 50
85 IFR = 1	PRB38 51
ITAB=JTAB	PRB38 52
GO TO 75	PRB38 53
90 IF (ITAB - JTAB)95,70,95	PRB38 54
C	PRB38 55
95 WRITE (P,5) NTAB,JTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE	PRB38 56
IPAGE = IPAGE + 1	PRB38 57
C	PRB38 58
ITAB = JTAB	PRB38 59
DO 100 I = 1,12	PRB38 60
IF (IWAC(I))105,105,100	PRB38 61
100 CONTINUE	PRB38 62
105 K = I - 1	PRB38 63
C	PRB38 64
WRITE (P,10) (IWAC(J),J=1,K)	PRB38 65
C	PRB38 66
IF (JCUM)110,110,115	PRB38 67
110 WRITE (P,15) JAREA	PRB38 68
GO TO 120	PRB38 69
C	PRB38 70
115 K = 10 - JCUM	PRB38 71
WRITE (P,20) JAREA,(I,I=K,10)	PRB38 72
C	PRB38 73
120 WRITE (P,25) (I,I=0,9)	PRB38 74
C	PRB38 75
DO 145 I = 1,IML	PRB38 76
DO 140 J = 1,10	PRB38 77
IF (AMEAN(J) - 0.5)125,125,130	PRB38 78
125 PROB(J) = 0.0	PRB38 79
GO TO 140	PRB38 80
C	PRB38 81
130 PROB(J) = 1.0/SQRT(2.0*3.1416*VAR(J)) * EXP(-1.0/(2.0*VAR(J)) * *(FLOAT(I) - AMEAN(J)) *(FLOAT(I) - AMEAN(J)))	PRB38 82
IF (PROB(J) - 0.01)135,140,140	PRB38 83
135 PROB(J) = 0.0	PRB38 84
140 CONTINUE	PRB38 85
C	PRB38 86
WRITE (P,30) I,PROB	PRB38 87
C	PRB38 88
145 CONTINUE	PRB38 89
C	PRB38 90
GO TO 70	PRB38 91
C	PRB38 92
150 IN(7) = NTAB	PRB38 93
IN(8) = IPAGE	PRB38 94
WRITE (1'1) IN,IDEC,IYR1,IYR2	PRB38 95
CALL LINK(ACS38)	PRB38 96
END	PRB38 97
// DUP	PRB38 98
*DELETE	PRB38
*STORE WS UA	PRB38

```

// JOB
// FOR
*IOCS(1403 PRINTER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ACS38
** ACS38, PROGRAM TO PRINT ADJUSTED AGE COMPOSITION BY SAMPLE
C
C ..... ACS38 1
C ..... ACS38 2
C ..... ACS38 3
C PROGRAM IS LINKED FROM PRB38 AND TO ACW38 ACS38 4
C ..... ACS38 5
C EXECUTION MAY BE BYPASSED BY TURNING ON DATA SWITCH SIX. ACS38 6
C ..... ACS38 7
C THE PURPOSE OF THIS PROGRAM IS TO LIST BY SAMPLE THE REVISED PERCENT ACS38 8
C AGE COMPOSITION. THE AGE COMPOSITION IS REVISED IN THE SENCE IT ACS38 9
C NOW INCLUDES THE FISH OF UNKNOWN AGE (GIVEN PROBABLE AGE DISTRIBUT-ACS38 10
C IONS BY PROGRAM AGE38) OF THE ORIGINAL SAMPLE. ACS38 11
C THE OUTPUT IS IDENTICAL WITH THAT OF PROGRAM PAC38. ACS38 12
C ..... ACS38 13
C THIS PROGRAM CHANGES THE FORMAT OF DISK DATA FILE R38. ACS38 14
C ..... ACS38 15
C ..... ACS38 16
C ..... ACS38 17
C INTEGER P ACS38 18
C REAL ISC(10) ACS38 19
C DIMENSION AWC(10),AAC(10),IN(14),ACOMP(10) ACS38 20
C DATA P/5,KWK,KI,IREF,JREF,IFP,IFR/99,1,1,2,0,0/ ACS38 21
C ..... ACS38 22
C DEFINE FILE 1(1296,320,U,KI) ACS38 23
C ..... ACS38 24
C ..... ACS38 25
C FORMATS ACS38 26
C 5 FORMAT('1TABLE C',I2,', ' REVISD PERCENT AGE COMPOSITION BY SAMPLE ACS38 26
C * (FOR ALL FISH SAMPLED), 19',2I1,'-',2I1,',',15X,'PAGE ',I4) ACS38 27
C 10 FORMAT('OAREA WEEK SAMPLE LOC.',39X,'PERCENT AT AGE'/ ' ',18X,10(7X ACS38 28
C ',I1,+',)) ACS38 29
C 15 FORMAT ('0',I4,I4,3X,I3,3X,I3,10(2X,F7.3)) ACS38 30
C 20 FORMAT (' ',10X,'AVERAGE',3X,10(2X,F7.3)/) ACS38 31
C 25 FORMAT (' ',5X,'AVERAGE',8X,10(2X,F7.3)/) ACS38 32
C 30 FORMAT(' ',6X,I2,2(3X,I3),10(2X,F7.3)) ACS38 33
C 35 FORMAT(' ',11X,I3,3X,I3,10(2X,F7.3)) ACS38 34
C 40 FORMAT (' ') ACS38 35
C ..... ACS38 36
C READ (1'1) IN,IDECL,IYR1,IYR2 ACS38 37
C NTAB = IN(11) ACS38 38
C IPAGE= IN(12) ACS38 39
C IF (NTAB)45,45,50 ACS38 40
C 45 NTAB = IN(7) + 1 ACS38 41
C 50 IF (IPAGE)55,55,60 ACS38 42
C 55 IPAGE = IN(8) ACS38 43
C 60 IF (IYR2)65,65,70 ACS38 44
C 65 IDECL = IDECL + 1 ACS38 45
C GO TO 75 ACS38 46
C 70 IDECL = IDECL ACS38 47

```



	75 CALL DATSW(6,M6)	ACS38 48
	GD TO (260,80),M6	ACS38 49
C	80 IREC = IREC + 1	ACS38 50
	READ (1'IREC) JAREA,JLOC,JWK,JSAMP,ISC	ACS38 51
	IF (JAREA)105,105,85	ACS38 52
C	85 IF (IFR)100,90,100	ACS38 54
	90 WRITE (P,5) NTAB,IDECL,IYR1,IDECL,IYR2,IPAGE	ACS38 55
	IPAGE = IPAGE + 1	ACS38 56
	WRITE (P,10) (I,I=0,9)	ACS38 57
	LINE = 5	ACS38 58
	DO 95 I = 1,10	ACS38 59
	ACOMP(I) = ISC(I)	ACS38 60
	AAC(I) = ACOMP(I)	ACS38 61
	AWC(I) = ACOMP(I)	ACS38 62
	ACOMP(I) = ACOMP(I) + 0.000501	ACS38 63
	95 CONTINUE	ACS38 64
	NW = 1	ACS38 65
	NS = 1	ACS38 66
	IWT = 1	ACS38 67
	IAT = 1	ACS38 68
	IFR = 1	ACS38 69
	IAREA = JAREA	ACS38 70
	IWK = JWK	ACS38 71
	WRITE (P,15) JAREA,JWK,JSAMP,JLOC,ACOMP	ACS38 72
	LINE = LINE + 2	ACS38 73
	GO TO 80	ACS38 74
C	100 IF (IAREA - JARCA)105,165,105	ACS38 75
C	105 IF (NS - 1)120,120,110	ACS38 76
	110 DO 115 I = 1,10	ACS38 77
	ACOMP(I) = AWC(I) / FLOAT(IWT)+ 0.000501	ACS38 78
	115 CONTINUE	ACS38 79
	WRITE (P,20) ACOMP	ACS38 80
	LINE = LINE + 2	ACS38 81
	WRITE (1'JREC) IAREA,IWK,ACOMP	ACS38 82
	JREC = JREC + 1	ACS38 83
	GO TO 125	ACS38 84
	120 WRITE (P,40)	ACS38 85
	LINE = LINE + 1	ACS38 86
	WRITE (1'JREC) IAREA,IWK,ACOMP	ACS38 87
	JREC = JREC + 1	ACS38 88
	125 IF (NW - 1)140,140,130	ACS38 89
	130 DO 135 I = 1,10	ACS38 90
	ACOMP(I) = AAC(I) / FLOAT(IAT)+ 0.000501	ACS38 91
	135 CONTINUE	ACS38 92
	WRITE (P,25) ACOMP	ACS38 93
	LINE = LINE + 2	ACS38 94
	WRITE (1'JREC) IAREA,KWK,ACOMP	ACS38 95
	JREC = JREC + 1	ACS38 96
	140 IF (JAREA)260,260,145	ACS38 97
C	145 IF (LINE - 48)155,155,150	ACS38 98
	150 WRITE (P,5) NTAB,IDECL,IYR1,IDECL,IYR2,IPAGE	ACS38 99
		ACS38100
		ACS38101
		ACS38102
		ACS38103



```
IPAGE = IPAGE + 1
WRITE (P,10)(I,I=0,9)
LINE = 5
155 DO 160 I = 1,10
ACOMP(I) = ISC(I)
AWC(I) = ACOMP(I)
AAC(I) = ACOMP(I)
ACOMP(I) = ACOMP(I) + 0.000501
160 CONTINUE
WRITE (P,15) JAREA,JWK,JSAMP,JLOC,ACOMP
LINE = LINE + 2
IAREA = JAREA
IWK = JWK
NS = 1
NW = 1
IWT = 1
IAT = 1
GO TO 80
C
165 IF (JWK - IWK)170,225,170
C
170 IF (NS - 1)185,185,175
175 DO 180 I = 1,10
ACOMP(I) = AWC(I) / FLOAT(IWT) + 0.000501
180 CONTINUE
WRITE (P,20) ACOMP
LINE = LINE + 2
WRITE (1,JREC) IAREA,IWK,ACOMP
JREC = JREC + 1
GO TO 190
185 WRITE (P,40)
LINE = LINE + 1
WRITE (1,JREC) IAREA,IWK,ACOMP
JREC = JREC + 1
190 IF (LINE - 48)200,200,195
195 WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE
IPAGE = IPAGE + 1
WRITE (P,10)(I,I=0,9)
LINE = 5
IFP = 1
200 DO 205 I = 1,10
ACOMP(I) = ISC(I)
AWC(I) = ACOMP(I)
AAC(I) = AAC(I) + ACOMP(I)
ACOMP(I) = ACOMP(I) + 0.000501
205 CONTINUE
IF (IFP)215,215,210
210 WRITE (P,15) JAREA,JWK,JSAMP,JLOC,ACOMP
IFP = 0
LINE = LINE + 2
GO TO 220
215 WRITE (P,30) JWK,JSAMP,JLOC,ACOMP
LINE = LINE + 1
220 IWK = JWK
NS = 1
NW = NW + 1
ACS38104
ACS38105
ACS38106
ACS38107
ACS38108
ACS38109
ACS38110
ACS38111
ACS38112
ACS38113
ACS38114
ACS38115
ACS38116
ACS38117
ACS38118
ACS38119
ACS38120
ACS38121
ACS38122
ACS38123
ACS38124
ACS38125
ACS38126
ACS38127
ACS38128
ACS38129
ACS38130
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ACS38136
ACS38137
ACS38138
ACS38139
ACS38140
ACS38141
ACS38142
ACS38143
ACS38144
ACS38145
ACS38146
ACS38147
ACS38148
ACS38149
ACS38150
ACS38151
ACS38152
ACS38153
ACS38154
ACS38155
ACS38156
ACS38157
ACS38158
ACS38159
```

IWT = 1	ACS38160
IAT = IAT + 1	ACS38161
GO TO 80	ACS38162
C	ACS38163
225 DD 230 I = 1,10	ACS38164
ACOMP(I) = ISC(I)	ACS38165
AAC(I) = AAC(I) + ACOMP(I)	ACS38166
AWC(I) = AWC(I) + ACOMP(I)	ACS38167
ACOMP(I) = ACOMP(I) + 0.000501	ACS38168
230 CONTINUE	ACS38169
IF (LINE - 48)240,240,235	ACS38170
235 WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE	ACS38171
IPAGE = IPAGE + 1	ACS38172
WRITE (P,10) (I,I=0,9)	ACS38173
IFP = 1	ACS38174
LINE = 5	ACS38175
240 IF (IFP)250,250,245	ACS38176
245 WRITE (P,15) JAREA,JWK,JSAMP,JLOC,ACOMP	ACS38177
IFP = 0	ACS38178
LINE = LINE + 2	ACS38179
GO TO 255	ACS38180
250 WRITE (P,35) JSAMP,JLOC,ACOMP	ACS38181
LINE = LINE + 1	ACS38182
255 NS = NS + 1	ACS38183
IWT = IWT + 1	ACS38184
IAT = IAT + 1	ACS38185
GO TO 80	ACS38186
260 JAREA = 0	ACS38187
WRITE (1,JREC) JAREA	ACS38188
IN(11) = NTAB	ACS38189
IN(12) = IPAGE	ACS38190
WRITE (1,1) IN,IDEC,IYR1,IYR2	ACS38191
CALL LINK(ACW38)	ACS38192
END	ACS38193
// DUP	
*DELETE	ACS38
*STORE	WS UA ACS38

```

// JOB
// FOR
*IOCS(1403 PRINTER,TYPEWRITER,DISK,1442 PUNCH)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ACW38
** ACW38, PROGRAM TO PRINT AND PUNCH AGE COMPOSITION BY WEEK AND AREA.
C
C
C..... ACW38 1
C ACW38 2
C ACW38 3
C PROGRAM IS LINKED FROM ACS38, AND IS THE FINAL LINK OF THE ASH38 ACW38 4
C SERIES. ACW38 5
C ACW38 6
C EXECUTION MAY MAY BYPASSED BY TURNING ON DATA SWITCH 7. ACW38 7
C ACW38 8
C THE PURPOSE OF THIS PROGRAM IS TO GIVE THE AVERAGE SAMPLING AGE ACW38 9
C COMPOSITION BY WEEK AND AREA. BOTH A PRINT OUT AND PUNCH CARD ACW38 10
C OUTPUT ARE AVAILABLE. ACW38 11
C THE PUNCH OUTPUT IS CARD TYPE AC, REQUIRED AS INPUT TO ASH41, AND ACW38 12
C CONTAINS TO FOLLOWING INFORMATION. ACW38 13
C CULS. 1 - 3 SEASON ACW38 14
C 4 - 6 AREA CODE ACW38 15
C 7 - 9 WEEK NUMBER ACW38 16
C 10 - 16 AVERAGE AGE COMPOSITION AT AGE 0+ ACW38 17
C * ACW38 18
C 72 - 78 AVERAGE AGE COMPOSITION FOR AGE 9+ ACW38 19
C PUNCH OUTPUT MAY BE SUPPRESSED BY TURNING ON DATA SWITCH 8. ACW38 20
C ACW38 21
C DO NOT ATTEMPT TO EXECUTE ACW38 WITHOUT FIRST EXECUTING ACS38. ACW38 22
C ACW38 23
C..... ACW38 24
C ACW38 25
C INTEGER P,T,PH ACW38 26
C DIMENSION ACOMP(10),IN(14) ACW38 27
C DATA P,PH,T/5,9,1,IFR,IREF,KI/0,1,1/ ACW38 28
C ACW38 29
C DEFINE FILE 1(1296,320,U,KI) ACW38 30
C ACW38 31
C FORMATS ACW38 32
C 5 FURMAT('1TABLE C',I2,'. PERCENT AGE COMPOSITION BY AREA AND WEEK, ACW38 33
C * 19',2I1,'-',2I1,'.',27X,'PAGE ',I4) ACW38 34
C 10 FURMAT('0AREA WCEK',39X,'PERCENT AT AGE/' ',6X,10(7X,I1,'+')) ACW38 35
C 15 FURMAT ('0',I4,I4,10(2X,F7.3)) ACW38 36
C 20 FURMAT (' ',6X,I2,10(2X,F7.3)) ACW38 37
C 25 FURMAT (2I3,I2,10F7.3,'AC') ACW38 38
C 30 FURMAT (' ') ACW38 39
C 35 FURMAT (// 'ASH38 SEQUENCE COMPLETED') ACW38 40
C 40 FURMAT ('0 AVERAGE',10(2X,F7.3)//) ACW38 41
C ACW38 42
C READ(1*1) IN,IDEC,IYR1,IYR2 ACW38 43
C NTAB = IN(13) ACW38 44
C IPAGE = IN(14) ACW38 45
C IF (NTAB)45,45,50 ACW38 46
C 45 NTAB = IN(11) + 1 ACW38 47

```

50	IF (IPAGE)55,55,60	ACW38 48
55	IPAGE = IN(12)	ACW38 49
60	IF (IYR2)65,65,70	ACW38 50
65	IDEC1 = IDEC + 1	ACW38 51
	GO TO 75	ACW38 52
70	IDEC1 = IDEC	ACW38 53
75	CALL DATSW(7,M7)	ACW38 54
	GO TO (170,80),M7	ACW38 55
C		ACW38 56
80	ISEAS = IDEC*100 + IYR1*10 + IYR2	ACW38 57
C		ACW38 58
85	IREC = IREC + 1	ACW38 59
	READ (1,IREC) JAREA,JWK,ACOMP	ACW38 60
	IF (JAREA)145,145,90	ACW38 61
90	IF (IFR)95,95,100	ACW38 62
95	IFR = 1	ACW38 63
	IAREA = JAREA	ACW38 64
	WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE	ACW38 65
	IPAGE = IPAGE + 1	ACW38 66
	WRITE (P,10)(I,I=0,9)	ACW38 67
	LINE = 3	ACW38 68
	WRITE (P,15) JAREA,JWK,ACOMP	ACW38 69
C		ACW38 70
C	** NOTE THAT PROGRAM ACS38 HAS PREVIOUSLY ROUNDED ACOMP VALUES **	ACW38 71
C		ACW38 72
	LINE = LINE + 2	ACW38 73
	GO TO 85	ACW38 74
C		ACW38 75
100	IF (JWK - 99)110,105,110	ACW38 76
105	WRITE (P,40) ACOMP	ACW38 77
	LINE = LINE + 3	ACW38 78
	GO TO 85	ACW38 79
110	IF (IAREA - JAREA)115,130,115	ACW38 80
115	IF (LINE - 46)125,125,120	ACW38 81
120	WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE	ACW38 82
	IPAGE = IPAGE + 1	ACW38 83
	WRITE (P,10)(I,I=0,9)	ACW38 84
	LINE = 3	ACW38 85
125	WRITE (P,15) JAREA,JWK,ACOMP	ACW38 86
	LINE = LINE + 2	ACW38 87
	IAREA = JAREA	ACW38 88
	GO TO 85	ACW38 89
C		ACW38 90
130	IF (LINE - 48)140,140,135	ACW38 91
135	WRITE (P,5) NTAB,IDEC,IYR1,IDEC1,IYR2,IPAGE	ACW38 92
	IPAGE = IPAGE + 1	ACW38 93
	WRITE (P,10)(I,I=0,9)	ACW38 94
	LINE = 3	ACW38 95
140	WRITE (P,20) JWK,ACOMP	ACW38 96
	LINE = LINE + 1	ACW38 97
	GO TO 85	ACW38 98
C		ACW38 99
145	CALL DATSW(8,M8)	ACW38100
	GO TO (170,150),M8	ACW38101
150	IREC = 1	ACW38102
C		ACW38103

C TO PUNCH ADJUSTED AGE COMPOSITION BY AREA AND WEEK

155 IREC = IREC + 1

READ (1,IREC) JAREA,JWK,ACOMP

IF (JAREA)165,165,160

160 WRITE (PH,25) ISEAS,JAREA,JWK,ACOMP

GO TO 155

C

165 WRITE (PH,30)

170 WRITE (T,35)

CALL EXIT

END

// DUF

\*DELETE

\*STORE

WS UA

ACW38

ACW38

ACW38104

ACW38105

ACW38106

ACW38107

ACW38108

ACW38109

ACW38110

ACW38111

ACW38112

ACW38113

ACW38114

```

// JOB
// FOR
*IOCS(2501 READER,1442 PUNCH,TYPEWRITER,1403 PRINTER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH39
** ASH39. CALCULATES AGE COMPOSITION FROM AGE-LENGTH KEY (TYPE 2 SAMP.)
C
C *****ASH39 1
C *****ASH39 2
C *****ASH39 3
C THE PURPOSE OF THIS PROGRAM IS TO PROVIDE ANOTHER MEANS OF AGEING ASH39 4
C UNSCALED FISH OF A SAMPLE (AS OPPOSED TO ASH38). ASH39 USES AGE- ASH39 5
C LENGTH KEYS TO PROVIDE AGE ESTIMATES OF UNAGED FISH. ASH39 6
C THE PROGRAM PRINTS THE AGE-LENGTH KEY, THE CALCULATED SAMPLE AGE ASH39 7
C COMPOSITION AND THEN AVERAGES THE AGE COMPOSITIONS BY WEEK AND AREAASH39 8
C *****ASH39 9
C 135 SECTORS OF WORKING STORAGE IS REQUIRED FOR A MAXIMUM OF 610 ASH39 10
C SAMPLES. ASH39 11
C *****ASH39 12
C OUTPUT ASH39 13
C ----- ASH39 14
C A) PRINT-OUT OF READ AGE-LENGTH KEY - DATA SWITCH 11 ON TO BYPASS ASH39 15
C *****ASH39 16
C B) PRINT-OUT OF AGE-LENGTH FREQUENCY BY SAMPLE, DATA SWITCH 12 ON ASH39 17
C TO BYPASS. ASH39 18
C C) PRINT-OUT OF AGE COMPOSITION BY SAMPLE, DATSW 13 ON TO BYPASS ASH39 19
C *****ASH39 20
C D) PRINT-OUT OF AVERAGE AGE COMPOSITION BY WEEK AND AREA, DATSW ASH39 21
C 14 ON TO BYPASS. ASH39 22
C E) PUNCH OUTPUT OF D, CARD CODE AK, DATA SWITCH 15 ON TO BYPASS, ASH39 23
C DATA SWITCH 14 MUST BE OFF TO PUNCH. ASH39 24
C *** CARD CODE AK IS REQUIRED FOR FURTHER ANALYSIS. ASH39 25
C *****ASH39 26
C INPUT ASH39 27
C ----- ASH39 28
C 1) CONTROL CARD ASH39 29
C COLS. 1- 3 SEASON TO BE PROCESSED ASH39 30
C 4- 6 TABLE VALUE OF OUTPUT A ASH39 31
C 7- 9 INITIAL PAGE VALUE OF A ASH39 32
C 10-12 TABLE VALUE OF OUTPUT B ASH39 33
C 13-15 INITIAL PAGE VALUE OF B ASH39 34
C 16-18 TABLE VALUE OF OUTPUT C ASH39 35
C 19-21 INITIAL PAGE VALUE OF C ASH39 36
C 22-24 TABLE VALUE OF OUTPUT D ASH39 37
C 25-27 INITIAL PAGE VALUE OF D ASH39 38
C *****ASH39 39
C 2) CARD WITH 999 IN COLS. 1-3 ASH39 40
C *****ASH39 41
C 3) AGE-LENGTH KEY CARDS ASH39 42
C CARD CODE ALW FOR WEEKLY DATA ASH39 43
C ALS FOR SEASONAL DATA ASH39 44
C *****ASH39 45
C 4) CARD WITH 998 IN COLS. 1-3 ASH39 46
C *****ASH39 47
C 5) FREQUENCY AT LENGTH AND AGE CARDS - CARD CODE LG AS PRODUCED BY ASH39 47

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C          ASH37, FOR SAMPLES USING ABOVE KEY.                                ASH39 48
C          ASH39 49
C          6) ITEMS 2 - 5 REPEATED AS NECESSARY, OR BLANK CARD TO TERMINATE
C          DATA INPUT.                                                       ASH39 51
C          ASH39 52
C          .....ASH39 53
C          C SPECIFICATIONS                                                    ASH39 54
C          REAL AGEA(10),PAC(10),AGEP(10),PAGA(10),PAGB(10),BAGEF(10)        ASH39 55
C          REAL PAG(48,10),TAGEP(10),AGEF(48,11),TAGEF(11),AGEWC(11),AGEW(11) ASH39 56
C          INTEGER PAGE1,PAGE2,PAGE3,PAGE4,DEC1,DEC2,YR1,YR2,SEAS,ULL,AGEAF    ASH39 57
C          INTEGER LLT(48),ULT(48),NAGE(48,10),NAG(10),AGEWF,PACF,P,C,H,WEEK  ASH39 58
C          INTEGER AGEFT,TAGPT,T                                              ASH39 59
C          DATA C,P,H,T/8,5,9,1/,AGEW,AGEWC,AGEF/11*0.0,11*0.0,528*0.0/    ASH39 60
C          DATA LTAB1,LGNP,IFSS,LINE3,LINE4,JEND,INS,K1/1,1,1,55,55,0,3,1/  ASH39 61
C          ASH39 62
C          DEFINE FILE 1(610,35,U,K1)                                         ASH39 63
C          DEFINE FILE 3(600,33,U,K3)                                         ASH39 64
C          ASH39 65
C          ASH39 66
C          C FORMATS                                                            ASH39 67
C          5 FORMAT (3I3,I2,I3,I2,6X,F6.0,51X,1A1)                            ASH39 68
C          10 FORMAT (I3,6X,I3,2I2,1X,2I3,1X,10I4,12X,1A1)                   ASH39 69
C          15 FORMAT (80X)                                                    ASH39 70
C          20 FORMAT (3I1,8I3)                                               ASH39 71
C          25 FORMAT (2I3,I2,10F7.3,'AK')                                    ASH39 72
C          30 FORMAT(1H1,'TABLE A',I2,'-',I2,'. AGE-LENGTH KEY FOR AREA ',I3,' ASH39 73
C          *IN WEEK ',I2,', 19',2I1,'-',2I1,'.',30X,'PAGE',I3/IH,42X,'(',I3,'ASH39 74
C          * SAMPLES)/1H0,'LENGTH GROUP',38X,'A G E',40X,'NO.OF'/1H,'NO. RAASH39 75
C          *NGE',8X,'0+',6X,'1+',6X,'2+',6X,'3+',6X,'4+',6X,'5+',6X,'6+',6X,'7ASH39 76
C          **+,6X,'8+',6X,'9+',4X,'FISH'/)                                   ASH39 77
C          ASH39 78
C          35 FORMAT (1H,I2,I5,'-',I3,2X,10F8.2,3X,I4)                       ASH39 79
C          40 FORMAT('1TABLE A',2(I2,'.),' FREQUENCY AT AGE AND LENGTH GROUP FASH39 79
C          *OR FISH AGED FROM AGE-LENGTH KEY ',9X,'PAGE',I4/' ',15X,'IN SAMPLEASH39 80
C          *',I4,' 19' 2I1,'-',2I1,' (AREA',I4,' LOCALITY',I4,' WEEK',I3,'ASH39 81
C          *),'/)                                                            ASH39 82
C          45 FORMAT (' LENGTH GROUP',45X,'AGE'/ ' NO. RANGE',7X,'0+',6X,'1+',6XASH39 83
C          *',2+',6X,'3+',6X,'4+',6X,'5+',6X,'6+',6X,'7+',6X,'8+',6X,'9+',6X'ASH39 84
C          *LL'/)                                                            ASH39 85
C          50 FORMAT (' ',I2,I5,'-',I3,1X,10F8.2,I8)                          ASH39 86
C          55 FORMAT ('OALL',9X,10F8.2,I8)                                    ASH39 87
C          60 FORMAT ('1TABLE',I3,'. PERCENT AGE COMPOSITION BY SAMPLE FOR FISHASH39 88
C          * AGED FROM AGE-LENGTH KEYS, 19',2I1,'-',2I1,'.',22X,'PAGE',I4/) ASH39 89
C          65 FORMAT (' AREA WEEK SAMPLE LOC.',39X,'PERCENT AT AGE',37X,'UNITS OASH39 90
C          *F/' ',25X,'0+',7X,'1+',7X,'2+',7X,'3+',7X,'4+',7X,'5+',7X,'6+',7XASH39 91
C          *',7+',7X,'8+',7X,'9+',5X,'DATA'/)                                ASH39 92
C          70 FORMAT (' ',2I4,2I6,10F9.3,I7)                                  ASH39 93
C          75 FORMAT (' ',4X,I4,2I6,10F9.3,I7)                                ASH39 94
C          80 FORMAT (' ',8X,2I6,10F9.3,I7)                                  ASH39 95
C          85 FORMAT (' ',10X,'AVERAGE',3X,10F9.3,I7/)                       ASH39 96
C          90 FORMAT (' ',5X,'AVERAGE',8X,10F9.3,I7)                       ASH39 97
C          95 FORMAT ('0 ')                                                  ASH39 98
C          100 FORMAT ('1TABLE',I3,'. PERCENT AGE COMPOSITION BY WEEK FOR FISH ASH39 99
C          *GED FROM AGE-LENGTH KEYS, 19',2I1,'-',2I1,'.',13X,'PAGE',I4/) ASH39100
C          105 FORMAT(' AREA WEEK',36X,'PERCENT AT AGE',40X,'UNITS OF'/ ' ',13X,'OASH39101
C          **+,7X,'1+',7X,'2+',7X,'3+',7X,'4+',7X,'5+',7X,'6+',7X,'7+',7X,'8+'ASH39102
C          *,7X,'9+',5X,'DATA'/)                                            ASH39103

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110	FORMAT (' ',2I4,10F9.3,I7)	ASH39104
115	FORMAT (' ',4X,I4,10F9.3,I7)	ASH39105
120	FORMAT (' AVERAGE ',10F9.3,I7//)	ASH39106
125	FORMAT (' ')	ASH39107
130	FORMAT ('SEASON ZERO FOR SAMPLE CARD'/'CORRECT ERROR OR TURN ON DAASH39108 *TSW 1 TO FINISH LAST SET OF DATA')	ASH39109
135	FORMAT ('SEASON ZERO FOR AGE-LENGTH KEY CARD'/'CORRECT ERROR OR TUASH39110 *RN ON DATSW 2 TO FINISH LAST SET OF DATA')	ASH39111
140	FORMAT ('CARD INDEX ',1A1,'NOT G'/'CORRECT ERROR OR TURN ON DATSW3ASH39112 *TO PROCESS NEW SET OF SAMPLE DATA')	ASH39113
145	FORMAT ('SEASON READ FOR AGE-LENGTH KEY (' ,I3,') NOT SEASON BEING ASH39114 *PROCESSED (' ,I3,'). '/'CORRECT CARD OR PROCEED TO NEXT AGE-LENGTH ASH39115 *KEY (999 CARD)')	ASH39116
150	FORMAT ('SEASON READ FOR LENGTH GROUP CARDS (' ,I3,' ) NOT SEASON ASH39117 *BEING PROCESSED (' ,I3,' ) / CORRECT CARD OR PROCEED TO NEXT 999 ASH39118 *CARD (AGE-LENGTH KEY)')	ASH39119
155	FORMAT ('CARD INDEX (' ,1A1,') NOT L.'/'CORRECT ERROR OR INSERT MISASH39120 *SING 998 CARD.')	ASH39121
160	FORMAT ('TURN ON DATSW TO BYPASS OUTPUT AS FOLLOWS '/5X,'11 PRINT ASH39122 *AGE-LENGTH KEY'/5X,'12 PRINT AGE-LENGTH FREQUENCY BY SAMPLE'/5X,'13ASH39123 *3 PRINT AGE-COMPOSITION BY SAMPLE'/5X,'14 PRINT AGE-COMPOSITION BYASH39124 * WEEK (LEAVE OFF FOR CARD OUTPUT)'/5X,'15 PUNCH AGE COMPOSITION BYASH39125 * WEEK')	ASH39126
C		ASH39127
C	LLT AND ULT ARE LENGTH GROUP UPPER AND LOWER BOUNDS.	ASH39128
	LLT(1) = 0	ASH39129
	ULT(1) = 80	ASH39130
	IT1 = 81	ASH39131
	DO 165 I = 2,8	ASH39132
	IT2 = IT1 + 5	ASH39133
	LLT(I) = IT1	ASH39134
	ULT(I) = IT2	ASH39135
	IT1 = IT2 + 1	ASH39136
165	CONTINUE	ASH39137
	IT1 = 123	ASH39138
	DO 170 I = 9,47	ASH39139
	IT2 = IT1 + 2	ASH39140
	LLT(I) = IT1	ASH39141
	ULT(I) = IT2	ASH39142
	IT1 = IT2 + 1	ASH39143
170	CONTINUE	ASH39144
	LLT(48) = 240	ASH39145
	ULT(48) = 900	ASH39146
C		ASH39147
	WRITE (T,160)	ASH39148
	PAUSE 11	ASH39149
	CALL DATSW (11,M11)	ASH39150
	CALL DATSW (12,M12)	ASH39151
	CALL DATSW (13,M13)	ASH39152
	CALL DATSW (14,M14)	ASH39153
	CALL DATSW (15,M15)	ASH39154
	READ (C,20) DEC1,YR1,YR2,NTAB1,PAGE1,NTAB2,PAGE2,NTAB3,PAGE3,NTAB	ASH39155
	*4,PAGE4	ASH39156
	IF (NTAB2)180,175,180	ASH39157
175	NTAB2 = 1	ASH39158
180	IF(PAGE2)190,185,190	ASH39159

185	PAGE2 = 1	ASH39160
190	NSEAS = DEC1 * 100 + YR1 * 10 + YR2	ASH39161
	IF (YR1-9)200,195,200	ASH39162
195	DEC2 = DEC1 + 1	ASH39163
	GO TO 205	ASH39164
200	DEC2 = DEC1	ASH39165
C		ASH39166
C	READ LENGTH GROUP CARDS(LG)	ASH39167
205	READ (C,5) LSEAS,LAREA,LOC,LWK,LSAMP,LGN,FLG,INDX2	ASH39168
	IF (LSEAS)215,210,215	ASH39169
210	WRITE (T,130)	ASH39170
	PAUSE 1	ASH39171
	CALL DATSW (1,M1)	ASH39172
	GO TO (270,205),M1	ASH39173
215	GO TO (220,220,320),INS	ASH39174
220	IF (LSEAS-999)225,270,225	ASH39175
225	IF (INDX2 + 14528)230,235,230	ASH39176
230	WRITE (T,140) INDX2	ASH39177
	PAUSE 3	ASH39178
	GO TO 205	ASH39179
235	IF (NSEAS - LSEAS)240,245,240	ASH39180
240	WRITE (T,150) LSEAS,NSEAS	ASH39181
	PAUSE 7	ASH39182
	GO TO 205	ASH39183
245	GO TO (255,250,320),INS	ASH39184
250	INS = 1	ASH39185
	LINE2 = 55	ASH39186
	GO TO 320	ASH39187
255	IF (LSAMP - NSAMP)270,260,270	ASH39188
260	IF (LGN - LGNP)265,345,345	ASH39189
265	IFSS = 2	ASH39190
	LINE2 = 55	ASH39191
270	GO TO (300,275),M12	ASH39192
275	DO 295 MGN = 1,48	ASH39193
	IF (LINE2 - 46)285,285,280	ASH39194
280	LINE2 = 0	ASH39195
	WRITE (P,40) NTAB2,NSAMP,PAGE2,NSAMP,DEC1,YR1,DEC2,YR2,NAREA,NLOC	ASH39196
	*,NWK	ASH39197
	WRITE (P,45)	ASH39198
	PAGE2 = PAGE2 + 1	ASH39199
285	AGEFT = IFIX(AGEF(MGN,11))	ASH39200
	IF(AGEFT)290,295,290	ASH39201
290	WRITE (P,50) MGN,LLT(MGN),ULT(MGN),(AGEF(MGN,I),I=1,10),AGEFT	ASH39202
	LINE2 = LINE2 + 1	ASH39203
295	CONTINUE	ASH39204
	TAGPT = IFIX(TAGEF(11))	ASH39205
	WRITE (P,55) (TAGEF(I),I=1,10),TAGPT	ASH39206
	LINE2= 55	ASH39207
300	GO TO (305,340),IFSS	ASH39208
305	DO 310 I = 1,10	ASH39209
310	TAGEP(I) = (TAGEF(I) / TAGEF(11)) * 100.0	ASH39210
	WRITE (1*K1) NAREA,NWK,NLOC,NSAMP,TAGEP,TAGPT	ASH39211
	IF (LSEAS - 999)315,355,315	ASH39212
315	IF (LSEAS)320,575,320	ASH39213
320	NAREA = LAREA	ASH39214
	NWK = LWK	ASH39215

NLOC = LOC	ASH39216
NSAMP = LSAMP	ASH39217
DO 325 I = 1,11	ASH39218
325 TAGEF(I) = 0.0	ASH39219
DO 335 I = 1,48	ASH39220
DO 330 J = 1,11	ASH39221
330 AGEF(I,J) = 0.0	ASH39222
335 CONTINUE	ASH39223
GO TO (345,345,355),INS	ASH39224
340 IFSS = 1	ASH39225
345 DO 350 I = 1,10	ASH39226
BAGEF(I) = (PAG(LGN,I) * FLG) / 100.0	ASH39227
AGEF(LGN,I) = AGEF(LGN,I) + BAGEF(I)	ASH39228
350 TAGEF(I) = TAGEF(I) + BAGEF(I)	ASH39229
LGNP = LGN	ASH39230
AGEF(LGN,11) = AGEF(LGN,11) + FLG	ASH39231
TAGEF(11) = TAGEF(11) + FLG	ASH39232
GO TO 205	ASH39233
C	ASH39234
C READ AGE LENGTH KEY CARDS(ALS)	ASH39235
355 LGNT = 0	ASH39236
DO 365 I = 1,48	ASH39237
DO 360 J = 1,10	ASH39238
NAGE(I,J) = 0	ASH39239
360 PAG(I,J) = 0.0	ASH39240
365 CONTINUE	ASH39241
370 READ (C,10) SEAS,JAREA,KWK,KNOS,LLL,ULL,NAG,INDX1	ASH39242
IF (SEAS)380,375,380	ASH39243
375 WRITE (T,135)	ASH39244
PAUSE 2	ASH39245
CALL DATSW (2,M2)	ASH39246
GO TO (575,370),M2	ASH39247
380 IF (SEAS-998)385,435,385	ASH39248
385 WEEK = KWK	ASH39249
NOS = KNOS	ASH39250
KAREA = JAREA	ASH39251
IF (INDX1 + 11456)390,395,390	ASH39252
390 WRITE (T,155) INDX1	ASH39253
PAUSE 6	ASH39254
GO TO 370	ASH39255
395 IF (NSEAS - SEAS)400,405,400	ASH39256
400 WRITE (T,145) SEAS,NSEAS	ASH39257
PAUSE 3	ASH39258
GO TO 370	ASH39259
405 KSEAS = SEAS	ASH39260
DO 410 I = 1,48	ASH39261
IF (LLL - LLT(I))415,415,410	ASH39262
410 CONTINUE	ASH39263
LGN = 48	ASH39264
GO TO 420	ASH39265
415 LGN = I	ASH39266
C	ASH39267
C COMPILE AGE-LENGTH KEY	ASH39268
420 LGNT = LGNT + 1	ASH39269
IF (LGNT - LGN)420,425,425	ASH39270
425 DO 430 I=1,10	ASH39271

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430 NAGE(LGN,I) = NAG(I) + NAGE(LGN,I)
    GO TO 370
C
C PRINT AGE-LENGTH KEY
435 LGNT = LGNT + 1
    LINE1 = 55
    IF (LGNT - 48)440,455,455
440 DO 450 I = LGNT,48
    DO 445 J = 1,10
445 NAGE (I,J) = 0
450 CONTINUE
455 MTAB = MTAB + 1
    DO 570 LGN=1,48
    NFSHB = 0
    NFSHA = 0
    GO TO (470,460),M11
460 IF (LINE1-48)470,470,465
465 LINE1 = 0
    WRITE (P,30) NTAB1,LTAB1,KAREA,WEEK,DEC1,YR1,DEC2,YR2,PAGE1,NOS
    LTAB1 = LTAB1 + 1
    PAGE1 = PAGE1 + 1
470 NFISH = 0
    DO 475 I=1,10
475 NFISH = NFISH + NAGE(LGN,I)
    IF (NFISH)480,480,550
480 IF (LGN - 8)485,485,495
485 PAG (LGN,1) = 100.0
    DO 490 I = 2,10
490 PAG(LGN,I) = 0.0
    GO TO 560
495 LGNB = LGN - 1
    DO 500 I = 1,10
500 PAGB(I) = PAG (LGNB,I)
    LGNA = LGN
    J = 0
505 LGNA = LGNA + 1
    IF (LGNA - 48)520,520,510
510 DO 515 I = 1,10
515 PAG (LGN,I) = PAGB(I)
    GO TO 560
520 DO 525 JJ = 1,10
525 NFSHA = NFSHA + NAGE(LGNA,JJ)
    IF (NFSHA)505,505,530
530 LGNAL = LGNA - 1
    LGNAF = LGN
    DO 545 II = LGNAF,LGNAL
    LGN = II
    DO 535 I = 1,10
    PAGA(I) = (FLOAT(NAGE(LGNA,I)) / FLOAT(NFSHA)) * 100.0
535 PAG (LGN,I) = (PAGB(I) + PAGA(I)) / 2.0
    GO TO (545,540),M11
540 WRITE (P,35) LGN,LLT(LGN),ULT(LGN),(PAG(LGN,J),J=1,10),NFISH
545 CONTINUE
    GO TO 570
550 DO 555 I=1,10
555 PAG(LGN,I) = (FLOAT(NAGE(LGN,I))/FLOAT(NFISH)) * 100.0
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ASH39327



560 GO TO (570,565),M11	ASH39328
565 WRITE (P,35) LGN,LLT(LGN),ULT(LGN),(PAG(LGN,J),J=1,10),NFISH	ASH39329
570 CONTINUE	ASH39330
INS = 2	ASH39331
GO TO 205	ASH39332
C	ASH39333
C PRINT PERCENT AGE COMPOSITION BY SAMPLE	ASH39334
575 IF (PAGE3)585,580,585	ASH39335
580 PAGE3 = PAGE2	ASH39336
585 IF (NTAB3)595,590,595	ASH39337
590 NTAB3 = NTAB2 + 1	ASH39338
595 K2 = K1 - 1	ASH39339
K3 = 1	ASH39340
READ (1*K1) MAREA,MWK	ASH39341
K1 = 1	ASH39342
DO 600 I=1,11	ASH39343
AGEW(I) = 0.0	ASH39344
600 AGEWC(I) = 0.0	ASH39345
DU 605 I=1,10	ASH39346
605 AGEA(I) = 0.0	ASH39347
DO 735 J=1,K2	ASH39348
READ (1*K1) NAREA, NWK,NLOC,NSAMP,TAGEP,IAGEF	ASH39349
IF (NAREA - MAREA)620,610,620	ASH39350
610 IF (NWK - MWK)620,615,620	ASH39351
615 LFORM = 3	ASH39352
GO TO 685	ASH39353
620 DO 625 I = 1,10	ASH39354
625 AGEPI(I) = AGEW(I) / AGEW(11)	ASH39355
AGEWF = IFIX(AGEW(11))	ASH39356
IF (AGEW(11)-1.0)640,640,630	ASH39357
630 GO TO (640,635),M13	ASH39358
635 WRITE (P,85) (AGEPI(I),I=1,10),AGEWF	ASH39359
LINE3 = LINE3 + 2	ASH39360
640 WRITE (3*K3) MAREA,MWK,(AGEPI(I),I=1,10),AGEWF	ASH39361
DO 645 I=1,10	ASH39362
AGEWC(I) = AGEWC(I) + AGEPI(I)	ASH39363
645 AGEW(I) = 0.0	ASH39364
AGEWC(11) = AGEWC(11) + 1.0	ASH39365
AGEW(11) = 0.0	ASH39366
MWK = NWK	ASH39367
LFORM = 2	ASH39368
IF (NAREA - MAREA)650,685,650	ASH39369
650 IF (AGEWC(11)-1.0)675,675,655	ASH39370
655 DO 660 I=1,10	ASH39371
660 AGEAI(I) = AGEWC(I) / AGEWC(11)	ASH39372
AGEAF = IFIX(AGEWC(11))	ASH39373
GO TO (670,665),M13	ASH39374
665 WRITE (P,90) AGEAI,AGEAF	ASH39375
LINE3 = LINE3 + 1	ASH39376
670 MAREA = 999	ASH39377
WRITE (3*K3) MAREA,MWK,AGEAI,AGEAF	ASH39378
675 WRITE (P,95)	ASH39379
LINE3 = LINE3 + 2	ASH39380
DO 680 I = 1,11	ASH39381
680 AGEWC(I) = 0.0	ASH39382
MAREA = NAREA	ASH39383



LFORM = 1	ASH39384
685 IF (JEND)740,690,740	ASH39385
690 GO TO (725,695),M13	ASH39386
695 IF (LINE3 - 47)705,705,700	ASH39387
700 LINE3 = 0	ASH39388
WRITE (P,60) NTAB3,DEC1,YR1,DEC2,YR2,PAGE3	ASH39389
WRITE (P,65)	ASH39390
PAGE3 = PAGE3 + 1	ASH39391
LFORM = 1	ASH39392
705 GO TO (710,715,720),LFORM	ASH39393
710 WRITE (P,70) NAREA,NWK,NSAMP,NLOC,(TAGEP(I),I=1,10),IAGEF	ASH39394
GO TO 725	ASH39395
715 WRITE (P,75) NWK,NSAMP,NLOC,(TAGEP(I),I=1,10),IAGEF	ASH39396
GO TO 725	ASH39397
720 WRITE (P,80) NSAMP,NLOC,(TAGEP(I),I=1,10),IAGEF	ASH39398
725 LINE3 = LINE3 + 1	ASH39399
DO 730 I = 1,10	ASH39400
730 AGEW(I) = AGEW(I) + TAGEP(I)	ASH39401
AGEW(11) = AGEW(11) + 1.0	ASH39402
735 CONTINUE	ASH39403
NAREA = 900	ASH39404
NWK = 90	ASH39405
JEND = 1	ASH39406
GO TO 620	ASH39407
C	ASH39408
C PRINT AND PUNCH PERCENT AGE COMPOSITION BY WEEK	ASH39409
740 GO TO (825,745),M14	ASH39410
745 K4 = K3-1	ASH39411
READ (3'1) MAREA	ASH39412
K3 = 1	ASH39413
IF (PAGE4)755,750,755	ASH39414
750 PAGE4 = PAGE3	ASH39415
755 IF (NTAB4)765,760,765	ASH39416
760 NTAB4 = NTAB3 + 1	ASH39417
765 DO 820 J=1,K4	ASH39418
READ (3'K3) NAREA,NWK,PAC,PACF	ASH39419
IF (LINE4 - 47)775,775,770	ASH39420
770 WRITE (P,100) NTAB4,DEC1,YR1,DEC2,YR2,PAGE4	ASH39421
PAGE4 = PAGE4 + 1	ASH39422
WRITE (P,105)	ASH39423
LINE4 = 0	ASH39424
775 IF (NAREA - 999)785,780,785	ASH39425
780 WRITE (P,120) PAC,PACF	ASH39426
LINE4 = LINE4 + 1	ASH39427
NWK = 99	ASH39428
NAREA = MAREA	ASH39429
GO TO 810	ASH39430
785 IF (LINE4)790,800,790	ASH39431
790 IF (MAREA - NAREA)795,805,795	ASH39432
795 WRITE (P,125)	ASH39433
LINE4 = LINE4 + 1	ASH39434
800 WRITE (P,110) NAREA,NWK,PAC,PACF	ASH39435
MAREA = NAREA	ASH39436
GO TO 810	ASH39437
805 WRITE (P,115) NWK,PAC,PACF	ASH39438
810 LINE4 = LINE4 + 1	ASH39439

GO TO (820,815),M15  
815 WRITE (H,25) NSEAS,NAREA,NWK,PAC  
820 CONTINUE  
WRITE (H,15)  
825 CALL EXIT  
END

ASH39440  
ASH39441  
ASH39442  
ASH39443  
ASH39444  
ASH39445

// DUP  
•DELETE           WS   UA   ASH39  
•STORE

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// JOB
// FOR
*IOCS(1403 PRINTER,2501 READER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH40
**ASH40, PROGRAM TO UPDATE DISK FILE LISCF.
C
C ..... ASH40 1
C ..... ASH40 2
C ..... ASH40 3
C USE *FILES(4,LISCF) TO EXECUTE. ASH40 4
C ..... ASH40 5
C PROGRAM ACCEPTS EITHER NEW DATA OR WILL CORRECT OR UPDATE DATA ASH40 6
C PREVIOUSLY LOADED. ASH40 7
C INPUT IS CARD CODE L.B. (SEE PROGRAM LISTING OF ASH35) WITH AS MANY ASH40 8
C ENTRIES AS DESIRED, A BLANK CARD INDICATES DATA TERMINATION. ASH40 9
C PROGRAM BOTH LISTS INPUT CARDS AND THE REVISED FILE. ASH40 10
C ..... ASH40 11
C ..... ASH40 12
C ..... ASH40 13
C INTEGER C,P ASH40 14
C DIMENSION XLICN(6),X(6),X1(6),NBS(5),N(5),N1(5),NAME(18) ASH40 15
C DATA C,P/8,5/ ASH40 16
C ..... ASH40 17
C DEFINE FILE 4(1000,24,0,K1) ASH40 18
C ..... ASH40 19
C ..... ASH40 20
C 5 FORMAT (2X,11I,13,5(F6.0,I3),F6.0,5X,18A1) ASH40 20
C 10 FORMAT ('1CORRECTION CARD CONTENT'/0',4X,'BOAT',35X,'LICENCE NUMB'ASH40 21
C *ERS',30X,'BOAT NAME'/ ' ',5X,'NO.',2X,'1966 - 67',4X,'1965 - 66',4XASH40 22
C *, '1964 - 65',4X,'1963 - 64',11X,'1962 - 63') ASH40 23
C 15 FORMAT ('0',13,I4,5(F10.2,I2),F10.2,6X,18A1) ASH40 24
C 20 FORMAT (' ',16,6F10.2,5I6) ASH40 25
C 25 FORMAT ('1LISTING OF FILE LISCF CONTENT'/0',2X,'BOAT',24X,'LICENC'ASH40 26
C *E NUMBERS',30X,'NUMBER OF BOATS'/ ' ',3X,'NO.',4X,'66-67',5X,'65-66'ASH40 27
C *, '64-65',5X,'63-64',8X,'1962 - 63',8X,'(IN CORRESPONDENCE WITH'ASH40 28
C * YEARS ON LEFT)')//) ASH40 29
C ..... ASH40 30
C WRITE (P,10) ASH40 31
C 30 READ (C,5) ITEST,IBOAT,(XLICN(K),NBS(K),K=1,5),XLICN(6),NAME ASH40 32
C IF (IBOAT)35,150,35 ASH40 33
C 35 DO 50 K = 1,5 ASH40 34
C IF (XLICN(K))40,50,40 ASH40 35
C 40 IF (NBS(K))45,45,50 ASH40 36
C 45 NBS(K) = 1 ASH40 37
C 50 CONTINUE ASH40 38
C WRITE (P,15) ITEST,IBOAT,(XLICN(K),NBS(K),K=1,5),XLICN(6),NAME ASH40 39
C DO 145 I = 1,1000 ASH40 40
C READ (4'I) IB ASH40 41
C IF (IB)60,55,60 ASH40 42
C 55 WRITE (4'I) IBOAT,XLICN,NBS ASH40 43
C GO TO 30 ASH40 44
C 60 IF (IB - IBOAT)145,65,145 ASH40 45
C 65 IF (ITEST)75,70,75 ASH40 46
C 70 ITEST = 1 ASH40 47

```

75 GO TO (80,85,115),ITEST	ASH40 48
80 WRITE (4'I) IBOAT,XLICN,NBS	ASH40 49
GO TO 30	ASH40 50
85 INC = I + 1	ASH40 51
READ (4'INC) IB,X,N	ASH40 52
IF (IBOAT - IR)95,90,95	ASH40 53
90 WRITE (4'INC) IBOAT,XLICN,NBS	ASH40 54
GO TO 30	ASH40 55
95 WRITE (4'INC) IBOAT,XLICN,NBS	ASH40 56
DO 110 J = INC,998	ASH40 57
J1 = J + 1	ASH40 58
READ (4'J1) IB1,X1,N1	ASH40 59
WRITE(4'J1) IB,X,N	ASH40 60
IB = IB1	ASH40 61
DO 100 K = 1,6	ASH40 62
100 X(K) = X1(K)	ASH40 63
DO 105 K = 1,5	ASH40 64
105 N(K) = N1(K)	ASH40 65
110 CONTINUE	ASH40 66
GO TO 30	ASH40 67
115 INC = I + 2	ASH40 68
READ (4'INC) IB,X,N	ASH40 69
IF (IBOAT - IB)125,120,125	ASH40 70
120 WRITE (4'INC) IBOAT,XLICN,NBS	ASH40 71
GO TU 30	ASH40 72
125 WRITE (4'INC) IBOAT,XLICN,NBS	ASH40 73
DO 140 J = INC,998	ASH40 74
J1 = J + 1	ASH40 75
READ (4'J1) IB1,X1,N1	ASH40 76
WRITE(4'J1) IB,X,N	ASH40 77
IB = IB1	ASH40 78
DO 130 K = 1,6	ASH40 79
130 X(K) = X1(K)	ASH40 80
DO 135 K = 1,5	ASH40 81
135 N(K) = N1(K)	ASH40 82
140 CONTINUE	ASH40 83
GO TO 30	ASH40 84
145 CONTINUE	ASH40 85
150 WRITE (P,25)	ASH40 86
DO 160 I = 1,1000	ASH40 87
READ (4'I) IBOAT,XLICN,NBS	ASH40 88
IF (IBOAT)155,165,155	ASH40 89
155 WRITE(P,20) IBOAT,XLICN,NBS	ASH40 90
160 CONTINUE	ASH40 91
165 CALL EXIT	ASH40 92
END	ASH40 93
// DUP	
*DELETE	WS UA ASH40
*STORE	WS UA ASH40

```

// JOB
// FOR
*IOCS(1442 PUNCH,1403 PRINTER,2501 READER,DISK,TYPEWRITER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH41
**ASH41 - FISH IN CATCH AT AGE BY WEEK,SEASON,AREA AND POPULATION
C
C *****
C USE *FILES(50,REFX) TO EXECUTE.
C
C 175 SECTORS OF WORKING STORAGE REQUIRED.
C
C INPUT
C -----
C 1 COLUMNS 1-3 SEASON CODE
C 4-6 STARTING TABLE VALUE FOR PRINTED OUTPUT 1 (SEE BELOW)
C 7-9 STARTING PAGE VALUE FOR PRINTED OUTPUT 1
C 10-12 TABLE VALUE FOR OUTPUT 2
C 13-15 PAGE VALUE FOR OUTPUT 2
C 16-18 TABLE VALUE FOR OUTPUT 3
C 19-21 PAGE VALUE FOR OUTPUT 3
C 22-24 TABLE VALUE FOR OUTPUT 4
C 25-27 PAGE VALUE FOR OUTPUT 4
C LEAVE COLUMNS 10 TO 27 BLANK FOR AUTOMATIC INCREMENT OF TABLE
C AND PAGE VALUES.
C
C 2 FOR ONE DESIRED AREA ...
C A) FISH PER TON CARDS (ALL WEEKS)
C CARD CODE W IN COLUMN 80
C B) AGE COMPOSITION CARDS (ALL WEEKS)
C CARD CODE AC OR AK IN COLUMNS 79-80
C C) WEEKLY CATCH CARDS
C CARD CODE CAW IN COLUMNS 5-7.
C CATCH CARDS FROM DIFFERENT AREAS MAY FOLLOW, THIS WILL
C PERMIT PROCESSING OF CATCH DATA FROM AREAS IN WHICH
C SAMPLING DID NOT OCCUR.
C D) BLANK CARD TO SIGNIFY END OF AREA
C E) INPUTS A,B,C,AND D REPEATED AS NECESSARY,
C F) SECOND BLANK CARD TO SIGNIFY END OF DATA.
C
C OUTPUT
C -----
C A) PRINTED.
C
C USE DATSW TO BYPASS
C 1 MILLIONS OF FISH AT AGE BY WEEK AND AREA.
C 2 MILLIONS OF FISH AT AGE BY WEEK AND POPULATION.
C 3 PERCENT AGE COMPOSITION BY SEASON AND AREA.
C 4 PERCENT AGE COMPOSITION BY SEASON AND POPULATION.
C B) PUNCHED.
C
C *CWP* 6 MILLIONS OF FISH AT AGE BY WEEK AND POPULATION.

```

```

ASH41 1
ASH41 2
ASH41 3
ASH41 4
ASH41 5
ASH41 6
ASH41 7
ASH41 8
ASH41 9
ASH41 10
ASH41 11
ASH41 12
ASH41 13
ASH41 14
ASH41 15
ASH41 16
ASH41 17
ASH41 18
ASH41 19
ASH41 20
ASH41 21
ASH41 22
ASH41 23
ASH41 24
ASH41 25
ASH41 26
ASH41 27
ASH41 28
ASH41 29
ASH41 30
ASH41 31
ASH41 32
ASH41 33
ASH41 34
ASH41 35
ASH41 36
ASH41 37
ASH41 38
ASH41 39
ASH41 40
ASH41 41
ASH41 42
ASH41 43
ASH41 44
ASH41 45
ASH41 46
ASH41 47

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C	'FA'	7 MILLIONS OF FISH AT AGE BY SEASON AND AREA.	ASH41 48
C	'CYP'	8 MILLIONS OF FISH AT AGE BY SEASON AND POPULATION.	ASH41 49
C	'ACA'	9 PERCENT AGE COMPOSITION BY SEASON AND AREA.	ASH41 50
C	'ACP'	10 PERCENT AGE COMPOSITION BY SEASON AND POPULATION.	ASH41 51
C			ASH41 52
C	SUBROUTINES GIT AND RLGET ARE REQUIRED (A1 TO INTEGER AND REAL)		ASH41 53
C			ASH41 54
C	.....		ASH41 55
C			ASH41 56
C	SPECIFICATIONS		ASH41 57
	INTEGER	C,P,H,SCAS,AREA,WEEK,WSEAS,WAREA	ASH41 58
	INTEGER	PAGE1,PAGE2,PAGE3,PAGE4,T	ASH41 59
	INTEGER	ASEAS,AAREA,CSEAS,CAREA,AWEEK,CWEEK	ASH41 60
	DIMENSION	ITEST(55,3),JTEST(55),INPUT(80)	ASH41 61
	DIMENSION	WMFT(55),AFPT(55,11),CAT(55,11),PAC(10)	ASH41 62
	DIMENSION	NAREA(62),INDX1(62),INDX2(62),ICODE(24),CA(11)	ASH41 63
	DATA	CA,PAC/11*0.0,10*0.0/,IBLNK,1W,IA,IC/' ','W','A','C'/	ASH41 64
	DATA	C,P,H,T/R,5,9,1,INIT1,INIT2,ICONT,LINE/1,1,1,55/	ASH41 65
C			ASH41 66
	DEFINE	FILE 1(62,31,U,KI)	ASH41 67
	DEFINE	FILE 50(13,320,U,IK)	ASH41 68
	DEFINE	FILE 101(55,33,U,KI)	ASH41 69
	DEFINE	FILE 102(55,33,U,KI)	ASH41 70
	DEFINE	FILE 103(55,33,U,KI)	ASH41 71
	DEFINE	FILE 104(55,33,U,KI)	ASH41 72
	DEFINE	FILE 105(55,33,U,KI)	ASH41 73
	DEFINE	FILE 106(55,33,U,KI)	ASH41 74
	DEFINE	FILE 107(55,33,U,KI)	ASH41 75
	DEFINE	FILE 108(55,33,U,KI)	ASH41 76
	DEFINE	FILE 109(55,33,U,KI)	ASH41 77
	DEFINE	FILE 110(55,33,U,KI)	ASH41 78
	DEFINE	FILE 111(55,33,U,KI)	ASH41 79
	DEFINE	FILE 112(55,33,U,KI)	ASH41 80
	DEFINE	FILE 113(55,33,U,KI)	ASH41 81
	DEFINE	FILE 114(55,33,U,KI)	ASH41 82
	DEFINE	FILE 115(55,33,U,KI)	ASH41 83
	DEFINE	FILE 116(55,33,U,KI)	ASH41 84
	DEFINE	FILE 117(55,33,U,KI)	ASH41 85
	DEFINE	FILE 118(55,33,U,KI)	ASH41 86
	DEFINE	FILE 119(55,33,U,KI)	ASH41 87
	DEFINE	FILE 120(55,33,U,KI)	ASH41 88
	DEFINE	FILE 121(55,33,U,KI)	ASH41 89
	DEFINE	FILE 122(55,33,U,KI)	ASH41 90
	DEFINE	FILE 123(55,33,U,KI)	ASH41 91
	DEFINE	FILE 124(55,33,U,KI)	ASH41 92
C			ASH41 93
C	FORMATS		ASH41 94
	5	FORMAT(//'TURN ON DATASWITCH TO BYPASS FOLLOWING.//' PRINT PUNCH	ASH41 95
		*'/' 1',10X,'MILLIONS OF FISH AT AGE BY WEEK AND AREA'/4X,'2',6X	ASH41 96
		*,'6 MILLIONS OF FISH AT AGE BY WEEK AND POPULATION'/11X,'7 MIL	ASH41 97
		*LIONS OF FISH AT AGE BY SEASON AND AREA'/11X,'8 MILLIONS OF FISH	ASH41 98
		* AT AGE BY SEASON AND POPULATION'/4X,'3',6X,'9 PERCENT AGE COMP.	ASH41 99
		* BY SEASON AND AREA'/4X,'4',5X,'10 PERCENT AGE COMP. BY POP')	ASH41100
	10	FORMAT (80A1)	ASH41101
	15	FORMAT (//'CARDS ARE NOT IN ORDER, OR WRONG CARD TYPE HAS BEEN REA	ASH41102
		*D'/'** REFEED ENTIRE AREA BLOCK WHEN DATA HAS BEEN CORRECTED')	ASH41103



20 FORMAT('O',30X,'CONTINUATION OF AREA ',I3,53X,'\*',I3,'/ ',46X,8(''-ASH41104  
 \*) ) ASH41105

25 FORMAT('/SEASON ON DATA CARD ',I3,' IS INCORRECT'/) ASH41106

30 FORMAT('/AREA ON DATA CARD ',I3,' IS INCORRECT'/) ASH41107

35 FORMAT (3I1,8I3) ASH41108

40 FORMAT (/FISH PER TON IS MISSING FOR WEEK ',I3) ASH41109

45 FORMAT('O',46X,'AREA ',I3,' CONTINUED'/',46X,8(''-) ASH41110

50 FORMAT('O',46X,'AREA ',I3,53X,'\*',I3,'/ ',46X,8(''-) ASH41111

55 FORMAT('1TABLE 3.,I2,.'. FISH AT AGE IN CATCH BY AREA AND WEEK FOASH41112  
 \*R 19',2I1,'-',2I1,'(CONT.)',27X,'PAGE ',I3) ASH41113

60 FORMAT('O',46X,'AREA ',I3,'/ ',46X,8(''-) ASH41114

65 FORMAT(' ',I3,1X,10(1X,F8.3),2X,F8.3,' \*\*',I3) ASH41115

70 FORMAT(' ',I3,1X,10(1X,F8.3),2X,F8.3,' \*\*',2I3) ASH41116

75 FORMAT(' ',I3,1X,10(1X,F8.3),2X,F8.3) ASH41117

80 FORMAT(' ALL',1X,10(1X,F8.3),2X,F8.3) ASH41118

85 FORMAT ( I3,I4,10F7.3,' FA') ASH41119

90 FORMAT('+',30X,'QUEEN CHARLOTTE ISLANDS POPULATION'/',30X,34(''-ASH41120  
 \*) ) ASH41121

95 FORMAT('+',LOWER EAST COAST SUBPOPULATION'/',30(''-) ASH41122

100 FORMAT('+',UPPER EAST COAST SUBPOPULATION'/',30(''-) ASH41123

105 FORMAT('+',WEST COAST SUBPOPULATION'/',24(''-) ASH41124

110 FORMAT('+',30X,'NORTHERN POPULATION'/',30X,19(''-) ASH41125

115 FORMAT('+',STRAITS SUBPOPULATION'/',21(''-) ASH41126

120 FORMAT('+',HARBOUR SUBPOPULATION'/',21(''-) ASH41127

125 FORMAT('+',LOCAL SUBPOPULATION'/',19(''-) ASH41128

130 FORMAT('+',30X,'UPPER CENTRAL POPULATION'/',30X,24(''-) ASH41129

135 FORMAT('+',MAJOR SUBPOPULATION'/',19(''-) ASH41130

140 FORMAT('+',MINOR SUBPOPULATION'/',19(''-) ASH41131

145 FORMAT('+',30X,'LOWER CENTRAL POPULATION'/',30X,24(''-) ASH41132

150 FORMAT('+',MAJOR SUBPOPULATION'/',19(''-) ASH41133

155 FORMAT('+',MINOR SUBPOPULATION'/',19(''-) ASH41134

160 FORMAT('+',30X,'UPPER EAST COAST OF VANCOUVER ISLAND POPULATION'/ASH41135  
 \* ',30X,47(''-)) ASH41136

165 FORMAT('+',ISLAND SUBPOPULATION'/',20(''-) ASH41137

170 FORMAT('+',MAINLAND SUBPOPULATION'/',22(''-) ASH41138

175 FORMAT('+',30X,'MIDDLE EAST COAST OF VANCOUVER ISLAND POPULATION'/ASH41139  
 \* ',30X,48(''-)) ASH41140

180 FORMAT('+',ISLAND SUBPOPULATION'/',20(''-) ASH41141

185 FORMAT('+',MAINLAND SUBPOPULATION'/',22(''-) ASH41142

190 FORMAT('+',30X,'LOWER EAST COAST OF VANCOUVER ISLAND POPULATION'/ASH41143  
 \* ',30X,47(''-)) ASH41144

195 FORMAT('+',30X,'LOWER WEST COAST OF VANCOUVER ISLAND POPULATION'/ASH41145  
 \* ',30X,47(''-)) ASH41146

200 FORMAT('+',30X,'UPPER WEST COAST OF VANCOUVER ISLAND POPULATION'/ASH41147  
 \* ',30X,47(''-)) ASH41148

205 FORMAT('+',30X,'DISTRICT 1 POPULATION'/',30X,21(''-) ASH41149

210 FORMAT('1TABLE 4.,I2,.'. FISH AT AGE IN CATCH BY POPULATION AND WASH41150  
 \*EEK FOR 19',2I1,'-',2I1,' (CONT.)',19X,'PAGE ',I3) ASH41151

215 FORMAT (I3,I3,I2,10F7.3,'WP') ASH41152

220 FORMAT( I3,I4,10F7.3,'CYP') ASH41153

225 FORMAT ('1TABLE D',I2,.'. PERCENT AGE COMPOSITION IN CATCH BY AREAASH41154  
 \* , 19',2I1,'-',2I1,.'.4X,'PAGE ',I3/'O',38X,'A G E'/ ' AREA',4X,I1,ASH41155  
 \*+',9(5X,I1,'+') ) ASH41156

230 FORMAT(' ',I4,10F7.2) ASH41157

235 FORMAT ( I3,I4,10F7.2,'ACA') ASH41158

240 FORMAT ('1TABLE E',I2,.'. PERCENT AGE COMPOSITION IN CATCH BY POPUASH41159

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*LATION, 19',211,'-',211,'.',10X,'PAGE ',I3/'0',49X,'A G E'/' POPULASH41160
*ATION',4X,10(5X,11,'+')
245 FORMAT ('OQUEEN CHARLOTTE ISLANDS'/' ') ASH41161
250 FORMAT (' ',5X,'LOWER EAST') ASH41162
255 FORMAT (' ',5X,'UPPER EAST') ASH41164
260 FORMAT (' ',5X,'WEST COAST') ASH41165
265 FORMAT ('ONORTHERN'/' ') ASH41166
270 FORMAT (' ',5X,'STRAITS') ASH41167
275 FORMAT (' ',5X,'HARBOUR') ASH41168
280 FORMAT (' ',5X,'LOCAL') ASH41169
285 FORMAT ('OUPPER CENTRAL'/' ') ASH41170
290 FORMAT (' ',5X,'MAJOR') ASH41171
295 FORMAT (' ',5X,'MINOR') ASH41172
300 FORMAT ('LOWER CENTRAL'/' ') ASH41173
305 FORMAT (' ',5X,'MAJOR') ASH41174
310 FORMAT (' ',5X,'MINOR') ASH41175
315 FORMAT ('OUPPER EAST COAST OF VANCOUVER ISLAND'/' ') ASH41176
320 FORMAT (' ',5X,'ISLAND') ASH41177
325 FORMAT (' ',5X,'MAINLAND') ASH41178
330 FORMAT ('OMIDDLE EAST COAST OF VANCOUVER ISLAND'/' ') ASH41179
335 FORMAT (' ',5X,'ISLAND') ASH41180
340 FORMAT (' ',5X,'MAINLAND') ASH41181
345 FORMAT ('LOWER EAST COAST OF VANCOUVER ISLAND'/' ') ASH41182
350 FORMAT ('LOWER WEST COAST OF VANCOUVER ISLAND'/' ') ASH41183
355 FORMAT ('OUPPER WEST COAST OF VANCOUVER ISLAND'/' ') ASH41184
360 FORMAT ('ODISTRICT 1'/' ') ASH41185
365 FORMAT ('+',16X,10F7.2) ASH41186
370 FORMAT ( I3,I4,10F7.2,'ACP') ASH41187
375 FORMAT('TABLE 3.',I2,'. FISH AT AGE IN CATCH BY AREA AND WEEK FOASH41188
  *R 19',211,'-',211,'.',33X,'PAGE ',I3) ASH41189
380 FORMAT (' ',16X,'* FISH PER TON AND AGE COMPOSITION FROM AREA SHOWASH41190
  *N'/' ',15X,'** FISH PER TON AND AGE COMPOSITION FROM WEEK SHOWN') ASH41191
385 FORMAT('TABLE 4.',I2,'. FISH AT AGE IN CATCH BY POPULATION AND WASH41192
  *EEK FOR 19',211,'-',211,'.',27X,'PAGE ',I3) ASH41193
390 FORMAT('O',39X,'MILLIONS OF FISH AT AGE'/' WEEK',5X,11,'+',9(7X,11ASH41194
  *,'+'),7X,'TOTAL') ASH41195
395 FORMAT ('O',14X,'CONTINUATION OF') ASH41196
400 FORMAT ('O') ASH41197
405 FORMAT ('O',31X,'(CONT.))') ASH41198
C ASH41199
C TO WRITE OPERATOR INSTRUCTIONS ASH41200
  WRITE (T,5) ASH41201
C ASH41202
C TO INITIALIZE FILES. ASH41203
  DO 415 I = 101,124 ASH41204
  DO 410 J = 1,55 ASH41205
  410 WRITE (I'J) CA ASH41206
  415 CONTINUE ASH41207
  DO 420 I = 1,62 ASH41208
  420 WRITE (1'I) I,PAC ASH41209
C TO READ IN INDEXING PARAMETERS FROM REF ASH41210
  READ (50'1) NAREA ASH41211
  READ (50' 8) INDX1,INDX2,ICODE ASH41212
C ASH41213
C TO READ SEASON AND INITIAL TABLE AND PAGE VALUES. ASH41214
  READ (C,35)IDEC,IYR1,IYR2,NTAB1,PAGE1,NTAB2,PAGE2,NTAB3,PAGE3, ASH41215
```

*NTAB4,PAGE4	ASH41216
IF (IDEC)425,1385,425	ASH41217
425 IF (IYR2)435,430,435	ASH41218
430 IDEC1= IDEC +1	ASH41219
GO TO 440	ASH41220
435 IDEC1 = IDEC	ASH41221
440 SEAS = IDEC * 100 +IYR1 * 10 + IYR2	ASH41222
C	ASH41223
C INITIALIZATION NECESSARY FOR READING OF FISH PER TON DATA	ASH41224
445 DO 450 I = 1,55	ASH41225
WMFT(I) = 0.0	ASH41226
JTEST(I) = 0	ASH41227
450 CONTINUE	ASH41228
IFR = 0	ASH41229
C	ASH41230
C TO READ FISH PER TON BY WEEK AND AREA	ASH41231
455 READ (C,10) INPUT	ASH41232
IF (INPUT(80) - IW)460,475,460	ASH41233
460 IF (INPUT(80) - IBLNK)465,885,465	ASH41234
465 IF (INPUT(79) - IA)470,520,470	ASH41235
470 WRITE (T,15)	ASH41236
GO TO 445	ASH41237
475 WSEAS = GIT (INPUT,1,3)	ASH41238
WAREA = GIT (INPUT,4,6)	ASH41239
WEEK = GIT (INPUT,8,9)	ASH41240
SFISH = RLGET(INPUT,10,19,0)	ASH41241
IF (SEAS - WSEAS)480,485,480	ASH41242
480 WRITE (T,25) WSEAS	ASH41243
PAUSE 1	ASH41244
GO TO 455	ASH41245
485 IF (IFR)490,490,495	ASH41246
490 IFR = 1	ASH41247
AREA = WAREA	ASH41248
495 IF (AREA - WAREA)500,505,500	ASH41249
500 WRITE (T,30) WAREA	ASH41250
PAUSE 2	ASH41251
GO TO 455	ASH41252
505 WMFT(WEEK) = SFISH * 1.0E03	ASH41253
GO TO 455	ASH41254
C	ASH41255
C TO READ WEEKLY AGE COMPOSITION AND CALCULATE FISH PER TON BY AGE	ASH41256
510 READ (C,10) INPUT	ASH41257
IF (INPUT(79) - IA)515,520,515	ASH41258
515 IF (INPUT(5) - IC)470,555,470	ASH41259
520 ASEAS = GIT(INPUT,1,3)	ASH41260
AAREA = GIT (INPUT,4,6)	ASH41261
AWEEK = GIT (INPUT,7,8)	ASH41262
J = 9	ASH41263
K = 15	ASH41264
DO 525 I = 1,10	ASH41265
PAC(I) = RLGET (INPUT,J,K,0)	ASH41266
J = K + 1	ASH41267
K = J + 6	ASH41268
525 CONTINUE	ASH41269
IF (AREA - AAREA)530,535,530	ASH41270
530 WRITE (T,30) AAREA	ASH41271

PAUSE 4	ASH41272
GO TO 510	ASH41273
535 IF (WMFT(AWEEK) - 0.000501)540,540,545	ASH41274
540 WRITE (T,40) AWEEK	ASH41275
GO TO 1385	ASH41276
545 DO 550 I = 1,10	ASH41277
AFPT(AWEEK,I) = (PAC(I)*WMFT(AWEEK)) / 100.0	ASH41278
550 CONTINUE	ASH41279
JTEST(AWEEK) = 1	ASH41280
GO TO 510	ASH41281
555 IFR = 0	ASH41282
IFLAG = 0	ASH41283
GO TO 570	ASH41284
C	ASH41285
C TO READ WEEKLY CATCH IN TONS AND CALCULATE MILLIONS OF FISH AT AGE	ASH41286
560 READ (C,10) INPUT	ASH41287
IF (INPUT(5) - IC)565,570,565	ASH41288
565 IF (INPUT(5) - IBLNK)470,575,470	ASH41289
570 CSEAS = GIT (INPUT,1,3)	ASH41290
CAREA = GIT (INPUT,9,11)	ASH41291
CWEEK = GIT (INPUT,14,15)	ASH41292
CATCH = RLGET (INPUT,17,25,C)	ASH41293
GO TO 580	ASH41294
575 IFR = 2	ASH41295
GO TO 690	ASH41296
580 IF (CSEAS - SEAS)585,590,585	ASH41297
585 WRITE (T,25) CSEAS	ASH41298
PAUSE 5	ASH41299
GO TO 560	ASH41300
590 IF (IFR)595,595,615	ASH41301
595 IFR = 1	ASH41302
600 AREA = CAREA	ASH41303
DO 605 I = 1,55	ASH41304
ITEST(I,1) = 0	ASH41305
ITEST(I,2) = 0	ASH41306
ITEST(I,3) = 0	ASH41307
CAT(I,11) = 0.0	ASH41308
605 CONTINUE	ASH41309
ITEST(55,1) = 1	ASH41310
DO 610 I = 1,10	ASH41311
610 CAT(55,I) = 0.0	ASH41312
615 IF (CAREA - AREA)690,620,690	ASH41313
620 IF (JTEST(CWEEK))640,640,625	ASH41314
625 LWEEK = CWEEK	ASH41315
630 DO 635 I = 1,10	ASH41316
CAT(CWEEK,I) = CATCH * AFPT(LWEEK,I)	ASH41317
CAT(55,I) = CAT(55,I) + CAT(CWEEK,I)	ASH41318
CAT(CWEEK,11) = CAT(CWEEK,11) + CAT(CWEEK,I)	ASH41319
CAT(55,11) = CAT(55,11) + CAT(CWEEK,I)	ASH41320
635 CONTINUE	ASH41321
ITEST(CWEEK,1) = 1	ASH41322
GO TO 560	ASH41323
C	ASH41324
640 L = 1	ASH41325
ITEST(CWEEK,1) = 1	ASH41326
DO 645 I = CWEEK,54	ASH41327

IF (JTEST(I))645,645,650	ASH41328
645 CONTINUE	ASH41329
L = 2	ASH41330
650 IG1 = I	ASH41331
I = CWEEK	ASH41332
DO 655 J = 1,CWEEK	ASH41333
IF (JTEST(I))655,655,660	ASH41334
655 I = I - 1	ASH41335
L = 3	ASH41336
660 IG2 = I	ASH41337
GO TO (665,670,675), L	ASH41338
665 IF ((CWEEK - IG2)-(IG1-CWEEK))670,680,675	ASH41339
670 LWEEK = IG2	ASH41340
ITEST(CWEEK,2) = IG2	ASH41341
GO TO 630	ASH41342
675 LWEEK = IG1	ASH41343
ITEST(CWEEK,2) = IG1	ASH41344
GO TO 630	ASH41345
680 DO 685 I = 1,10	ASH41346
CORR = (AFPT(IG1,I) + AFPT(IG2,I)) / 2.0	ASH41347
CAT(CWEEK,I) = CATCH * CORR	ASH41348
CAT(55,I) = CAT(55,I) + CAT(CWEEK,I)	ASH41349
CAT(CWEEK,11) = CAT(CWEEK,11) + CAT(CWEEK,I)	ASH41350
CAT(55,11) = CAT(55,11) + CAT(CWEEK,I)	ASH41351
685 CONTINUE	ASH41352
GO TO 560	ASH41353
C	ASH41354
690 DO 695 I = 1,55	ASH41355
DO 695 J = 1,11	ASH41356
CAT(I,J) = CAT(I,J) / 1.0E06	ASH41357
695 CONTINUE	ASH41358
C	ASH41359
C TO STORE AGE COMPOSITION BY AREA.	ASH41360
DO 750 I = 1,62	ASH41361
IF (AREA - NAREA(I))750,700,750	ASH41362
700 DO 705 L = 1,10	ASH41363
705 PAC(L) = (CAT(55,L)/CAT(55,11)) * 100.0	ASH41364
L = 0	ASH41365
WRITE (1*I) L,PAC	ASH41366
C	ASH41367
C TO STORE CATCH BY WEEK,SEASON AND AREA	ASH41368
IF (INDX1(I))710,730,710	ASH41369
710 INC = INDX1(I) + 100	ASH41370
DO 725 J = 1,55	ASH41371
IF (ITEST(J,1))725,725,715	ASH41372
715 READ (INC*J) CA	ASH41373
DO 720 K = 1,11	ASH41374
720 CA(K) = CA(K) + CAT(J,K)	ASH41375
WRITE (INC*J) CA	ASH41376
725 CONTINUE	ASH41377
730 INC = INDX2(I) + 100	ASH41378
DO 745 J = 1,55	ASH41379
IF (ITEST(J,1))745,745,735	ASH41380
735 READ (INC*J) CA	ASH41381
DO 740 K = 1,11	ASH41382
740 CA(K) = CA(K) + CAT(J,K)	ASH41383



WRITE (INC*J) CA	ASH41384
745 CONTINUE	ASH41385
GO TO 755	ASH41386
750 CONTINUE	ASH41387
WRITE (T,30) AREA	ASH41388
PAUSE 7	ASH41389
GO TO 445	ASH41390
C	ASH41391
C TO PRINT RESULTS BY AREA AND WEEK	ASH41392
755 CALL DATSW (1,M1)	ASH41393
GO TO (870,760), M1	ASH41394
760 IF (LINE - 43)785,785,765	ASH41395
765 LINE = 4	ASH41396
IF (INIT1)770,775,770	ASH41397
770 INIT1 = 0	ASH41398
WRITE(P,375)NTAB1,IDEC,IYR1,IDEC1,IYR2,PAGE1	ASH41399
WRITE(P,380)	ASH41400
LINE = LINE + 2	ASH41401
GO TO 780	ASH41402
775 WRITE(P,55)NTAB1,IDEC,IYR1,IDEC1,IYR2,PAGE1	ASH41403
780 PAGE1 = PAGE1 + 1	ASH41404
WRITE (P,390) (J,J=0,9)	ASH41405
785 IF (AREA - WAREA)790,795,790	ASH41406
790 WRITE (P,50) AREA,WAREA	ASH41407
GO TO 800	ASH41408
795 WRITE (P,60) AREA	ASH41409
800 LINE = LINE + 3	ASH41410
DU 860 I = 1,54	ASH41411
IF (ITEST(I,1))860,860,805	ASH41412
805 IF (LINE - 48)825,825,810	ASH41413
810 LINE = 7	ASH41414
WRITE (P,55) NTAB1,IDEC,IYR1,IDEC1,IYR2,PAGE1	ASH41415
PAGE1 = PAGE1 + 1	ASH41416
WRITE (P,390) (J,J=0,9)	ASH41417
IF (AREA - WAREA)815,820,815	ASH41418
815 WRITE (P,20) AREA,WAREA	ASH41419
GO TO 825	ASH41420
820 WRITE (P,45) AREA	ASH41421
825 DU 830 J = 1,11	ASH41422
830 CAT(I,J) = CAT(I,J) + 0.000501	ASH41423
IF (ITEST(I,2))835,835,840	ASH41424
835 WRITE (P,75) I,(CAT(I,J),J=1,11)	ASH41425
GO TO 855	ASH41426
840 IF (ITEST(I,3))845,845,850	ASH41427
845 WRITE (P,65) I,(CAT(I,J),J=1,11),ITEST(I,2)	ASH41428
GO TO 855	ASH41429
850 WRITE (P,70) I,(CAT(I,J),J=1,11),ITEST(I,2),ITEST(I,3)	ASH41430
855 LINE = LINE + 1	ASH41431
860 CONTINUE	ASH41432
DO 865 J = 1,11	ASH41433
865 CAT(55,J) = CAT(55,J) + 0.000501	ASH41434
WRITE (P,80) (CAT(55,I),I=1,11)	ASH41435
C	ASH41436
C TO PUNCH CATCH BY SEASON AND AREA	ASH41437
870 CALL DATSW(7,M7)	ASH41438
GO TO(880,875), M7	ASH41439



875	WRITE (H,85) SEAS,AREA,(CAT(55,J),J=1,10)	ASH41440
C		ASH41441
C	RETURN TO PROCESS ANOTHER AREA	ASH41442
	880 IF (IFR - 1)600,600,445	ASH41443
C		ASH41444
C	TO PRINT AND PUNCH BY WEEK AND POPULATION	ASH41445
885	CALL DATSW (2,M2)	ASH41446
	CALL DATSW (6,M6)	ASH41447
	CALL DATSW (8,M8)	ASH41448
	LINE = 55	ASH41449
	IF (NTAB2)890,890,895	ASH41450
890	NTAB2 = NTAB1 + 1	ASH41451
	PAGE2 = PAGE1	ASH41452
895	DO 1145 I = 1,24	ASH41453
	L = I + 100	ASH41454
	READ (L'55) CA	ASH41455
	IF (CA(11) - 0.000501)1145,1145,900	ASH41456
900	IF (LINE - 4)925,925,905	ASH41457
905	LINE = 4	ASH41458
	IF (INIT2)910,915,910	ASH41459
910	INIT2 = 0	ASH41460
	WRITE (P,385) NTAB2,IDEC,IYR1,IDEC1,IYR2,PAGE2	ASH41461
	GO TO 920	ASH41462
915	WRITE (P,210) NTAB2,IDEC,IYR1,IDEC1,IYR2,PAGE2	ASH41463
920	PAGE2 = PAGE2 + 1	ASH41464
	WRITE (P,390) (J,J=0,9)	ASH41465
925	LINE = LINE + 3	ASH41466
	IGU = 1	ASH41467
	WRITE (P,400)	ASH41468
	GO TO 960	ASH41469
930	DO 1120 J = 1,54	ASH41470
	READ (L'J) CA	ASH41471
	IF (CA(11) - 0.0005)1120,1120,935	ASH41472
935	GO TO (1110,940),M2	ASH41473
940	IF (LINE - 48)1100,1100,945	ASH41474
945	IGU = 2	ASH41475
	LINE = 7	ASH41476
	WRITE (P,210) NTAB2,IDEC,IYR1,IDEC1,IYR2,PAGE2	ASH41477
	PAGE2 = PAGE2 + 1	ASH41478
	WRITE (P,390) (K,K=0,9)	ASH41479
	GO TO (955,950),ICONT	ASH41480
950	WRITE (P,405)	ASH41481
	GO TO 960	ASH41482
955	WRITE (P,395)	ASH41483
960	GO TO (965,970,975,980,985,990,995,1000,1005,1010,1015,1020,1025, *1030,1035,1040,1045,1050,1055,1060,1065,1070,1075,1080),I	ASH41484
965	WRITE (P,90)	ASH41485
	GO TO 1090	ASH41486
970	WRITE (P,95)	ASH41487
	GO TO 1085	ASH41488
975	WRITE (P,100)	ASH41489
	GO TO 1085	ASH41490
980	WRITE (P,105)	ASH41491
	GO TO 1085	ASH41492
985	WRITE (P,110)	ASH41493
	GO TO 1090	ASH41494
		ASH41495

990	WRITE (P,115)	ASH41496
	GO TO 1085	ASH41497
995	WRITE (P,120)	ASH41498
	GO TO 1085	ASH41499
1000	WRITE (P,125)	ASH41500
	GO TO 1085	ASH41501
1005	WRITE (P,130)	ASH41502
	GO TO 1090	ASH41503
1010	WRITE (P,135)	ASH41504
	GO TO 1085	ASH41505
1015	WRITE (P,140)	ASH41506
	GO TO 1085	ASH41507
1020	WRITE (P,145)	ASH41508
	GO TO 1090	ASH41509
1025	WRITE (P,150)	ASH41510
	GO TO 1085	ASH41511
1030	WRITE (P,155)	ASH41512
	GO TO 1085	ASH41513
1035	WRITE (P,160)	ASH41514
	GO TO 1090	ASH41515
1040	WRITE (P,165)	ASH41516
	GO TO 1085	ASH41517
1045	WRITE (P,170)	ASH41518
	GO TO 1085	ASH41519
1050	WRITE (P,175)	ASH41520
	GO TO 1090	ASH41521
1055	WRITE (P,180)	ASH41522
	GO TO 1085	ASH41523
1060	WRITE (P,185)	ASH41524
	GO TO 1085	ASH41525
1065	WRITE (P,190)	ASH41526
	GO TO 1090	ASH41527
1070	WRITE (P,195)	ASH41528
	GO TO 1090	ASH41529
1075	WRITE (P,200)	ASH41530
	GO TO 1090	ASH41531
1080	WRITE (P,205)	ASH41532
	GO TO 1090	ASH41533
1085	ICONT = 2	ASH41534
	GO TO 1095	ASH41535
1090	ICONT = 1	ASH41536
1095	GO TO (930,1100), IGO	ASH41537
1100	DO 1105 K = 1,11	ASH41538
1105	CA(K) = CA(K) + 0.000501	ASH41539
	WRITE (P,75) J,CA	ASH41540
	LINE = LINE + 1	ASH41541
1110	GO TO (1120,1115), M6	ASH41542
1115	WRITE (H,215) SEAS,ICCODE(I),J,(CA(N),N=1,10)	ASH41543
1120	CONTINUE	ASH41544
	READ (L*55) CA	ASH41545
C		ASH41546
C	TO PRINT AND PUNCH BY SEASON AND POPULATION	ASH41547
	DO 1125 K = 1,11	ASH41548
1125	CA(K) = CA(K) + 0.000501	ASH41549
	GO TO (1135,1130),M2	ASH41550
1130	WRITE (P,80) CA	ASH41551

1135	GO TO (1145,1140),M8		ASH41552
1140	WRITE (H,220)	SEAS,ICODE(I),(CA(N),N=1,10)	ASH41553
1145	CONTINUE		ASH41554
C			ASH41555
C	TO PRINT AND PUNCH AGE COMPOSITION BY AREA AND SEASON		ASH41556
	LINE = 55		ASH41557
	CALL DATSW(3,M3)		ASH41558
	CALL DATSW(9,M9)		ASH41559
	IF (NTAB3)1150,1150,1155		ASH41560
1150	NTAB3 = NTAB2 + 1		ASH41561
	PAGE3 = PAGE2		ASH41562
1155	DO 1195 I = 1,62		ASH41563
	READ (1'I) L,PAC		ASH41564
	IF (L)1195,1160,1195		ASH41565
1160	DO 1165 K = 1,10		ASH41566
	PAC(K) = PAC(K) + 0.00501		ASH41567
1165	CONTINUE		ASH41568
	GO TO (1185,1170),M3		ASH41569
1170	IF (LINE - 45)1180,1180,1175		ASH41570
1175	WRITE (P,225) NTAB3,IDECL,IYR1,IDECL,IYR2,PAGE3,(K,K=0,9)		ASH41571
	LINE = 4		ASH41572
	PAGE3 = PAGE3 + 1		ASH41573
1180	WRITE (P,230) NAREA(I),PAC		ASH41574
	LINE = LINE + 1		ASH41575
1185	GO TO (1195,1190),M9		ASH41576
1190	WRITE (H,235)	SEAS,NAREA(I),PAC	ASH41577
1195	CONTINUE		ASH41578
C			ASH41579
C	TO PRINT AND PUNCH AGE COMPOSITION BY POPULATION AND SEASON		ASH41580
	CALL DATSW(10,M10)		ASH41581
	CALL DATSW(4,M4)		ASH41582
	LINE = 55		ASH41583
	MTAB = 0		ASH41584
	IF (NTAB4)1200,1200,1205		ASH41585
1200	NTAB4 = NTAB3 + 1		ASH41586
	PAGE4 = PAGE3		ASH41587
1205	DO 1380 I = 1,24		ASH41588
	L = I + 100		ASH41589
	READ (L'55) CA		ASH41590
	IF (CA(11) - 0.00000501)1380,1380,1210		ASH41591
1210	DO 1215 K = 1,10		ASH41592
1215	PAC(K) = CA(K)/CA(11) * 100.0 + 0.00501		ASH41593
	GO TO (1370,1220),M4		ASH41594
1220	IF (LINE - 51)1230,1225,1225		ASH41595
1225	WRITE (P,240) NTAB4,IDECL,IYR1,IDECL,IYR2,PAGE4,(J,J=0,9)		ASH41596
	LINE = 4		ASH41597
	PAGE4 = PAGE4 + 1		ASH41598
1230	GO TO (1235,1240,1245,1250,1255,1260,1265,1270,1275,1280,1285, *1290,1295,1300,1305,1310,1315,1320,1325,1330,1335,1340,1345,1350), *I		ASH41600
1235	WRITE (P,245)		ASH41601
	GO TO 1355		ASH41602
1240	WRITE (P,250)		ASH41603
	GO TO 1360		ASH41604
1245	WRITE (P,255)		ASH41605
	GO TO 1360		ASH41606
			ASH41607

1250 WRITE (P,260)	ASH41608
GO TO 1360	ASH41609
1255 WRITE (P,265)	ASH41610
GO TO 1355	ASH41611
1260 WRITE (P,270)	ASH41612
GO TO 1360	ASH41613
1265 WRITE (P,275)	ASH41614
GO TO 1360	ASH41615
1270 WRITE (P,280)	ASH41616
GO TO 1360	ASH41617
1275 WRITE (P,285)	ASH41618
GO TO 1355	ASH41619
1280 WRITE (P,290)	ASH41620
GO TO 1360	ASH41621
1285 WRITE (P,295)	ASH41622
GO TO 1360	ASH41623
1290 WRITE (P,300)	ASH41624
GO TO 1355	ASH41625
1295 WRITE (P,305)	ASH41626
GO TO 1360	ASH41627
1300 WRITE (P,310)	ASH41628
GO TO 1360	ASH41629
1305 WRITE (P,315)	ASH41630
GO TO 1355	ASH41631
1310 WRITE (P,320)	ASH41632
GO TO 1360	ASH41633
1315 WRITE (P,325)	ASH41634
GO TO 1360	ASH41635
1320 WRITE (P,330)	ASH41636
GO TO 1355	ASH41637
1325 WRITE (P,335)	ASH41638
GO TO 1360	ASH41639
1330 WRITE (P,340)	ASH41640
GO TO 1360	ASH41641
1335 WRITE (P,345)	ASH41642
GO TO 1355	ASH41643
1340 WRITE (P,350)	ASH41644
GO TO 1355	ASH41645
1345 WRITE (P,355)	ASH41646
GO TO 1355	ASH41647
1350 WRITE (P,360)	ASH41648
1355 LINE = LINE + 3	ASH41649
GO TO 1365	ASH41650
1360 LINE = LINE + 1	ASH41651
1365 WRITE (P,365) PAC	ASH41652
1370 GO TO (1380,1375),M10	ASH41653
1375 WRITE (H,370)	ASH41654
1380 CONTINUE	ASH41655
1385 CALL EXIT	ASH41656
END	ASH41657
// DUP	
*DELETE	ASH41
*STORE	WS UA ASH41

// JOB  
 // ASM GIT  
 \*LIST

				GIT	1
				GIT	2
				GIT	3
				GIT	4
				GIT	5
				GIT	6
				GIT	7
				GIT	8
				GIT	9
				GIT	10
				GIT	11
				GIT	12
				GIT	13
				GIT	14
				GIT	15
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				GIT	47
				GIT	48
				GIT	49
				GIT	50
				GIT	51
				GIT	52
				GIT	53
				GIT	54

	LD	L	***	GIT	55
FLDND	EQU		*-1	GIT	56
	EOR		I6040	GIT	57
	BZ		NEG	GIT	58
	AND		IF000	GIT	59
	EOR		I8000	GIT	60
	BNZ		POS	GIT	61
NEG	SLT		32	GIT	62
	SD	3	FAC	GIT	63
	STO	3	FAC	GIT	64
RETRN	EQU		*	GIT	65
POS	LD		D159	GIT	66
	STO	3	FAC-1	GIT	67
	LIBF		NORM	GIT	68
	*			GIT	69
SAVE1	LDX	L1	***	GIT	70
BACK	BSC	L	***	GIT	71
HOLD	DEC	E	0	GIT	72
D159	DC		159	GIT	73
I6040	DC		/6040	GIT	74
I8000	DC		/8000	GIT	75
IF000	DC		/F000	GIT	76
	END			GIT	77
// DUP GIT				GIT	78
*DELETE				GIT	79
*STORE	WS	UA		GIT	80



// JOB  
 // ASM RLGET  
 \*LIST

	HDNG	GET REAL NUMBER FROM A1 FIELD	RLGET	RLGET 30
	ENT	RLGET (KARD, I, J, NDEC)		RLGET 40
	*FUNCTION TO CONVERT KARD(I) THRU KARD(J) TO A REAL			RLGET 50
	*NUMBER WITH NDEC DECIMAL PLACES. DECIMAL POINT			RLGET 60
	*IN KARD WILL OVER-RIDE NDEC SPECIFICATION.			RLGET 70
	*LEADING MINUS SIGN WILL CAUSE NEGATIVE VALUE.			RLGET 80
	*ANY CHARACTER OTHER THAN DIGIT, DECIMAL OR MINUS			RLGET 90
	*IS IGNORED.			RLGET100
	*			RLGET110
	*DAVE DILLARD, BARTON-ASCHMAN ASSOCIATES, INC.			RLGET120
	*1771 W. HOWARD ST., CHICAGO, IL 60626			RLGET130
	*PHONE (312) 338-3200 COMMENTS ARE WELCOMED			RLGET140
	*			RLGET150
KARD	EQU	0		RLGET160
I	EQU	1		RLGET170
J	EQU	2		RLGET180
NDEC	EQU	3		RLGET190
NARG	EQU	4		RLGET200
FAC	EQU	126		RLGET210
	*			RLGET220
	DC	0	DOUBLE WORD FOR TEMP STORAGE	RLGET230
RLGET	DC	**		RLGET240
	STX	1 SAVE1		RLGET250
	LDX	11 RLGET		RLGET260
	SLT	32		RLGET270
	STD	3 FAC	DEFAULT VALUE IS ZERO	RLGET280
	STO	3 FAC-1		RLGET290
	LD	11 J		RLGET300
	S	11 I		RLGET310
ONE	EQU	**1		RLGET320
	MDX	1 NARG		RLGET330
	STX	1 RETRN		RLGET340
	BN	L ERROR		RLGET350
	A	ONE		RLGET360
	STO	PLACE		RLGET370
	LD	1 NDEC-NARG		RLGET380
	STO	NPLA		RLGET390
	LD	1 KARD-NARG		RLGET400
	S	11 J-NARG		RLGET410
	STO	CARD		RLGET420
	LDX	L1 **		RLGET430
PLACE	EQU	**1		RLGET440
	LD	MINUS		RLGET450
	STO	PLACE		RLGET460
	STO	SIGN		RLGET470
	*		GET A1 CHARACTER	RLGET480
FETCH	EQU	*		RLGET490
	LD	L1 **		RLGET500
CARD	EQU	**1		RLGET510
	SRA	8		RLGET520
	S	ZERO		RLGET530
	STO	RLGET		RLGET540



C159	DC	159	RLGE1110
ZERO	DC	.0	RLGE1120
MINUS	DC	---.0	RLGE1130
POINT	DC	...-	RLGE1140
SIGN	DC	***	RLGE1150
	END		RLGE1160

// DUP RLGET

\*DELETE                   RLGET

\*STORE    8 WS UA   RLGET

RLGE1170

RLGE1180

RLGE1190

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// JOB
// FOR
*IOCS(DISK,1403 PRINTER,2501 READER,TYPEWRITER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH 42
** ASH 42 - SPAWNINGS BY AREA AND LOCALITY
C
C *****
C USE *FILES(5,WEEKF) TO EXECUTE.
C
C INPUT
C -----
C 1 TABLE AND INITIAL PAGE VALUE OF PRINTED OUTPUT (COLS 1-3 AND
C 4-6 RESPECTIVELY)
C 2 SEASON TO BE PROCESSED (COLS.1-3)
C 3 EGG SURVIVAL RATES BY INTENSITY IN 9F5.3 FORMAT (IF ESURV(1) IS
C BLANK, ESURV(1-1) IS USED. IF ESURV(1) IS BLANK, A VALUE OF .38
C IS ASSUMED)
C 4 SPAWN DATA CARDS (CODE ED) SORT BY DAY (COLS.14-15),MONTH
C (COLS.12-13), LOCALITY (COLS.10-11) AND AREA (COLS.7-9) BY SEAS.
C 5 BLANK CARD TO TERMINATE DATA INPUT.
C
C OUTPUT
C -----
C PRINT OUT OF LENGTH, WIDTH (BOTH IN YARDS) OF SPAWN, SPAWN
C INTENSITY, MILES OF SPAWN AND NUMBER OF EGGS(IN UNITS OF E09)FOR
C DAY, MONTH, LOCALITY AND AREA.
C
C NOTE THAT AREA CODE 79 IS CHANGED TO AREA CODE 71 WITH 100 ADDED
C TO THE LOCALITY READ.
C
C AN INTENSITY OF 0 IS CHANGED TO INTENSITY OF 5.
C
C *****
C SPECIFICATIONS
C INTEGER DAY,AREA,C,P,SEASN,PAGE1,FIRST,T
C DIMENSION KAREA(62),EPSYS(9),ESURV(9)
C DATA C,P,T,LINE,IAREA,ILOC,FIRST/8,5,1,55,0,0,1/
C
C DEFINE FILE 5(3,93,U,KI)
C
C FORMATS
C
C 5 FORMAT (3I1)
C 10 FORMAT (2I3)
C 15 FORMAT (9F5.3)
C 20 FORMAT (1X,2I1,3X,I3,3I2,4X,F5.0,F3.0,I2,34X,F3.0)
C 25 FORMAT (///'SEASON ',I3,' IS INCORRECT')
C 30 FORMAT (///'AREA ',I3,' IS INCORRECT')
C 35 FORMAT (///'INTENSITY',I3,' IS INCORRECT')
C 40 FORMAT ('1TABLE ',I2,', HERRING SPAWNINGS BY AREA FOR 19',2I1,'-'

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```
* ,211, ' ,5X, 'PAGE ' ,I3/'0', 'AREA LOC. MONTH DAY LENGTH WIDTHASH42 48
* INTEN= MILES',5X,'EGGS'/' ' ,23X,2(' (YARDS)',2X), 'SITY',2X, 'OF SASH42 49
*PAWN',2X,' (E09)')/1 ASH42 50
45 FORMAT (' ' ,I3,3X,I3,4X,I2,5X,I2,2X,F6.0,2X,F6.0,4X,I1,2X,F7.2,1X,ASH42 51
  *F9.2) ASH42 52
50 FORMAT (' ' ,6X,I3,4X,I2,5X,I2,2X,F6.0,2X,F6.0,4X,I1,2X,F7.2,1X,F9.ASH42 53
  *2) ASH42 54
55 FORMAT (' ' ,13X,I2,5X,I2,2X,F6.0,2X,F6.0,4X,I1,2X,F7.2,1X,F9.2) ASH42 55
60 FORMAT (1H ,I3,10X,'ALL',29X,F7.2,1X,F9.2/) ASH42 56
C ASH42 57
  READ (5'2) KAREA ASH42 58
  READ (5'3) EPSYS ASH42 59
C ASH42 60
C TO READ TABLE AND PAGE VALUES ASH42 61
  READ (C,10) NTAB1,PAGE1 ASH42 62
C ASH42 63
C TO READ SEASON TO BE PROCESSED ASH42 64
  READ (C,5) IDEC,IYR1,IYR2 ASH42 65
  IF (IYR2)70,65,70 ASH42 66
  65 IDEC1 = IDEC + 1 ASH42 67
  GO TO 75 ASH42 68
  70 IDEC1 = IDEC ASH42 69
  75 ISEAS = IDEC * 100 + IYR1 * 10 + IYR2 ASH42 70
C ASH42 71
C TO READ SURVIVAL RATES ASH42 72
  READ (C,15) ESURV ASH42 73
  IF (ESURV(1))85,80,85 ASH42 74
  80 ESURV(1) = .38 ASH42 75
  85 DO 95 I=2,9 ASH42 76
  IF (ESURV(I))95,90,95 ASH42 77
  90 ESURV(I) = ESURV(I-1) ASH42 78
  95 CONTINUE ASH42 79
C ASH42 80
C TO READ SPAWN DATA ASH42 81
  100 READ (C,20) KSEA1,KSEA3,AREA,LOC,MONTH,DAY,ALONG,WIDE,JNTEN,AWIDE ASH42 82
  IF (KSEA1)105,200,105 ASH42 83
  105 IF (KSEA3)115,110,115 ASH42 84
  110 KSEA1 = KSEA1 - 1 ASH42 85
  KSEA2 = 9 ASH42 86
  GO TO 120 ASH42 87
  115 KSEA2 = KSEA3 - 1 ASH42 88
  120 SEASN = KSEA1 * 100 + KSEA2 * 10 + KSEA3 ASH42 89
  IF (ISEAS - SEASN)125,130,125 ASH42 90
  125 WRITE (T,25) SEASN ASH42 91
  PAUSE 1 ASH42 92
  GO TO 100 ASH42 93
C ASH42 94
C TO TEST FOR A VALID AREA ASH42 95
  130 IF (AREA - 79)140,135,140 ASH42 96
  135 AREA = 71 ASH42 97
  LOC = LOC + 100 ASH42 98
  140 IF (JNTEN)150,145,150 ASH42 99
  145 INTEN = 5 ASH42100
  GO TO 155 ASH42101
  150 INTEN = JNTEN ASH42102
  155 IF (AREA - 508)160,185,160 ASH42103
```

160 DD 165 I = 1,62	ASH42104
IF (AREA - KAREA(I))165,170,165	ASH42105
165 CONTINUE	ASH42106
GO TO 180	ASH42107
170 IF (I - 52)185,175,175	ASH42108
175 IF (LOC)180,185,180	ASH42109
180 WRITE (T,30) AREA	ASH42110
PAUSE 2	ASH42111
GO TO 100	ASH42112
C	ASH42113
C TO ACCUMULATE TOTALS BY AREA	ASH42114
185 IF (FIRST)205,190,205	ASH42115
190 IF (AREA - IAREA)200,195,200	ASH42116
195 TSM = TSM + SM - .00501	ASH42117
TEGGS = TEGGS + EGGS - .00501	ASH42118
GO TO 210	ASH42119
200 TSM = TSM + SM	ASH42120
TEGGS = TEGGS + EGGS	ASH42121
WRITE (P,60) IAREA,TSM,TEGGS	ASH42122
LINE = LINE + 2	ASH42123
IF (KSEA1)205,330,205	ASH42124
205 TSM = C.0	ASH42125
TEGGS = 0.0	ASH42126
C	ASH42127
C TO PRINT PAGE HEADING	ASH42128
210 IF (LINE - 50)220,215,215	ASH42129
215 WRITE (P,40) NTAB1,IDECC,IYR1,IDECC1,IYR2,PAGE1	ASH42130
LINE = 4	ASH42131
PAGE1 = PAGE1 + 1	ASH42132
C	ASH42133
C TO CALCULATE MILES OF SPAWN AND EGGS	ASH42134
220 IF (INTEN - 10)230,225,225	ASH42135
225 WRITE (T,35) INTEN	ASH42136
GO TO 100	ASH42137
230 GO TO (235,240,245,250,255,260,265,270,275), INTEN	ASH42138
235 ANTEN = 1.0	ASH42139
GO TO 280	ASH42140
240 ANTEN = 1.5	ASH42141
GO TO 280	ASH42142
245 ANTEN = 2.0	ASH42143
GO TO 280	ASH42144
250 ANTEN = 2.5	ASH42145
GO TO 280	ASH42146
255 ANTEN = 3.0	ASH42147
GO TO 280	ASH42148
260 ANTEN = 3.5	ASH42149
GO TO 280	ASH42150
265 ANTEN = 4.0	ASH42151
GO TO 280	ASH42152
270 ANTEN = 4.5	ASH42153
GO TO 280	ASH42154
275 ANTEN = 5.0	ASH42155
280 SM = ALONG / 1760.0	ASH42156
IF (WIDE - 100.C)290,290,285	ASH42157
285 SM = SM * (WIDE / AWIDE)	ASH42158
290 SM = SM * (ANTEN / 3.0) + .00501	ASH42159



```
EGGS = (ALONG * WIDE * EPSYS(INTEN))/(ESURV(INTEN)*1.0E06)+.00501 ASH42160
ALONG = ALONG + .501 ASH42161
WIDE = WIDE + .501 ASH42162
IF (FIRST)295,300,295 ASH42163
295 FIRST = 0 ASH42164
GO TO 305 ASH42165
300 IF (IAREA - AREA)305,310,305 ASH42166
305 IAREA = AREA ASH42167
ILOC = LOC ASH42168
C ASH42169
C TO PRINT OUT SPAWN DATA ASH42170
WRITE (P,45) AREA,LOC,MONTH,DAY,ALONG,WIDE,JNTEN,SM,EGGS ASH42171
GO TO 325 ASH42172
310 IF (ILOC - LOC)315,320,315 ASH42173
315 WRITE (P,50) LOC,MONTH,DAY,ALONG,WIDE,JNTEN,SM,EGGS ASH42174
ILOC = LOC ASH42175
GO TO 325 ASH42176
320 WRITE (P,55) MONTH,DAY,ALONG,WIDE,JNTEN,SM,EGGS ASH42177
325 LINE = LINE + 1 ASH42178
GO TO 100 ASH42179
330 CALL EXIT ASH42180
END ASH42181
// DUP
*DELETE WS UA ASH42
*STORE WS UA ASH42
```

```
// JOB
// FOR
*IOCS(1403 PRINTER,2501 READER,DISK,1442 PUNCH,TYPEWRITER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH43
**ASH43, ESTIMATES SPAWNERS AT AGE BY AREA AND POPULATION FOR SEASON.
```

```
C
C ***** ASH43 1
C ASH43 2
C ASH43 3
C USE *FILES(100,REFX),(105,WEEKF),(1,PAC01), ... ,(130,PAC30) ASH43 4
C WHERE PAC01 THROUGH TO PAC30 ARE FIXED AREA FILES OF 7 SECTORS EACH ASH43 5
C (IT IS SUGGESTED THIS PROGRAM BE STORED IN CORE IMAGE). ASH43 6
C DISK DATA FILES PAC01 TO PAC30 ARE LOADED BY PROGRAM PACLD, AND ASH43 7
C CONTAIN AGE COMPOSITION BY AREA (CARD TYPE ACA AS PRODUCED BY ASH41) ASH43 8
C ) FOR UP TO 30 YEARS OF DATA. ASH43 9
C ASH43 10
C 7 SECTORS OF DISK WORKING STORAGE ARE ALSO REQUIRED. ASH43 11
C ASH43 12
C PROGRAM FUNCTION IS TO PROVIDE AN ESTIMATE OF THE NUMBER OF SPAWNERS ASH43 13
C (IN MILLIONS OF FISH) BY AREA AND POPULATION. ASH43 14
C ESTIMATES OF THE NUMBER OF SPAWNERS IS PRODUCED FROM TWO METHODS. ASH43 15
C THE FIRST USES MILES OF SPAWN OBSERVED AND AN ESTIMATED NUMBER OF ASH43 16
C FISH PER MILE OF SPAWN. ASH43 17
C THE SECOND USES THE AREA OBSERVED AND AN ESTIMATED NUMBER OF EGGS ASH43 18
C PER AREA AND NUMBER OF EGGS PER FISH ESTIMATE TO PRODUCE THE ASH43 19
C NUMBER OF SPAWNERS. ASH43 20
C THE NUMBER OF SPAWNERS IS THEN ESTIMATED AT AGE BY USING THE AGE ASH43 21
C COMPOSITION PRODUCED BY ASH41. ASH43 22
```

INPUT

```
C
C ----- ASH43 23
C ASH43 24
C 1 - CONTROL CARD. ASH43 25
C CULS. 1 - 3 SEASON TO BE PROCESSED, E.G. 501 (1950-51) ASH43 26
C 4 - 6 TABLE VALUE OF PRINTED OUTPUT A. ASH43 27
C 7 - 9 INITIAL PAGE VALUE OF PRINTED OUTPUT A. ASH43 28
C 10 - 12 TABLE VALUE FOR PRINTED OUTPUT B. ASH43 29
C 13 - 15 INITIAL PAGE VALUE FOR PRINTED OUTPUT B. ASH43 30
C 16 - 18 TABLE VALUE FOR PRINTED OUTPUT C. ASH43 31
C 19 - 21 INITIAL PAGE VALUE FOR C. ASH43 32
C 22 - 24 TABLE VALUE FOR OUTPUT D. ASH43 33
C 25 - 27 INITIAL PAGE VALUE FOR D. ASH43 34
C PROGRAM WILL AUTOMATICALLY INCREMENT TABLE AND PAGE VALUES ASH43 35
C IF ALL (EXCEPT OUTPUT A) OR SOME VALUES ARE LEFT BLANK. ASH43 36
C ASH43 37
C ASH43 38
C 2 - EGG SURVIVAL RATES BY INTENSITY IN 9F5.3 FORMAT (9 VALUES ASH43 39
C EACH OCCUPYING 5 COLUMNS ). THESE VALUES ATTEMPT TO ASH43 40
C COMPENSATE FOR EGGS LOST FROM TIME OF SPAWN TO TIME OF ASH43 41
C THE OBSERVATION OF INTENSITY. ASH43 42
C IF ONE OF THE SURVIVAL RATES IS ZERO, THE PREVIOUS SURVIVAL ASH43 43
C RATE IS USED , IF THE FIRST SURVIVAL RATE IS READ AS ZERO, ASH43 44
C A VALUE OF 0.38 IS USED FOR ALL. ASH43 45
C ASH43 46
C 3 - AGE COMPOSITION AREA SURSTITUTION CARDS, ONE CARD PER AREA. ASH43 47
```

C COLS. 1 - 3 AREA CODE WHICH HAS NO AGE COMPOSITION. ASH43 48  
C 4 - 6 AREA FROM WHICH THE AGE COMPOSITION WILL BE ASH43 49  
C TAKEN AND USED WHEN THE ABOVE AREA OCCURS. ASH43 50  
C (A MAX. OF 40 CARDS WILL BE READ) ASH43 51  
C ASH43 52  
C 4 - A BLANK CARD , THIS CARD MUST BE PRESENT, EVEN THOUGH THERE ASH43 53  
C ARE NO AGE COMPOSITION AREA SUBSTITUTION CARDS. ASH43 54  
C ASH43 55  
C 5 - DATA - CARD CODE ED, SORTED BY AREA. ASH43 56  
C 1 - 3 SEASON ASH43 57  
C 7 - 9 AREA ASH43 58  
C 20 - 24 LENGTH IN YARDS OF SPAWN ASH43 59  
C 25 - 27 WIDTH IN YARDS ASH43 60  
C 29 - 29 INTENSITY ASH43 61  
C 64 - 66 AVERAGE WIDTH ASH43 62  
C 79 - 80 CARD TYPE ED ASH43 63  
C ASH43 64  
C 6 - A BLANK CARD TO TERMINATE DATA INPUT. ASH43 65  
C ASH43 66  
C PRINTED OUTPUT ASH43 67  
C ----- ASH43 68  
C TURN ON DATA SWITCH TO BYPASS ASH43 69  
C 1 - OUTPUT A, SPAWNERS AT AGE BY AREA FROM NUMBER OF ASH43 70  
C EGGS. ASH43 71  
C B, SPAWNERS AT AGE BY AREA FROM MILES OF ASH43 72  
C SPAWN. ASH43 73  
C 4 - OUTPUT C, SPAWNERS AT AGE BY POPULATION FROM ASH43 74  
C NUMBER OF EGGS. ASH43 75  
C D, SPAWNERS AT AGE BY POPULATION FROM MILES ASH43 76  
C OF SPAWN. ASH43 77  
C PUNCHED OUTPUT ASH43 78  
C ----- ASH43 79  
C 2 - SPAWNERS AT AGE BY AREA (CARD CODE SMA OR SEA) ASH43 80  
C 3 - SPAWNERS AT AGE BY POPULATION (CARD CODE SMP OR SEP) ASH43 81  
C CARD CODES SMA AND SMP ARE PRODUCED FROM CALCULATIONS BASED ASH43 82  
C ON MILES OF SPAWN. ASH43 83  
C CARD CODES SEA AND SEP ARE PRODUCED FROM CALCULATIONS BASED ASH43 84  
C ON NUMBER OF EGGS. ASH43 85  
C PUNCH CARD OUTPUT FORMAT IS AS FOLLOWS. ASH43 86  
C COLUMNS ASH43 87  
C 1 - 3 SEASON ASH43 88  
C 4 - 7 AREA OR POPULATION ASH43 89  
C 8 - 14 BLANK ASH43 90  
C 15 - 21 MILLIONS OF SPAWNERS AT AGE 1+ ASH43 91  
C 22 - 28 2+ ASH43 92  
C 29 - 35 3+ ASH43 93  
C 36 - 42 4+ ASH43 94  
C 43 - 49 5+ ASH43 95  
C 50 - 56 6+ ASH43 96  
C 57 - 63 7+ ASH43 97  
C 64 - 70 8+ ASH43 98  
C 71 - 77 9+ ASH43 99  
C 78 - 80 CARD CODE SMA(SMP) ASH43100  
C OR CARD CODE SEA(SEP) ASH43101  
C ASH43102  
C DATA SWITCH 5 ON WILL ENABLE A BYPASS OF THE MILES OF SPAWN ASH43103

C		CALCULATIONS.	ASH43104
C		DATA SWITCH 6 ON WILL ENABLE A BYPASS OF THE NUMBER OF EGGS	ASH43105
C		CALCULATIONS , BOTH DATA SWITCHES OPERATING FOR	ASH43106
C		PRINTED AND PUNCHED OUTPUT.	ASH43107
C			ASH43108
C		PAUSE 20 ERROR TRAPS - CORRECT AND REPLACE INCORRECT CARD.	ASH43109
C		- INCORRECT CARD CODE READ.	ASH43110
C		- INCORRECT SEASON READ.	ASH43111
C		PAUSE 666 ERROR TRAP - TERMINAL, START BUTTON WILL CAUSE EXIT.	ASH43112
C		- AREA READ WAS NOT FOUND ON MASTER AREA FILE.	ASH43113
C			ASH43114
C		AREA CODE 79 WILL BE CHANGED TO AREA CODE 071	ASH43115
C		A ZERO INTENSITY WILL BE CHANGED TO INTENSITY 5.	ASH43116
C		MILLIONS OF FISH PER MILE OF SPAWN, AREAS 071 TO 100 6.25.	ASH43117
C		ALL OTHERS 11.25.	ASH43118
C			ASH43119
C		.....	ASH43120
C			ASH43121
C		INTEGER AREA, SEASN, C, H, P, PAGE1, PAGE2, TYPE1, TYPE, PAGE3, PAGE4, T	ASH43122
C		REAL LONG, MOS	ASH43123
C		DIMENSION KARCA(62), INDX1(62), INDX2(62), EPSYS(9), EPFAS(9), EPFAN(9)	ASH43124
C		DIMENSION ACOMP(10), SPWN1(9), SPWN2(9), ICODE(24), ESURV(9)	ASH43125
C		DIMENSION ARAY1(86,9), ARAY2(86,9), A( 9), B( 9), ICA(62), ICP(24)	ASH43126
C		DIMENSION NAREA(40,2)	ASH43127
C		DATA TYPE1/'ED' /, NAREA/80*0 /	ASH43128
C		DATA ARAY1, ARAY2 / 774*0.0, 774*0.0 /, ICA, ICP/62*0, 24*0/	ASH43129
C		DATA C, P, H, T/8, 5, 9, 1/	ASH43130
C		DATA SPWN1, SPWN2/9*0.0, 9*0.0/	ASH43131
C		DATA TS1, TS2, LINE / 0.0, 0.0, 55 /	ASH43132
C			ASH43133
C		DEFINE FILE 1(62,30,U,KI)	ASH43134
C		DEFINE FILE 2(62,30,U,KI)	ASH43135
C		DEFINE FILE 3(62,30,U,KI)	ASH43136
C		DEFINE FILE 4(62,30,U,KI)	ASH43137
C		DEFINE FILE 5(62,30,U,KI)	ASH43138
C		DEFINE FILE 6(62,30,U,KI)	ASH43139
C		DEFINE FILE 7(62,30,U,KI)	ASH43140
C		DEFINE FILE 8(62,30,U,KI)	ASH43141
C		DEFINE FILE 9(62,30,U,KI)	ASH43142
C		DEFINE FILE 10(62,30,U,KI)	ASH43143
C		DEFINE FILE 11(62,30,U,KI)	ASH43144
C		DEFINE FILE 12(62,30,U,KI)	ASH43145
C		DEFINE FILE 13(62,30,U,KI)	ASH43146
C		DEFINE FILE 14(62,30,U,KI)	ASH43147
C		DEFINE FILE 15(62,30,U,KI)	ASH43148
C		DEFINE FILE 16(62,30,U,KI)	ASH43149
C		DEFINE FILE 17(62,30,U,KI)	ASH43150
C		DEFINE FILE 18(62,30,U,KI)	ASH43151
C		DEFINE FILE 19(62,30,U,KI)	ASH43152
C		DEFINE FILE 20(62,30,U,KI)	ASH43153
C		DEFINE FILE 21(62,30,U,KI)	ASH43154
C		DEFINE FILE 22(62,30,U,KI)	ASH43155
C		DEFINE FILE 23(62,30,U,KI)	ASH43156
C		DEFINE FILE 24(62,30,U,KI)	ASH43157
C		DEFINE FILE 25(62,30,U,KI)	ASH43158
C		DEFINE FILE 26(62,30,U,KI)	ASH43159

DEFINE FILE 27(62,30,U,KI) ASH43160  
DEFINE FILE 28(62,30,U,KI) ASH43161  
DEFINE FILE 29(62,30,U,KI) ASH43162  
DEFINE FILE 30(62,30,U,KI) ASH43163  
DEFINE FILE 100(13,320,U,IK) ASH43164  
DEFINE FILE 105(3,93,U,K5) ASH43165  
DEFINE FILE 200(62,32,U,IK) ASH43166

C  
C

FORMATS  
5 FORMAT (3I1,4(I2,I3)) ASH43168  
10 FORMAT (9F5.3) ASH43169  
15 FORMAT (1X,2I1,3X,I3,10X,F5.0,F3.0,I2,34X,F3.0,12X,A2) ASH43170  
20 FORMAT (2I3) ASH43171  
25 FORMAT ('1', 'TABLE 5.',I2,'. MILLIONS OF SPAWNERS AT AGE BY ARASH43173  
\*EA, 19',2I1,'-',2I1,','. ',20X,'PAGE 'I3) ASH43174  
30 FORMAT ('0',42X,'A G E/' ' ', 'AREA', 4X,'1+',6X,'2+',6X,'3+',6X, ASH43175  
\*'4+',6X,'5+',6X,'6+',6X,'7+',6X,'8+',6X,'9+',8X,'TOTAL'/) ASH43176  
35 FORMAT (' ',I4,1X,9F8.3,F10.3) ASH43177  
40 FORMAT (/'INCORRECT CARD TYPE READ - CORRECT AND REPLACE') ASH43178  
45 FORMAT (/'INCORRECT SEASON READ - CORRECT AND REPLACE') ASH43179  
50 FORMAT ('+',89X,' ',I3) ASH43180  
55 FURMAT ('1', 'TABLE 7.',I2,'. MILLIONS OF SPAWNERS AT AGE BY ARASH43181  
\*EA, 19',2I1,'-',2I1,','. ',20X,'PAGE ',I3) ASH43182  
60 FORMAT ('1TABLE 6.',I2,'. MILLIONS OF SPAWNERS AT AGE BY POPULATIASH43183  
\*ON AND SUBPOPULATION, 19',2I1,'-',2I1,','. ',22X,'PAGE ',I3) ASH43184  
65 FORMAT ('1TABLE 8.',I2,'. MILLIONS OF SPAWNERS AT AGE BY POPULATIASH43185  
\*ON AND SUBPOPULATION, 19',2I1,'-',2I1,','. ',22X,'PAGE ',I3) ASH43186  
70 FORMAT ('0',60X,'A G E/' ' POPULATION AND SUBPOPULATION',6X,'1+',6XASH43187  
\*'2+',6X,'3+',6X,'4+',6X,'5+',6X,'6+',6X,'7+',6X,'8+',6X,'9+',8X,' ASH43188  
\*TOTAL'/) ASH43189  
75 FORMAT ('+',31X,9F8.3,F10.3) ASH43190  
80 FORMAT (' ',I2X,'(CALCULATED FROM NUMBERS OF EGGS)') ASH43191  
85 FORMAT (' ',I2X,'(CALCULATED FROM MILES OF SPAWN)') ASH43192  
90 FORMAT (3I1,I4,7X,9F7.3,'SMA') ASH43193  
95 FORMAT (3I1,I4,7X,9F7.3,'SEA') ASH43194  
100 FORMAT (3I1,I4,7X,9F7.3,'SMP') ASH43195  
105 FORMAT (3I1,I4,7X,9F7.3,'SEP') ASH43196  
110 FORMAT (' ') ASH43197  
115 FORMAT (' ',I2X,'\* AGE COMPOSITION FROM AREA SHOWN') ASH43198  
120 FORMAT(/'/'ASH43/'/'TURN ON DATA SWITCH TO BYPASS/' ' 1 PRINT OF SASH43199  
\*PAWNERS AT AGE BY AREA/' ' 2 PUNCH OF ABOVE/' ' 3 PUNCH OF SPAASH43200  
\*WNERS AT AGE BY POPULATION/' ' 4 PRINT OF ABOVE/' ' 5 CALCULATASH43201  
\*ION OF SPAWNERS BY MILES OF SPAWN/' ' 6 CALCULATION OF SPAWNERS ASH43202  
\*BY FECUNDITY') ASH43203  
125 FORMAT (' QUEEN CHARLOTTE ISLANDS') ASH43204  
130 FORMAT (' LOWER EAST COAST') ASH43205  
135 FORMAT (' UPPER EAST COAST') ASH43206  
140 FORMAT (' WEST COAST') ASH43207  
145 FORMAT (' NORTHERN') ASH43208  
150 FORMAT (' STRAITS') ASH43209  
155 FORMAT (' HARBOUR') ASH43210  
160 FORMAT (' LOCAL') ASH43211  
165 FORMAT (' UPPER CENTRAL') ASH43212  
170 FORMAT (' MAJOR') ASH43213  
175 FORMAT (' MINOR') ASH43214  
180 FORMAT (' LOWER CENTRAL') ASH43215



185	FORMAT (' MAJOR')	ASH43216
190	FORMAT (' MINOR')	ASH43217
195	FORMAT (' UPPER EAST COAST OF VANC. IS.')	ASH43218
200	FORMAT (' VANCOUVER ISLAND')	ASH43219
205	FORMAT (' MAINLAND')	ASH43220
210	FORMAT (' MIDDLE EAST COAST OF VANC. IS.')	ASH43221
215	FORMAT (' VANCOUVER ISLAND')	ASH43222
220	FORMAT (' MAINLAND')	ASH43223
225	FORMAT (' LOWER EAST COAST OF VANC. IS.')	ASH43224
230	FORMAT (' LOWER WEST COAST OF VANC. IS.')	ASH43225
235	FORMAT (' UPPER WEST COAST OF VANC. IS.')	ASH43226
240	FORMAT (' DISTRICT 1')	ASH43227
C		ASH43228
	NYR = 50	ASH43229
C		ASH43230
C	TO READ AREA AND INDEXING PARAMETERS FROM REF	ASH43231
	READ (100'1) KAREA	ASH43232
	IK = d	ASH43233
	READ (100'IK) INDX1,INDX2,ICODE	ASH43234
	IK = 1	ASH43235
C		ASH43236
C	TO READ EGGS PER SQUARE YARD AND EGGS PER FISH (FOR NORTH AND	ASH43237
C	SOUTH AREAS) FROM FILE WEEKF	ASH43238
	READ (105'3) EPSYS,EPFAN,EPFAS	ASH43239
C		ASH43240
C	TO WRITE OPERATOR INSTRUCTIONS	ASH43241
	WRITE (T,120)	ASH43242
C		ASH43243
C	TO READ TABLE AND PAGE VALUES	ASH43244
	READ (C,5) IDEC,IYR1,IYR2,NTAB1,PAGE1,NTAB2,PAGE2,NTAB3,PAGE3,	ASH43245
	*NTAB4,PAGE4	ASH43246
C		ASH43247
	ISEAS = IDEC * 100 + IYR1 * 10 + IYR2	ASH43248
	IS = (IDEC * 10 + IYR1 - NYR) + 1	ASH43249
C		ASH43250
C	NOTE THAT NYR IS DEFINED AS 50 (1950) - THIS VALUE IS THE FIRST YEAR	ASH43251
C	OF A SEQUENCE OF YEARS FOR UP TO 30 YEARS	ASH43252
	IF (IYR2)250,245,250	ASH43253
245	IDEC1 = IDEC + 1	ASH43254
	GO TO 255	ASH43255
250	IDEC1 = IDEC	ASH43256
C		ASH43257
C	TO READ SURVIVAL RATES	ASH43258
255	READ (C,10) ESURV	ASH43259
	IF (ESURV(1))265,260,265	ASH43260
260	ESURV(1) = .38	ASH43261
265	DO 275 I=2,9	ASH43262
	IF (ESURV(I))275,270,275	ASH43263
270	ESURV(I) = ESURV(I-1)	ASH43264
275	CONTINUE	ASH43265
C		ASH43266
C	TO READ AGE COMPOSITION AREA SUBSTITUTION CARDS.	ASH43267
	DO 285 I = 1,40	ASH43268
	READ (C,20) AREA,LAREA	ASH43269
	IF (AREA )290,290,260	ASH43270
280	NAREA(I,1) = AREA	ASH43271



NAREA(I,2) = LAREA	ASH43272
285 CONTINUE	ASH43273
290 ISTOP = I - 1	ASH43274
C	ASH43275
C READ FIRST DATA CARD AND INITIALIZE VARIABLES.	ASH43276
READ (C,15) KSEA1,KSEA3,AREA,LONG,WIDE,INTEN,AWIDE,TYPE	ASH43277
IF (AREA - 79)300,295,300	ASH43278
295 AREA = 71	ASH43279
300 LAREA = AREA	ASH43280
IF (ISTOP)315,315,305	ASH43281
305 DO 315 I = 1, ISTOP	ASH43282
IF (NAREA(I,1) - AREA )315,310,315	ASH43283
310 MAREA = NAREA(I,2)	ASH43284
NN = 2	ASH43285
GO TO 320	ASH43286
315 CONTINUE	ASH43287
MAREA = AREA	ASH43288
NN = 1	ASH43289
320 DO 345 I = 1,62	ASH43290
IF(MAREA - KAREA(I))345,325,345	ASH43291
325 READ (IS'I) ACOMP	ASH43292
ANS = 100.0 - ACOMP(I)	ASH43293
DO 330 K = 2,10	ASH43294
330 ACOMP(K) = ACOMP(K) / ANS	ASH43295
CALL DATSW (1, M1)	ASH43296
CALL DATSW (5,M5)	ASH43297
CALL DATSW (6,M6)	ASH43298
GO TO (375,335), NN	ASH43299
335 DO 340 I = 1,62	ASH43300
IF (AREA - KAREA(I))340,375,340	ASH43301
340 CONTINUE	ASH43302
GU TO 350	ASH43303
345 CONTINUE	ASH43304
350 PAUSE 666	ASH43305
CALL EXIT	ASH43306
C	ASH43307
C TO READ IN MAIN DATA, AND CONVERT TO SPAWNERS AT AGE	ASH43308
355 READ (C,15) KSEA1,KSEA3,AREA,LONG,WIDE,INTEN,AWIDE,TYPE	ASH43309
IF (AREA - 79)365,360,365	ASH43310
360 AREA = 71	ASH43311
365 IF (KSEA1 )370,530,370	ASH43312
370 IF (AREA - LAREA )530,375,530	ASH43313
375 IF(TYPE - TYPE1)360,385,380	ASH43314
380 WRITE (1,40)	ASH43315
PAUSE 20	ASH43316
GO TO 355	ASH43317
385 IF (KSEA3)395,390,395	ASH43318
390 KSEA1 = KSEA1 - 1	ASH43319
KSEA2 = 9	ASH43320
GO TO 400	ASH43321
395 KSEA2 = KSEA3 - 1	ASH43322
400 SEASN = KSEA1 * 100 + KSEA2 * 10 + KSEA3	ASH43323
IF (ISEAS - SEASN)405,410,405	ASH43324
405 WRITE (1,45)	ASH43325
PAUSE 20	ASH43326
GO TO 355	ASH43327

410 IF (INTEN)420,415,420	ASH43328
415 INTEN = 5	ASH43329
420 GO TO (425,430,435,440,445,450,455,460,465), INTEN	ASH43330
425 ANTEN = 1.0	ASH43331
GO TO 470	ASH43332
430 ANTEN = 1.5	ASH43333
GO TO 470	ASH43334
435 ANTEN = 2.0	ASH43335
GO TO 470	ASH43336
440 ANTEN = 2.5	ASH43337
GO TO 470	ASH43338
445 ANTEN = 3.0	ASH43339
GO TO 470	ASH43340
450 ANTEN = 3.5	ASH43341
GO TO 470	ASH43342
455 ANTEN = 4.0	ASH43343
GO TO 470	ASH43344
460 ANTEN = 4.5	ASH43345
GO TO 470	ASH43346
465 ANTEN = 5.0	ASH43347
470 IF (WIDE - 100.0)475,475,480	ASH43348
475 MOS = (LONG / 1760.0) * (ANTEN / 3.0)	ASH43349
GO TO 485	ASH43350
480 MOS = (LONG / 1760.0) * (ANTEN / 3.0) * (WIDE / AWIDE)	ASH43351
485 IF (AREA - 71)500,495,490	ASH43352
490 IF (AREA - 100)495,495,500	ASH43353
495 FPMS = 6.25	ASH43354
GO TO 505	ASH43355
500 FPMS = 11.250	ASH43356
505 SM = MOS * FPMS	ASH43357
EGGS = LONG * WIDE * EPSYS(INTEN)/ESURV(INTEN)	ASH43358
EPFA = 0.0	ASH43359
EEGGS = 0.0	ASH43360
DO 520 KI = 1,9	ASH43361
IF (AREA - 100)515,515,510	ASH43362
510 EPFA = EPFAS(KI)	ASH43363
GO TO 520	ASH43364
515 EPFA = EPFAN(KI)	ASH43365
520 EEGGS = EEGGS + EPFA * ACOMP(KI+1)	ASH43366
EFISH = (EGGS / EEGGS) / 1.0E06	ASH43367
DO 525 K = 2,10	ASH43368
ANS1 = SM * ACOMP(K)	ASH43369
TS1 = TS1 + ANS1	ASH43370
SPWN1(K-1) = SPWN1(K-1) + ANS1	ASH43371
ANS = EFISH * ACOMP(K)	ASH43372
ARAY1(I,K-1) = ARAY1(I,K-1) + ANS1	ASH43373
ARAY2(I,K-1) = ARAY2(I,K-1) + ANS	ASH43374
SPWN2(K-1) = SPWN2(K-1) + ANS	ASH43375
TS2 = TS2 + ANS	ASH43376
525 CONTINUE	ASH43377
GO TO 355	ASH43378
C	ASH43379
C TO PRINT SPAWNERS AT AGE BY AREA	ASH43380
530 GO TO (570,535), M1	ASH43381
535 TS1 = TS1 + 0.000501	ASH43382
TS2 = TS2 + 0.000501	ASH43383

	DO 540 J = 1,9	ASH43384
	SPWN1(J) = SPWN1(J) + 0.000501	ASH43385
540	SPWN2(J) = SPWN2(J) + 0.000501	ASH43386
	GO TO (565,545), M6	ASH43387
545	IF (LINE - 51)555,550,550	ASH43388
550	WRITE (P,25) NTAB1,IDEC1,IYR1,IDEC1,IYR2,PAGE1	ASH43389
	WRITE (P,80)	ASH43390
	WRITE (P,115)	ASH43391
	WRITE (P,30)	ASH43392
	LINE = 4	ASH43393
	PAGE1 = PAGE1 + 1	ASH43394
555	WRITE (P,35)LAREA,SPWN2,TS2	ASH43395
	LINE = LINE + 1	ASH43396
	GO TO (565,560), NN	ASH43397
560	WRITE (P,50) MAREA	ASH43398
C	TO STORE SPAWNERS FROM MILES OF SPAWN ON FILE FOR PRINT OUT LATER	ASH43399
565	WRITE (200*IK) LAREA,SPWN1,TS1,MAREA	ASH43400
C		ASH43401
570	ICA(I) = 1	ASH43402
	IF (KSEAL)625,625,575	ASH43403
575	LAREA = AREA	ASH43404
	TS1 = 0.0	ASH43405
	IF (ISTOP)590,590,580	ASH43406
580	TS2 = 0.0	ASH43407
	DO 590 I = 1,ISTOP	ASH43408
	IF (NAREA(I,1) - AREA)590,585,590	ASH43409
585	MAREA = NAREA(I,2)	ASH43410
	NN = 2	ASH43411
	GO TO 595	ASH43412
590	CONTINUE	ASH43413
	NN = 1	ASH43414
	MAREA = AREA	ASH43415
595	DO 620 I = 1,62	ASH43416
	IF(MAREA - KAREA(I))620,600,620	ASH43417
600	READ (IS,I) ACOMP	ASH43418
	ANS = 100.0 - ACOMP(I)	ASH43419
	DO 605 K = 2,10	ASH43420
	SPWN1(K-1) = 0.0	ASH43421
	SPWN2(K-1) = 0.0	ASH43422
605	ACOMP(K) = ACOMP(K) / ANS	ASH43423
	GO TO (375,610), NN	ASH43424
610	DO 615 I = 1,62	ASH43425
	IF (AREA - KAREA(I))615,375,615	ASH43426
615	CONTINUE	ASH43427
	GO TO 350	ASH43428
620	CONTINUE	ASH43429
	GO TO 350	ASH43430
C		ASH43431
625	GO TO (630,635), M5	ASH43432
630	NTAB2 = NTAB1	ASH43433
	PAGE2 = PAGE1	ASH43434
	GO TO 680	ASH43435
C	PRINT OUT SPAWNERS FROM MILES OF SPAWN IF DESIRED.	ASH43436
635	J = IK - 1	ASH43437
	IF (NTAB2)640,640,645	ASH43438
640	NTAB2 = NTAB1 + 1	ASH43439

645 IF (PAGE2)650,650,655	ASH43440
650 PAGE2 = PAGE1	ASH43441
655 LINE = 55	ASH43442
DO 675 I = 1,J	ASH43443
IF (LINE - 51)665,660,660	ASH43444
660 WRITE (P,55) NTAB2,IDECL,IYR1,IDECL,IYR2,PAGE2	ASH43445
WRITE (P,85)	ASH43446
WRITE (P,115)	ASH43447
WRITE (P,30)	ASH43448
LINE = 4	ASH43449
PAGE2 = PAGE2 + 1	ASH43450
665 READ (200'I) LAREA,SPWN1,TS1,MAREA	ASH43451
WRITE (P,35) LAREA,SPWN1,TS1	ASH43452
LINE = LINE + 1	ASH43453
IF (MAREA - LAREA )670,675,670	ASH43454
670 WRITE (P,50) MAREA	ASH43455
675 CONTINUE	ASH43456
C	ASH43457
C	ASH43458
C TO CALCULATE TOTAL SPAWNERS AT AGE FOR POPULATIONS.	ASH43459
680 CALL DATSW(2,M1)	ASH43460
DO 735 I = 1,62	ASH43461
IF (ICA(I))735,735,685	ASH43462
685 IF (INDX1(I))700,700,690	ASH43463
690 J = INDX1(I)	ASH43464
N = INDX2(I)	ASH43465
ICP(J) = 1	ASH43466
ICP(N) = 1	ASH43467
J = J + 62	ASH43468
N = N + 62	ASH43469
DO 695 K = 1,9	ASH43470
ARAY1(J,K) = ARAY1(J,K) + ARAY1(I,K)	ASH43471
ARAY2(J,K) = ARAY2(J,K) + ARAY2(I,K)	ASH43472
ARAY1(N ,K)= ARAY1(N ,K)+ ARAY1(I,K)	ASH43473
ARAY2(N ,K)= ARAY2(N ,K)+ ARAY2(I,K)	ASH43474
A(K) = ARAY1(I,K) + 0.000501	ASH43475
B(K) = ARAY2(I,K) + 0.000501	ASH43476
695 CONTINUE	ASH43477
GO TO 710	ASH43478
700 J = INDX2(I)	ASH43479
ICP(J) = 1	ASH43480
J = J + 62	ASH43481
DO 705 K = 1,9	ASH43482
ARAY1(J,K) = ARAY1(J,K) + ARAY1(I,K)	ASH43483
ARAY2(J,K) = ARAY2(J,K) + ARAY2(I,K)	ASH43484
A(K) = ARAY1(I,K) + 0.000501	ASH43485
B(K) = ARAY2(I,K) + 0.000501	ASH43486
705 CONTINUE	ASH43487
C	ASH43488
C TO PUNCH BY AREA	ASH43489
710 GO TO (735,715), M1	ASH43490
715 GO TO (725,720), M5	ASH43491
720 WRITE (H,90) IDECL,IYR1,IYR2,KAREA(I),A	ASH43492
725 GO TO (735,730), M6	ASH43493
730 WRITE (H,95) IDECL,IYR1,IYR2,KAREA(I),B	ASH43494
735 CONTINUE	ASH43495

C		ASH43496
C	TO PUNCH BY POPULATION AND SUBPOPULATION	ASH43497
	CALL DATSW (3,M1)	ASH43498
	GO TO (775,740),M1	ASH43499
740	DO 770 I = 1,24	ASH43500
	IF (ICP(I))770,770,745	ASH43501
745	J = I + 62	ASH43502
	DO 750 N = 1,9	ASH43503
	A(N) = ARAY1(J,N) + 0.000501	ASH43504
750	B(N) = ARAY2(J,N) + 0.000501	ASH43505
	GO TO (760,755), M5	ASH43506
755	WRITE (H,100) IDEC,IYR1,IYR2,ICODE(I),A	ASH43507
760	GO TO (770,765), M6	ASH43508
765	WRITE (H,105) IDEC,IYR1,IYR2,ICODE(I),B	ASH43509
770	CONTINUE	ASH43510
C		ASH43511
C	PRINTED OUTPUT BY POPULATION AND SUBPOPULATION	ASH43512
775	CALL DATSW(4,M1)	ASH43513
	GO TO (1325,780), M1	ASH43514
780	LINE = 55	ASH43515
	IK = 1	ASH43516
	GO TO (785,790), M6	ASH43517
785	NTAB3 = NTAB2	ASH43518
	PAGE3 = PAGE2	ASH43519
	GO TO 810	ASH43520
790	IF (NTAB3)795,795,800	ASH43521
795	NTAB3 = NTAB2 + 1	ASH43522
800	IF (PAGE3)805,805,810	ASH43523
805	PAGE3 = PAGE2	ASH43524
810	DO 975 J = 1,24	ASH43525
	IF (ICP(J))975,975,815	ASH43526
815	I = J + 62	ASH43527
	IF (LINE - 48)825,820,820	ASH43528
820	WRITE (P,60) NTAB3,IDEC,IYR1,IDEC1,IYR2,PAGE3	ASH43529
	WRITE (P,80)	ASH43530
	WRITE (P,70)	ASH43531
	LINE = 4	ASH43532
	PAGE3 = PAGE3 + 1	ASH43533
825	TS1 = 0,0	ASH43534
	TS2 = 0,0	ASH43535
	DO 830 K = 1,9	ASH43536
	TS1 = TS1 + ARAY1(I,K)	ASH43537
	TS2 = TS2 + ARAY2(I,K)	ASH43538
	A(K) = ARAY1(I,K) + 0.000501	ASH43539
	B(K) = ARAY2(I,K) + 0.000501	ASH43540
830	CONTINUE	ASH43541
	TS1 = TS1 + 0.000501	ASH43542
	TS2 = TS2 + 0.000501	ASH43543
	NTAB1 = 1	ASH43544
	N = J	ASH43545
	GO TO (970,835), M6	ASH43546
835	GO TO (840,845,850,855,860,865,870,875,880,885,890,895,900,905, *910,915,920,925,930,935,940,945,950,955), N	ASH43547
		ASH43548
		ASH43549
C		ASH43550
840	WRITE (P,125)	ASH43551
	GO TO 960	

845 WRITE (P,130)	ASH43552
GO TO 960	ASH43553
850 WRITE (P,135)	ASH43554
GO TO 960	ASH43555
855 WRITE (P,140)	ASH43556
GO TO 960	ASH43557
860 WRITE (P,145)	ASH43558
GO TO 960	ASH43559
865 WRITE (P,150)	ASH43560
GO TO 960	ASH43561
870 WRITE (P,155)	ASH43562
GO TO 960	ASH43563
875 WRITE (P,160)	ASH43564
GO TO 960	ASH43565
880 WRITE (P,165)	ASH43566
GO TO 960	ASH43567
885 WRITE (P,170)	ASH43568
GO TO 960	ASH43569
890 WRITE (P,175)	ASH43570
GO TO 960	ASH43571
895 WRITE (P,180)	ASH43572
GO TO 960	ASH43573
900 WRITE (P,185)	ASH43574
GO TO 960	ASH43575
905 WRITE (P,190)	ASH43576
GO TO 960	ASH43577
910 WRITE (P,195)	ASH43578
GO TO 960	ASH43579
915 WRITE (P,200)	ASH43580
GO TO 960	ASH43581
920 WRITE (P,205)	ASH43582
GO TO 960	ASH43583
925 WRITE (P,210)	ASH43584
GO TO 960	ASH43585
930 WRITE (P,215)	ASH43586
GO TO 960	ASH43587
935 WRITE (P,220)	ASH43588
GO TO 960	ASH43589
940 WRITE (P,225)	ASH43590
GO TO 960	ASH43591
945 WRITE (P,230)	ASH43592
GO TO 960	ASH43593
950 WRITE (P,235)	ASH43594
GO TO 960	ASH43595
955 WRITE (P,240)	ASH43596
960 GO TO (965,1015), NTAB1	ASH43597
965 WRITE (P,75) B,TS2	ASH43598
LINE = LINE + 1	ASH43599
970 WRITE (200*IK) N,A,TS1	ASH43600
975 CONTINUE	ASH43601
C	ASH43602
GO TO (1025,980), M5	ASH43603
C TO PRINT SPAWNERS FROM MILES OF SPAWN BY POPULATION IF DESIRED.	ASH43604
980 IF (NTAB4)985,985,990	ASH43605
985 NTAB4 = NTAB3 + 1	ASH43606
990 IF (PAGE4)995,995,1000	ASH43607



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995 PAGE4 = PAGE3
1000 LINE = 55
      NTAB1 = 2
      J = IK - 1
      DO 1020 I = 1,J
      IF ( LINE - 4)1010,1010,1005
1005 WRITE (P,65) NTAB4, IDEC, IYR1, IDEC1, IYR2, PAGE4
      WRITE (P,85)
      WRITE (P,70)
      LINE = 4
      PAGE4 = PAGE4 + 1
1010 READ (200'I) N,A,TS1
      GO TO 835
1015 WRITE (P,75) A,TS1
      LINE = LINE + 1
1020 CONTINUE
C
1025 WRITE (H,110)
      CALL EXIT
      END
// DUP
*DELETE          ASH43
*STORECI        WS UA ASH43    6
*FILES(100,REFX),(105,WEEKF),(1,PAC01),(2,PAC02),(3,PAC03),(4,PAC04),
*FILES(5,PAC05),(6,PAC06),(7,PAC07),(8,PAC08),(9,PAC09),(10,PAC10),
*FILES(11,PAC11),(12,PAC12),(13,PAC13),(14,PAC14),(15,PAC15),(16,PAC16),
*FILES(17,PAC17),(18,PAC18),(19,PAC19),(20,PAC20),(21,PAC21),(22,PAC22),
*FILES(23,PAC23),(24,PAC24),(25,PAC25),(26,PAC26),(27,PAC27),(28,PAC28),
*FILES(29,PAC29),(30,PAC30)
```

```
// JOB
// DUP
// FOR
*DFILE          FX  PAC01      7
*DFILE          FX  PAC02      7
*DFILE          FX  PAC03      7
*DFILE          FX  PAC04      7
*DFILE          FX  PAC05      7
*DFILE          FX  PAC06      7
*DFILE          FX  PAC07      7
*DFILE          FX  PAC08      7
*DFILE          FX  PAC09      7
*DFILE          FX  PAC10      7
*DFILE          FX  PAC11      7
*DFILE          FX  PAC12      7
*DFILE          FX  PAC13      7
*DFILE          FX  PAC14      7
*DFILE          FX  PAC15      7
*DFILE          FX  PAC16      7
*DFILE          FX  PAC17      7
*DFILE          FX  PAC18      7
*DFILE          FX  PAC19      7
*DFILE          FX  PAC20      7
*DFILE          FX  PAC21      7
*DFILE          FX  PAC22      7
*DFILE          FX  PAC23      7
*DFILE          FX  PAC24      7
*DFILE          FX  PAC25      7
*DFILE          FX  PAC26      7
*DFILE          FX  PAC27      7
*DFILE          FX  PAC28      7
*DFILE          FX  PAC29      7
*DFILE          FX  PAC30      7
*IOCS(2501 READER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME PACLD
**PACLD, AGE COMPOSITION LOAD TO FILES PAC01 - PAC30 FOR ASH43.
C
C ..... PACLD 1
C ..... PACLD 2
C USE *FILES(100,REFX),(1,PAC01), ... ,(30,PAC30) TO EXECUTE. PACLD 3
C
C PAC01 TO PAC30 ARE DISK DATA FILES - ONE PER YEAR - CONTAINING THE PACLD 4
C AGE COMPOSITION BY AREA AND SEASON (PRODUCED FROM ASH41) TO BE USED PACLD 5
C BY PROGRAM ASH43. PACLD 6
C ALL DISK DATA FILES ARE LOCATED IN FIXED AREA TO ACCOMODATE PACLD 7
C THE STORING OF ASH43 IN CORE IMAGE. PACLD 8
C VARIABLE NYR REPRESENTS THE ANCHOUR YEAR OF ALL YEARS TO BE PACLD 9
C PROCESSED - ITS VALUE MUST CORRESPOND WITH THE SAME VARIABLE VALUE PACLD 10
C IN ASH43. PACLD 11
C INPUT PACLD 12
C ----- PACLD 13
C CARD CODE ACA FROM ASH41. A BLANK CARD FOLLOWING EACH YEAR BLOCK. PACLD 14
C PACLD 15
C PACLD 16
```

C	// * TO TERMINATE DATA INPUT. SUBMIT ALL AREAS PER SEASON.	PACLD 17
C		PACLD 18
C	THE NUMBER OF YEARS IS RESRICTED TO THIRTY.	PACLD 19
C		PACLD 20
C	AN INVALID AREA AREA READ IS INDICATED BY A PAUSE 666. RE-SUBMIT JOB.	PACLD 21
C		PACLD 22
C	.....	PACLD 23
C		PACLD 24
C	DIMENSION NAREA(62),ACOMP(62,10),A(10)	PACLD 25
C	DATA IR / 8 /	PACLD 26
C		PACLD 27
C	DEFINE FILE 100 (13,320,U,KI)	PACLD 28
C	DEFINE FILE 1 (62,30,U,KJ)	PACLD 29
C	DEFINE FILE 2 (62,30,U,KJ)	PACLD 30
C	DEFINE FILE 3 (62,30,U,KJ)	PACLD 31
C	DEFINE FILE 4 (62,30,U,KJ)	PACLD 32
C	DEFINE FILE 5 (62,30,U,KJ)	PACLD 33
C	DEFINE FILE 6 (62,30,U,KJ)	PACLD 34
C	DEFINE FILE 7 (62,30,U,KJ)	PACLD 35
C	DEFINE FILE 8 (62,30,U,KJ)	PACLD 36
C	DEFINE FILE 9 (62,30,U,KJ)	PACLD 37
C	DEFINE FILE 10(62,30,U,KJ)	PACLD 38
C	DEFINE FILE 11(62,30,U,KJ)	PACLD 39
C	DEFINE FILE 12(62,30,U,KJ)	PACLD 40
C	DEFINE FILE 13(62,30,U,KJ)	PACLD 41
C	DEFINE FILE 14(62,30,U,KJ)	PACLD 42
C	DEFINE FILE 15(62,30,U,KJ)	PACLD 43
C	DEFINE FILE 16(62,30,U,KJ)	PACLD 44
C	DEFINE FILE 17(62,30,U,KJ)	PACLD 45
C	DEFINE FILE 18(62,30,U,KJ)	PACLD 46
C	DEFINE FILE 19(62,30,U,KJ)	PACLD 47
C	DEFINE FILE 20(62,30,U,KJ)	PACLD 48
C	DEFINE FILE 21(62,30,U,KJ)	PACLD 49
C	DEFINE FILE 22(62,30,U,KJ)	PACLD 50
C	DEFINE FILE 23(62,30,U,KJ)	PACLD 51
C	DEFINE FILE 24(62,30,U,KJ)	PACLD 52
C	DEFINE FILE 25(62,30,U,KJ)	PACLD 53
C	DEFINE FILE 26(62,30,U,KJ)	PACLD 54
C	DEFINE FILE 27(62,30,U,KJ)	PACLD 55
C	DEFINE FILE 28(62,30,U,KJ)	PACLD 56
C	DEFINE FILE 29(62,30,U,KJ)	PACLD 57
C	DEFINE FILE 30(62,30,U,KJ)	PACLD 58
C		PACLD 59
C	TO READ ALL POSSIBLE AREAS.	PACLD 60
C	READ (100*1) NAREA	PACLD 61
C		PACLD 62
C	STATE STARTING YEAR IS 1950	PACLD 63
C	NYR = 50	PACLD 64
C		PACLD 65
C	INITIALIZE AGE COMPOSITION ARRAY	PACLD 66
C	5 DO 10 I = 1, 62	PACLD 67
C	10 DO 10 J = 1, 10	PACLD 68
C	10 ACOMP[I,J] = 0.0	PACLD 69
C		PACLD 70
C	READ AGE COMPOSITION CARDS.	PACLD 71
C	15 READ (IR,20) IYR,IAREA,A	PACLD 72

20	FORMAT (I2,2X,I3,10F7.0)	
	IF (IYR)45,45,25	PACLD 73
25	JYR = IYR	PACLD 74
C		PACLD 75
C	FIND SUBSCRIPT VALUE FOR READ AREA.	PACLD 76
	DO 30 I = 1,62	PACLD 77
	IF (NAREA(I) - IAREA )30,35,30	PACLD 78
30	CONTINUE	PACLD 79
	PAUSE 666	PACLD 80
C ***	PAUSE 666 - UNABLE TO FIND AREA CODE IN MASTER AREA ARRAY.	PACLD 81
	CALL EXIT	PACLD 82
35	DO 40 J = 1,10	PACLD 83
40	ACOMP(I,J) = A(J)	PACLD 84
C	RETURN TO PROCESS NEXT CARD.	PACLD 85
	GO TO 15	PACLD 86
C		PACLD 87
C	END OF YEAR, TO STORE AGE COMPOSITION	PACLD 88
45	K = (JYR - NYR ) + 1	PACLD 89
	DO 55 I = 1,62	PACLD 90
	DU 50 J = 1,10	PACLD 91
50	A(J) = ACOMP(I,J)	PACLD 92
	WRITE (K'I) A	PACLD 93
55	CONTINUE	PACLD 94
C		PACLD 95
C	RETURN TO CLEAR AGE COMPOSITION ARRAY.	PACLD 96
	GO TO 5	PACLD 97
	END	PACLD 98
		PACLD 99
//	XEQ L 6	
*	FILES(100,REFX),(1,PAC01),(2,PAC02),(3,PAC03),(4,PAC04),(5,PAC05),	
*	FILES(6,PAC06),(7,PAC07),(8,PAC08),(9,PAC09),(10,PAC10),(11,PAC11),	
*	FILES(12,PAC12),(13,PAC13),(14,PAC14),(15,PAC15),(16,PAC16),(17,PAC17),	
*	FILES(18,PAC18),(19,PAC19),(20,PAC20),(21,PAC21),(22,PAC22),(23,PAC23),	
*	FILES(24,PAC24),(25,PAC25),(26,PAC26),(27,PAC27),(28,PAC28),(29,PAC29),	
*	FILES(30,PAC30)	

ASH44

```

// JOB
// FOR
*IUCS(1403 PRINTER,2501 READER,DISK,TYPERWRITER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH44
** ASH 44 - ABUNDANCE (CATCH,SPAWERS AND TOTAL) AT AGE BY AREA AND POP.
C
C.....
C ASH44 1
C ASH44 2
C ASH44 3
C ASH44 4
C USE *FILES(100,RCFX) TO EXECUTE. ASH44 5
C ASH44 6
C PROGRAM COMPILES MILLIONS OF FISH AT AGE IN CATCH AND SPAWN TO ASH44 7
C YIELD A PRINT-OUT OF MILLIONS OF FISH AT AGE IN CATCH , SPAWN, AND ASH44 8
C TOTAL (ADULT ABUNDANCE) BY AREA AND POPULATION FOR ONE SEASON. ASH44 9
C ASH44 10
C INPUT ASH44 11
C ---- ASH44 12
C 1 TABLE AND PAGE VALUE CARD ... ASH44 13
C COLS. 1 - 3 INITIAL TABLE VALUE FOR OUTPUT 1 ASH44 14
C 4 - 6 INITIAL PAGE VALUE OF ABOVE. ASH44 15
C 7 - 9 INITIAL TABLE VALUE FOR OUTPUT 2. ASH44 16
C 10 -12 INITIAL PAGE OF ABOVE. ASH44 17
C 2 SEASON TO BE PROCESSED CARD ASH44 18
C COLS. 1 - 3 SEASON CODE. E.G. 501 FOR SEASON 1950-51. ASH44 19
C 3 CATCH BY AREA (CARD CODE FA FROM ASH 41) ASH44 20
C 4 SPAWNERS BY AREA (CARD CODE SEA OR SMA FROM ASH 43) ASH44 21
C 5 BLANK CARD TO INDICATE DATA TERMINATION. ASH44 22
C PROGRAM WILL ACCEPT ANY ORDER OF INPUTS 3 AND 4. ASH44 23
C ASH44 24
C OUTPUT ASH44 25
C ---- ASH44 26
C 1 ABUNDANCE AT AGE BY AREA. (DATA SWITCH 1 ON TO BYPASS) ASH44 27
C 2 ABUNDANCE AT AGE BY POPULATION. (DATA SWITCH 2 ON TO HYPASS) ASH44 28
C ASH44 29
C..... ASH44 30
C ASH44 31
C INTEGER TYPE,TYPE1,TYPE2,TYPE3,T ASH44 32
C INTEGER C,P,AREA,SEASN,PAGE1,PAGE2,POP(24),TEST(62) ASH44 33
C DIMENSION POPAC(62,11),POPAS(62,11),POPPC(24,11),POPPS(24,11) ASH44 34
C DIMENSION TPOP(11),INDX1(62),INDX2(62),KAREA(62),FISH(10) ASH44 35
C DIMENSION OUT1(11),OUT2(11) ASH44 36
C DATA C,P,IT,LINE / 8,5,0,55/,TEST,POP / 62*0,24*0/,T/1/ ASH44 37
C DATA POPPC,POPPS,POPAC,POPAS / 264*0.0,264*0.0,682*0.0,682*0.0 / ASH44 38
C DATA TYPE1,TYPE2,TYPE3 /'FA','MA','EA'/ ASH44 39
C ASH44 40
C DEFINE FILE 100(13,320,U,KI) ASH44 42
C FORMATS ASH44 43
C 5 FORMAT (///'ABUNDANCE BY AREA BYPASS',7X,'TURN ON DATSW1'/'ABUNDANCE ASH44 44
C *E BY POPULATION BYPASS TURN ON DATSW2') ASH44 45
C 10 FORMAT (4I3) ASH44 46
C 15 FORMAT (3I1) ASH44 47
C 20 FORMAT (I3,I4,10F7.3,1X,A2) ASH44 48
C 25 FORMAT (///'SEASON READ ',I3,' IS INCORRECT') ASH44 48

```



```
30 FORMAT (///'AREA READ ',I3,' IS INCORRECT') ASH44 49
35 FORMAT (///'CARD TYPE ',A3,' IS NOT ACCEPTABLE') ASH44 50
40 FORMAT ('+',53X,'.') ASH44 51
45 FORMAT ('+',59X,'.') ASH44 52
50 FORMAT('TABLE A',I2,'. HERRING ABUNDANCE AT AGE BY AREA, 19',211ASH44 53
*,'-',211,52X,'PAGE ',I3) ASH44 54
55 FORMAT ('0',51X,'MILLIONS AT AGE/' AREA',I3X,'0 '+',6X,'1 '+',6X,'2ASH44 55
* '+',6X,'3 '+',6X,'4 '+',6X,'5 '+',6X,'6 '+',6X,'7 '+',6X,'8 '+',6X,'9 '+ASH44 56
*,6X,'TOTAL') ASH44 57
60 FORMAT ('0',51X,'MILLIONS AT AGE/' POPULATION',7X,'0 '+',6X,'1 '+',ASH44 58
*6X,'2 '+',6X,'3 '+',6X,'4 '+',6X,'5 '+',6X,'6 '+',6X,'7 '+',6X,'8 '+',6X,ASH44 59
* '9 '+',6X,'TOTAL') ASH44 60
65 FORMAT ('+',53X,'(CONTINUED).') ASH44 61
70 FORMAT ('+',59X,'(CONTINUED).') ASH44 62
75 FORMAT ('0',I3,4X,'CATCH ',10F9.3,F10.3/' ',7X,'SPAWN.',10F9.3,F10ASH44 63
*.3/' ',7X,'TOTAL ',10F9.3,F10.3) ASH44 64
80 FORMAT (' ',7X,'CATCH ',10F9.3,F10.3/' ',7X,'SPAWN.',10F9.3,F10.3)ASH44 65
* ' ',7X,'TOTAL ',10F9.3,F10.3) ASH44 66
85 FORMAT ('0',12X,'SPAWNERS FROM FECUNDITY') ASH44 67
90 FORMAT ('0',12X,'SPAWNERS FROM MILES OF SPAWN') ASH44 68
95 FORMAT('TABLE A',I2,'. HERRING ABUNDANCE AT AGE BY POPULATION, 1ASH44 69
*9',211,'-',211,46X,'PAGE ',I3) ASH44 70
100 FORMAT ('OQUEEN CHARLOTTE ISLANDS POPULATION') ASH44 71
105 FORMAT ('O',3X,'LOWER EAST COAST') ASH44 72
110 FORMAT ('O',3X,'UPPER EAST COAST') ASH44 73
115 FORMAT ('O',3X,'WEST COAST') ASH44 74
120 FORMAT ('ONORTHERN POPULATION') ASH44 75
125 FORMAT ('O',3X,'STRAITS') ASH44 76
130 FORMAT ('O',3X,'HARBOUR') ASH44 77
135 FORMAT ('O',3X,'LOCAL') ASH44 78
140 FORMAT ('OUPPER CENTRAL POPULATION') ASH44 79
145 FORMAT ('O',3X,'MAJOR') ASH44 80
150 FORMAT ('O',3X,'MINOR') ASH44 81
155 FORMAT ('OLOWER CENTRAL POPULATION') ASH44 82
160 FORMAT ('OUPPER EAST COAST OF VANCOUVER ISLAND POPULATION') ASH44 83
165 FORMAT ('O',3X,'ISLAND') ASH44 84
170 FORMAT ('O',3X,'MAINLAND') ASH44 85
175 FORMAT ('OMIDDLE EAST COAST OF VANCOUVER ISLAND POPULATION') ASH44 86
180 FORMAT ('OLOWER EAST COAST OF VANCOUVER ISLAND POPULATION') ASH44 87
185 FORMAT ('OLOWER WEST COAST OF VANCOUVER ISLAND POPULATION') ASH44 88
190 FORMAT ('OUPPER WEST COAST OF VANCOUVER ISLAND POPULATION') ASH44 89
195 FORMAT ('ODISTRICT 1 POPULATION') ASH44 90
C ASH44 91
WRITE (I,5) ASH44 93
C TO READ AREA AND INDEX PARAMETERS FROM REF ASH44 95
READ (100'1) KAREA ASH44 96
READ (100'8) INDX1,INDX2 ASH44 97
C TO READ TABLE AND PAGE VALUES ASH44 99
READ (C,10) NTAB1,PAGE1,NTAB2,PAGE2 ASH44100
C TO READ SEASON TO BE PROCESSED ASH44102
READ (C,15) IDEC,IYR1,IYR2 ASH44103
ISEAS = IDEC * 100 + IYR1 * 10 + IYR2 ASH44104
IF (IYR2)205,200,205 ASH44105
200 IDEC1 = IDEC + 1 ASH44106
GO TO 210 ASH44107
205 IDEC1 = IDEC ASH44108
```



C		ASH44109
C	TO READ DATA	ASH44110
	210 READ (C,20) SEASN,AREA,FISH,TYPE	ASH44111
	IF (SEASN)295,295,215	ASH44112
	215 IF (1SEAS - SEASN)220,225,220	ASH44113
	220 WRITE (T,25) SEASN	ASH44114
	PAUSE 1	ASH44115
	GO TO 210	ASH44116
	225 IF (TYPE - TYPE1)250,230,250	ASH44117
	230 DO 245 I = 1,62	ASH44118
	IF (AREA - KAREA(I))245,235,245	ASH44119
	235 DO 240 K = 1,10	ASH44120
	POPAC(I,K) = FISH(K)	ASH44121
	POPAC(I,11) = POPAC(I,11) + FISH(K)	ASH44122
	240 CONTINUE	ASH44123
	TEST(I) = 1	ASH44124
	GO TO 210	ASH44125
	245 CONTINUE	ASH44126
	WRITE (T,30) AREA	ASH44127
	PAUSE 2	ASH44128
	GO TO 210	ASH44129
	250 IF (TYPE - TYPE2)260,255,260	ASH44130
	255 KT = 1	ASH44131
	GO TO 275	ASH44132
	260 IF (TYPE - TYPE3)265,270,265	ASH44133
	265 WRITE (T,35) TYPE	ASH44134
	PAUSE 3	ASH44135
	GO TO 210	ASH44136
	270 KT = 2	ASH44137
	275 DO 290 I = 1,62	ASH44138
	IF (AREA - KAREA(I))290,280,290	ASH44139
	280 DO 285 K = 1,10	ASH44140
	POPAS(I,K) = FISH(K)	ASH44141
	POPAS(I,11) = POPAS(I,11) + FISH(K)	ASH44142
	285 CONTINUE	ASH44143
	TEST(I) = 1	ASH44144
	GO TO 210	ASH44145
	290 CONTINUE	ASH44146
	WRITE (T,30) AREA	ASH44147
	PAUSE 4	ASH44148
	GO TO 210	ASH44149
C		ASH44150
C	TO PRINT ABUNDANCE AT AGE BY AREA	ASH44151
	295 CALL DATSW (1,1)	ASH44152
	GO TO (360,300), I	ASH44153
	300 DO 355 I = 1,62	ASH44154
	IF (TEST(I))355,355,305	ASH44155
	305 DO 310 K = 1,11	ASH44156
	TPOP(K) = POPAS(I,K) + POPAC(I,K) + 0.000501	ASH44157
	OUT1(K) = POPAS(I,K) + 0.000501	ASH44158
	OUT2 (K) = POPAC(I,K) + 0.000501	ASH44159
	310 CONTINUE	ASH44160
	IF (LINE - 44)350,315,315	ASH44161
	315 WRITE (P,50) NTAB1,IDEC,IYR1,IDEC1,IYR2,PAGE1	ASH44162
	PAGE1 = PAGE1 + 1	ASH44163
	IF (IT)325,320,325	ASH44164

320	IT = 1	ASH44165
	WRITE (P,40)	ASH44166
	GO TO 330	ASH44167
325	WRITE (P,65)	ASH44168
330	GO TO (335,340),KT	ASH44169
335	WRITE (P,90)	ASH44170
	GO TO 345	ASH44171
340	WRITE (P,85)	ASH44172
345	WRITE (P,55)	ASH44173
	LINE = 5	ASH44174
350	WRITE (P,75) KAREA(I),OUT2,OUT1,TPOP	ASH44175
	LINE = LINE + 4	ASH44176
355	CONTINUE	ASH44177
C	TO PRINT ABUNDANCE AT AGE BY POPULATION	ASH44179
360	CALL DATSW (2,I)	ASH44180
	GO TO (580,365), I	ASH44181
365	LINE = 55	ASH44182
	IT = 0	ASH44183
	DO 395 I = 1,62	ASH44184
	IF (TEST(I))395,395,370	ASH44185
370	IF (INDX1(I))375,385,375	ASH44186
375	INC = INDX1(I)	ASH44187
	DO 380 K = 1,11	ASH44188
	POPPC(INC,K) = POPPC(INC,K) + POPAC(I,K)	ASH44189
	POPPS(INC,K) = POPPS(INC,K) + POPAS(I,K)	ASH44190
380	CONTINUE	ASH44191
	POP(INC) = 1	ASH44192
385	INC = INDX2(I)	ASH44193
	DO 390 K = 1,11	ASH44194
	POPPC(INC,K) = POPPC(INC,K) + POPAC(I,K)	ASH44195
	POPPS(INC,K) = POPPS(INC,K) + POPAS(I,K)	ASH44196
390	CONTINUE	ASH44197
	POP(INC) = 1	ASH44198
395	CONTINUE	ASH44199
	DO 575 I = 1,24	ASH44200
	IF (POP(I))575,575,400	ASH44201
400	DO 405 K = 1,11	ASH44202
	TPOP(K) = POPPS(I,K) + POPPC(I,K) + 0.000501	ASH44203
	OUT1(K) = POPPS(I,K) + 0.000501	ASH44204
	OUT2(K) = POPPC(I,K) + 0.000501	ASH44205
405	CONTINUE	ASH44206
	IF (LINE - 43)445,410,410	ASH44207
410	WRITE (P,95) NTAB2,IDEC,IYR1,IDEC1,IYR2,PAGE2	ASH44208
	PAGE2 = PAGE2 + 1	ASH44209
	IF (IT)420,415,420	ASH44210
415	IT = 1	ASH44211
	WRITE (P,45)	ASH44212
	GO TO 425	ASH44213
420	WRITE (P,70)	ASH44214
425	GO TO (430,435),KT	ASH44215
430	WRITE (P,90)	ASH44216
	GO TO 440	ASH44217
435	WRITE (P,85)	ASH44218
440	WRITE (P,60)	ASH44219
	LINE = 5	ASH44220
445	GO TO (450,455,460,465,470,475,480,485,490,495,500,505,510,515,	ASH44221

*520,525,530,535,540,545,550,555,560,565),1	ASH44222
450 WRITE (P,100)	ASH44223
GO TO 570	ASH44224
455 WRITE (P,105)	ASH44225
GO TO 570	ASH44226
460 WRITE (P,110)	ASH44227
GO TO 570	ASH44228
465 WRITE (P,115)	ASH44229
GO TO 570	ASH44230
470 WRITE (P,120)	ASH44231
GO TO 570	ASH44232
475 WRITE (P,125)	ASH44233
GO TO 570	ASH44234
480 WRITE (P,130)	ASH44235
GO TO 570	ASH44236
485 WRITE (P,135)	ASH44237
GO TO 570	ASH44238
490 WRITE (P,140)	ASH44239
GO TO 570	ASH44240
495 WRITE (P,145)	ASH44241
GO TO 570	ASH44242
500 WRITE (P,150)	ASH44243
GO TO 570	ASH44244
505 WRITE (P,155)	ASH44245
GO TO 570	ASH44246
510 WRITE (P,145)	ASH44247
GO TO 570	ASH44248
515 WRITE (P,150)	ASH44249
GO TO 570	ASH44250
520 WRITE (P,160)	ASH44251
GO TO 570	ASH44252
525 WRITE (P,165)	ASH44253
GO TO 570	ASH44254
530 WRITE (P,170)	ASH44255
GO TO 570	ASH44256
535 WRITE (P,175)	ASH44257
GO TO 570	ASH44258
540 WRITE (P,165)	ASH44259
GO TO 570	ASH44260
545 WRITE (P,170)	ASH44261
GO TO 570	ASH44262
550 WRITE (P,180)	ASH44263
GO TO 570	ASH44264
555 WRITE (P,185)	ASH44265
GO TO 570	ASH44266
560 WRITE (P,190)	ASH44267
GO TO 570	ASH44268
565 WRITE (P,195)	ASH44269
570 WRITE (P,80) OUT2,OUT1,TPOP	ASH44270
LINE = LINE + 5	ASH44271
575 CONTINUE	ASH44272
580 CALL EXIT	ASH44273
END	ASH44274
// DUP	
*DELETE	ASH44
*STORE	WS UA ASH44

// JOB  
// DUP  
\*DFILE  
// FOR

UA PFILE 243

\*IOCS(1442 PUNCH,2501 READER,1403 PRINTER,DISK,TYPEWRITER)  
\*EXTENDED PRECISION  
\*ONE WORD INTEGERS  
\*LIST ALL  
\*NAME ASH45

\*\* ASH 45 - CATCH, SPAWNERS AND TOTAL AT AGE BY POPULATION AND SEASON

C ..... ASH45 1

C ..... ASH45 2

C ..... ASH45 3

C USE \*FILES(100,REFX),(1,PFILE) TO EXECUTE. ASH45 4

C ..... ASH45 5

C ASH45 TABULATES BY POPULATION, MILLIONS OF FISH IN CATCH, SPAWN AND ASH45 6

C TOTAL (CATCH + SPAWN) OVER A MAXIMUM OF 30 YEARS DATA. ASH45 7

C ..... ASH45 8

C AN AGE COMPOSITION IS ALSO COMPILED BY POPULATION FOR EACH SEASON ASH45 9

C USING THE 'TOTAL' MILLIONS OF FISH. ASH45 10

C ..... ASH45 11

C MILLIONS OF FISH IN CATCH , SPAWN AND TOTAL ARE LOADED ON FILE PFILE. ASH45 12

C ASH46 MAY THEN BE EXECUTED TO GRAPH THIS DATA. DISK FILE PFILE ASH45 13

C OCCUPIES 241 SECTORS OF USERS AREA. ASH45 14

C ..... ASH45 15

C COMPLETE DATA PER POPULATION IS EXPECTED BETWEEN YEARS SPECIFIED ON ASH45 16

C CONTROL CARD. ASH45 17

C ..... ASH45 18

C INPUT ASH45 19

C ----- ASH45 20

C 1 CONTROL CARD ASH45 21

C COLS. 1-2 YEAR CODE OF THE FIRST YEAR OF FIRST SEASON OF ASH45 22

C DATA SERIES. E.G. '50' FOR SEASON 1950-51 ASH45 23

C -3 BLANK ASH45 24

C 4-5 YEAR CODE OF THE LAST YEAR OF LAST SEASON OF ASH45 25

C DATA SERIES. E.G. '69' FOR 1968-69 ASH45 26

C IN THE ABOVE EXAMPLES, THE DATA SERIES WOULD RUN ASH45 27

C FROM 1950-51 TO 1968-69. ASH45 28

C -6 1 PUNCH FOR SMP SPAWN CARDS TO BE INPUTTED. ASH45 29

C 2 PUNCH FOR SEP SPAWN CARDS TO BE INPUTTED. ASH45 30

C 7-9 INITIAL TABLE VALUE OF PRINTED OUTPUT 1 ASH45 31

C 10-12 INITIAL PAGE NUMBER OF ABOVE ASH45 32

C 13-15 INITIAL TABLE VALUE OF PRINTED OUTPUT 2 ASH45 33

C 16-18 INITIAL PAGE NUMBER OF ABOVE ASH45 34

C 19-21 INITIAL TABLE VALUE FOR PRINTED OUTPUT 3 ASH45 35

C 22-24 INITIAL PAGE VALUE FOR ABOVE ASH45 36

C 2 CARD CODE CYP FROM ASH 41 (CATCH BY AGE BY POPULATION AND ASH45 37

C SEASON) ASH45 38

C 3 CARD CODE SMP OR SEP FROM ASH 43 (SPAWNERS AT AGE BY ASH45 39

C POPULATION AND SEASON) ASH45 40

C THE ORDER OF 3 AND 4 NOT MATTERING ASH45 41

C 4 BLANK CARD AT END OF DATA TO INDICATE DATA TERMINATION. ASH45 42

C ..... ASH45 43

C PRINTED OUTPUT ASH45 44

C ----- ASH45 45

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C      1 LISTS CATCH, SPAWNERS AND TOTAL IN MILLIONS OF FISH AT EACH AGE ASH45 46
C      PER SEASON FOR FIRST ALL MAJOR POPULATIONS, AND THEN ALL MINOR ASH45 47
C      POPULATIONS. ** TURN ON DATA SWITCH 1 TO BYPASS. ASH45 48
C      ASH45 49
C      2 AGE COMPOSITION BY POPULATION AND SEASON ASH45 50
C      ** TURN ON DATA SWITCH 2 TO BYPASS. ASH45 51
C      ASH45 52
C      3 SUMMARY OF CATCH PLUS SPAWNERS (IN MILLIONS OF FISH) FOR ALL ASH45 53
C      SEASONS WITHIN POPULATION. (WILL PRINT ONLY IF OUTPUT 1 IS ASH45 54
C      SPECIFIED) ASH45 55
C      ASH45 56
C      ALL VALUES ARE ROUNDED TO THE NEAREST 0.0005 ASH45 57
C      ASH45 58
C      CARD OUTPUT ASH45 59
C      ----- ASH45 60
C      ** TURN ON DATA SWITCH 3 TO BYPASS. ASH45 61
C      1 COLUMNS ASH45 62
C      1-3 SEASON CODE ASH45 63
C      4-7 SUBDISTRICT CODE ASH45 64
C      8-14 TOTAL POPULATION AT AGE 0+ ASH45 65
C      15-21 (MILLION OF FISH) 1+ ASH45 66
C      22-28 2+ ASH45 67
C      29-35 3+ ASH45 68
C      36-42 4+ ASH45 69
C      43-49 5+ ASH45 70
C      50-56 6+ ASH45 71
C      57-63 7+ ASH45 72
C      64-70 8+ ASH45 73
C      71-77 9+ ASH45 74
C      78-80 CARD CODE 'YP', (NOT USED IN CURRENT SYSTEM) ASH45 75
C      ASH45 76
C      ASH45 77
C      SORTING BY YEAR WITHIN POPULATION WILL INCREASE INPUT SPEED, ASH45 78
C      WITHIN EACH YEAR PLACE THE CATCH CARD FIRST, FOLLOWED BY THE SPAWN . ASH45 79
C      ASH45 80
C      ..... ASH45 81
C      ASH45 82
C      ASH45 83
C      ASH45 84
C      INTEGER C,P,H,T ASH45 85
C      INTEGER DCODE(24),PAGE,PAGE1,PAGE2,PAGE3,FYEAR,DECL,Y1,SEASN ASH45 86
C      INTEGER TYPE,TYPE1,TYPE2,TYPE3,TEST(30,24),PTST(24) ASH45 87
C      DIMENSION FISH(10),FPOP(10),POPC(10),POPS(10),TPOP(10) ASH45 88
C      DIMENSION INDX1(62),INDX2(62),ACOMP(10),ZERO(11),CA(10),SP(10) ASH45 89
C      DIMENSION NAME(24,60) ASH45 90
C      EQUIVALENCE (FISH(1),ACOMP(1)),(IPOP,J) ASH45 91
C      DEFINE FILE 1(2161,33,U,KI) ASH45 92
C      DEFINE FILE 100(13,320,U,IK) ASH45 93
C      ASH45 94
C      DATA TYPE1/'YP'/ ASH45 95
C      DATA TYPE2/'MP'/ ASH45 96
C      DATA TYPE3/'EP'/ ASH45 97
C      DATA C,P,H,T / 8,5,9,1 / ASH45 98
C      DATA PTST / 24*0/,ZERO/11*0./,TEST/720*0/,RNDUF/0.000501/,NP/24/ ASH45 99
C      ASH45 100
C      FORMATS ASH45 101
C      5 FORMAT(2I1,1X,I2,I1,6I3) ASH45 101

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10 FORMAT (I3,I4,10F7.3,1X,A2) ASH45102
15 FORMAT (//'FIRST YEAR OF SEASON READ ',I3,', IS NOT WITHIN BOUNDS ASH45103
*OF THE YEARS SPECIFIED ON CONTROL CARD') ASH45104
20 FORMAT ('0',38X,'SPAWNER DATA FROM FISH/MI. SPAWN AND MILES OF SPAASH45105
*NN') ASH45106
25 FORMAT ('0',38X,'SPAWNER DATA FROM SQ. YARDS OF SPAWN AND FECUNDITASH45107
*Y') ASH45108
30 FORMAT('0',61X,'A G E'/' SEASON',15X,'0 +',6X,'1 +',6X,'2 +',6X,'3ASH45109
* +',6X,'4 +',6X,'5 +',6X,'6 +',6X,'7 +',6X,'8 +',6X,'9 +',9X,'TOTAASH45110
*L') ASH45111
35 FORMAT ('019',I2,'-',I2,4X,'CATCH ',10F9.3,F12.3/' ',8X,'SPAWNERS ASH45112
* ',10F9.3,F12.3/' ',11X,'TOTAL ',10F9.3,F12.3) ASH45113
40 FORMAT ('0',48X,'A G E'/' SEASON',8X,'0 +',7X,'1 +',7X,'2 +',7X,'3ASH45114
* +',7X,'4 +',7X,'5 +',7X,'6 +',7X,'7 +',7X,'8 +',7X,'9 +/') ASH45115
45 FORMAT (' '19',I2,'-',I2,2X,10F10.3) ASH45116
50 FORMAT(' '14X,'19',I2,'-',I2,' TO 19',I2,'-',I2,' (CONTINUED).')ASH45117
55 FORMAT (' '14X,'19',I2,'-',I2,' TO 19',I2,'-',I2,'.') ASH45118
60 FORMAT ('1TABLE ',F5.2,'. MILLIONS OF FISH AT AGE IN THE ',60A1,TASH45119
*113,'PAGE ',I3) ASH45120
65 FORMAT ('1',101X,'PAGE ',I3/' TABLE F',I3,'. PERCENT AGE COMPOSIAASH45121
*TION FOR THE ',60A1/' ',14X,'19',I2,'-',I2,' TO 19',I2,'-',I2,'.')ASH45122
70 FORMAT ('1',102X,'PAGE ',I3/' TABLE ',F5.2,'. MILLIONS OF FISH ATASH45123
* AGE IN THE ',60A1/' ',14X,'19',I2,'-',I2,' TO 19',I2,'-',I2,'.') ASH45124
75 FORMAT ('0',29X,'SPAWNER DATA FROM FISH/MI. SPAWN AND MILES OF SPAASH45125
*NN') ASH45126
80 FORMAT ('0',29X,'SPAWNER DATA FROM SQ. YARDS OF SPAWN AND FECUNDITASH45127
*Y') ASH45128
85 FORMAT ('0',52X,'A G E'/' SEASON',10(6X,11,' +'),9X,'TOTAL'/) ASH45129
90 FORMAT (' '19',I2,'-',I2,1X,10F9.3,F12.3) ASH45130
95 FORMAT ('0AVERAGE ',10F9.3,F12.3) ASH45131
100 FORMAT (I3,I4,10F7.3,'TYP') ASH45132
105 FORMAT (' ') ASH45133
110 FORMAT (//'TURN ON FOLLOWING DATA SWITCHES TO BYPASS ITEMS LISTED.ASH45134
*/'PRINT PUNCH '/' '1',13X,'MILLIONS OF FISH (CATCH, SPAWNERASH45135
*S, AND TOTAL) BY SEASON AND POPULATION'/' 2',13X,'AGE COMPOSITIONASH45136
* BY SEASON AND POPULATION'/8X,'3',7X,'TOTAL FISH (MILLIONS) AT AGEASH45137
* BY SEASON AND POPULATION') ASH45138
115 FORMAT (//'CARD TYPE ',A3,' IS NOT A CORRECT INPUT CARD TYPE'/) ASH45139
120 FORMAT (//'POP. ',I3,' IS INCORRECT') ASH45140
125 FORMAT (//'CORRECT ERROR AND REPLACE DATA CARD') ASH45141
130 FORMAT('0AVERAGE',4X,'CATCH ',10F9.3,F12.3/' ',8X,'SPAWNERS ',10F9ASH45142
* .3,F12.3/' ',11X,'TOTAL ',10F9.3,F12.3) ASH45143
135 FORMAT ('0AVERAGE',2X,10F10.3) ASH45144
140 FORMAT ('0',19X,'(ADJUSTED FOR SPAWNERS ESTIMATED FROM FISH/MI. SPASH45145
*AWN AND MILES OF SPAWN)') ASH45146
145 FORMAT ('0',19X,'(ADJUSTED FOR SPAWNERS ESTIMATED FROM SQ. YARDS DASH45147
*F SPAWN AND FECUNDITY)') ASH45148
ASH45149
C STATEMENT FUNCTION IREC CALCULATES FILE RECORD NUMBER OF PFILE, GIVEN ASH45150
C THE POPULATION J, THE YEAR I AND K=1 FOR CATCH, K=2 FOR SPAWNERS, ASH45151
C AND K=3 FOR TOTAL (CATCH + SPAWNERS).. ASH45152
C THE FIRST RECORD OF PFILE IS USED FOR STORING THE NUMBER OF YEARS OF ASH45153
C DATA (NYRS), THE FIRST YEAR (FYEAR) AND THE LAST YEAR (LYEAR) OF THE ASH45154
C DATA, AND AS WELL DATA PRESENT FLAGS FOR ALL POPULATIONS (PTST). ASH45155
ASH45156
C ASH45157

```

$$IREC(I,J,K) = 90*(J-1) + (I-1)*3+K + 1$$

ASH45157



```
WRITE (T,110)
C READ IN FIRST AND LAST YEARS OF SERIES AND TABLE AND PAGE VALUES
READ(C,5) DEC1,Y1,LYEAR,I,NTAB1,PAGE1,NTAB2,PAGE2,NTAB3,PAGE3
FYEAR = DEC1 * 10 + Y1
NYRS=LYEAR-FYEAR
AN = NYRS
NYEAR = LYEAR - 1
IYR1 = FYEAR + 1
IYR2 = LYEAR - 1
C TO READ IN CROSS REFERENCE TABLES FROM REF
IK = 2
READ (100*IK) INDX1,INDX2,DCODE
READ (100*IK) NAME
C READ IN MAIN DATA
KT=1
GO TO (155,150),I
150 TYPE2 = TYPE3
KT = 2
155 READ (C,10) SEASN,IPOP,FISH,TYPE
IF (SEASN )210,210,160
160 IYR = SEASN / 10
IF ((FYEAR - IYR) *0.10*((IYR - NYEAR)))165,170,170
165 WRITE (T,15) SEASN
WRITE (T,125)
PAUSE 666
GO TO 155
C
170 IYR = IYR - FYEAR + 1
DO 205 I = 1,NP
IF (IPOP - DCODE(I))205,175,205
175 IF (TYPE-TYPE1)180,190,180
180 IF (TYPE-TYPE2)185,195,185
185 WRITE (T,115) TYPE
WRITE (T,125)
PAUSE 1
GO TO 155
C
190 L = 1
TEST(IYR,I) = TEST(IYR,I) + 1
GO TO 200
195 L=2
TEST(IYR,I) = TEST(IYR,I) + 2
200 K=IREC (IYR,I,L)
WRITE(I*K) FISH
PTST(I) = 1
GO TO 155
205 CONTINUE
WRITE (T,120) IPOP
WRITE (T,125)
PAUSE 2
GO TO 155
C PRINTED OUTPUT
C
210 CALL DATSW (1,M1)
PAGE = PAGE1
TABLE = NTAB1 + 0.01
```

ASH45158  
ASH45160  
ASH45161  
ASH45162  
ASH45163  
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ASH45215

	DO 335 I=1,NP	ASH45216
	IF (PTST(I))335,335,215	ASH45217
215	DO 220 J = 1,10	ASH45218
	CA(J) = 0.0	ASH45219
220	SP(J) = 0.0	ASH45220
	LINE = 55	ASH45221
	II = 1	ASH45222
	DO 320 J = 1,NYRS	ASH45223
	I1 = J + (FYEAR-1)	ASH45224
	I2 = I1 + 1	ASH45225
	STOT = 0.0	ASH45226
	CTOT = 0.0	ASH45227
	IF (TEST(J,I))225,225,235	ASH45228
225	DO 230 L = 1,10	ASH45229
	POPC(L) = 0.0	ASH45230
	POPS(L) = 0.0	ASH45231
230	TPOP(L) = 0.0	ASH45232
	TTOT = 0.0	ASH45233
	K = IREC(J,I,1)	ASH45234
	WRITE (1*K) POPC,CTOT,POPS,STOT,TPOP,TTOT	ASH45235
	GO TO 275	ASH45236
235	M = TEST(J,I)	ASH45237
	K = IREC(J,I,1)	ASH45238
	GO TO (240,250,260), M	ASH45239
240	READ (1*K) FISH	ASH45240
	DO 245 L = 1,10	ASH45241
	CTOT = CTOT + FISH(L)	ASH45242
	POPC(L) = FISH(L) + RND0F	ASH45243
	TPOP(L) = POPC(L)	ASH45244
	CA(L) = CA(L) + FISH(L)	ASH45245
245	POPS(L) = ZERO(L)	ASH45246
	WRITE (1*K) FISH,CTOT	ASH45247
	K = K + 1	ASH45248
	WRITE (1*K) ZERO	ASH45249
	K = K + 1	ASH45250
	WRITE (1*K) FISH,CTOT	ASH45251
	CTOT = CTOT + RND0F	ASH45252
	TTOT = CTOT	ASH45253
	GO TO 275	ASH45254
250	WRITE (1*K) ZERO	ASH45256
	K = K + 1	ASH45257
	READ (1*K) FISH	ASH45258
	DO 255 L = 1,10	ASH45259
	STOT = STOT + FISH(L)	ASH45260
	POPS(L) = FISH(L) + RND0F	ASH45261
	TPOP(L) = POPC(L)	ASH45262
	SP(L) = SP(L) + FISH(L)	ASH45263
255	POPC(L) = ZERO(L)	ASH45264
	WRITE (1*K) FISH,STOT	ASH45265
	K = K + 1	ASH45266
	WRITE (1*K) FISH,STOT	ASH45267
	STOT = STOT + RND0F	ASH45268
	TTOT = STOT	ASH45269
	GO TO 275	ASH45270
260	READ (1*K) FISH	ASH45272
	DO 265 L = 1,10	ASH45273

CTOT = CTOT + FISH(L)	ASH45274
POPC(L) = FISH(L) + RND0F	ASH45275
CA(L) = CA(L) + FISH(L)	ASH45276
265 TPOP(L) = FISH(L)	ASH45277
WRITE(1*K) FISH,CTOT	ASH45278
K = K + 1	ASH45280
READ (1*K) FISH	ASH45281
DO 270 L=1,10	ASH45282
STOT = STOT + FISH(L)	ASH45283
POPS(L) = FISH(L) + RND0F	ASH45284
FPOP(L) = TPOP(L) + FISH(L)	ASH45285
SP(L) = SP(L) + FISH(L)	ASH45286
270 TPOP(L) = FPOP(L) + RND0F	ASH45287
TTOT = CTOT + STOT	ASH45288
WRITE(1*K) FISH,STOT	ASH45289
K = K+1	ASH45290
WRITE (1*K) FPOP,TTOT	ASH45291
CTOT = CTOT + RND0F	ASH45292
STOT = STOT + RND0F	ASH45293
TTOT = TTOT + RND0F	ASH45294
275 GO TO (320,280) , M1	ASH45295
280 IF (LINE - 50)315,315,285	ASH45297
285 WRITE (P,60) TABLE,(NAME(I,K),K=1,60),PAGE	ASH45298
PAGE = PAGE + 1	ASH45299
LINE = 6	ASH45300
GO TO(295,290),I1	ASH45301
290 WRITE (P,50) FYEAR,IYR1,IYR2,LYEAR	ASH45302
GO TO 310	ASH45303
295 LINE = LINE + 1	ASH45304
WRITE (P,55) FYEAR,IYR1,IYR2,LYEAR	ASH45305
I1=2	ASH45306
GO TO (300,305),KT	ASH45307
300 WRITE (P,20)	ASH45308
GO TO 310	ASH45309
305 WRITE (P,25)	ASH45310
310 WRITE (P,30)	ASH45311
315 WRITE (P,35) I1,I2,POPC,CTOT,POPS,STOT,TPOP,TTOT	ASH45312
LINE = LINE + 4	ASH45313
320 CONTINUE	ASH45314
GO TO (335,325) , M1	ASH45315
325 TABLE = TABLE + 0.01000005	ASH45316
CTOT = 0.0	ASH45317
STOT = 0.0	ASH45318
DO 330 L = 1,10	ASH45319
CTOT = CTOT + CA(L)	ASH45320
STOT = STOT + SP(L)	ASH45321
TPOP(L) = (CA(L) + SP(L)) / AN + RND0F	ASH45322
CA(L) = CA(L) / AN + RND0F	ASH45323
330 SP(L) = SP(L) / AN + RND0F	ASH45324
TTOT = (CTOT + STOT) / AN + RND0F	ASH45325
CTOT = CTOT / AN + RND0F	ASH45326
STOT = STOT / AN + RND0F	ASH45327
WRITE (P,130) CA,CTOT,SP,STOT,TPOP,TTOT	ASH45328
335 CONTINUE	ASH45329
C	ASH45330
C TO PRINT AGE COMPOSITION BY SEASON AND POPULATION	ASH45331

CALL DATSW (2,1)	ASH45332
GO TO (410,340), I	ASH45333
340 PAGE = PAGE2	ASH45334
DO 405 I = 1,NP	ASH45335
IF (PTST(I))405,405,345	ASH45336
345 WRITE (P,65) PAGE,NTAB2,(NAME(I,J),J=1,60),FYEAR,IYR1,IYR2,LYEAR	ASH45337
GO TO (350,355), KT	ASH45338
350 WRITE (P,140)	ASH45339
GO TO 360	ASH45340
355 WRITE (P,145)	ASH45341
360 WRITE (P,40)	ASH45342
NYEAR = FYEAR	ASH45343
DO 365 J = 1,10	ASH45344
365 TPOP(J) = 0.0	ASH45345
DO 395 J = 1,NYRS	ASH45346
IT = NYEAR + 1	ASH45347
IF (TEST(J,I))370,370,380	ASH45348
370 DO 375 K = 1,10	ASH45349
375 ACOMP(K) = 0.0	ASH45350
GO TO 390	ASH45351
380 K = IREC(J,I,3)	ASH45352
READ (I*K) FPOP,TTOT	ASH45353
DO 385 K = 1,10	ASH45354
CTOT = (FPOP(K) / TTOT) * 100.0	ASH45355
TPOP(K) = TPOP(K) + CTOT	ASH45356
385 ACOMP(K) = CTOT + RND0F	ASH45357
390 WRITE (P,45) NYEAR,IT,ACOMP	ASH45358
395 NYEAR = NYEAR + 1	ASH45359
PAGE = PAGE + 1	ASH45360
NTAB2 = NTAB2 + 1	ASH45361
DO 400 J = 1,10	ASH45362
400 TPOP(J) = TPOP(J) / AN + RND0F	ASH45363
WRITE (P,135) TPOP	ASH45364
405 CONTINUE	ASH45365
C	ASH45366
C TOTAL MILLIONS OF FISH SUMMARY TABLE	ASH45367
410 CALL DATSW (1,I)	ASH45368
GO TO (475,415), I	ASH45369
C	ASH45370
415 PAGE = PAGE3	ASH45371
TABLE = NTAB3	ASH45372
DO 470 I = 1,NP	ASH45373
IF (PTST(I))470,470,420	ASH45374
420 TABLE = TABLE + 0.01000005	ASH45375
WRITE (P,70) PAGE,TABLE,(NAME(I,J),J=1,60),FYEAR,IYR1,IYR2,LYEAR	ASH45376
PAGE = PAGE + 1	ASH45377
GO TO (425,430), KT	ASH45378
425 WRITE (P,75)	ASH45379
GO TO 435	ASH45380
430 WRITE (P,80)	ASH45381
435 WRITE (P,85) (J,J=0,9)	ASH45382
C	ASH45383
DO 440 J = 1,10	ASH45384
440 CA(J) = 0.0	ASH45385
CTOT = 0.0	ASH45386
C	ASH45387

DD 460 J = 1,NYRS	ASH45388
I1 = J + (FYEAR - 1)	ASH45389
I2 = I1 + 1	ASH45390
IF (TEST(J,I))445,445,450	ASH45391
445 WRITE (P,90) I1,I2,ZERO	ASH45392
GO TO 460	ASH45393
450 K = IREC(J,I,3)	ASH45394
READ (1*K) TPOP,TTOT	ASH45395
CTOT = CTOT + TTOT	ASH45396
DD 455 K = 1,10	ASH45397
CA(K) = CA(K) + TPOP(K)	ASH45398
455 TPOP(K) = TPOP(K) + RND0F	ASH45399
TTOT = TTOT + RND0F	ASH45400
WRITE (P,90) I1,I2,TPOP,TTOT	ASH45401
460 CONTINUE	ASH45402
C	ASH45403
C COMPUTE AVERAGE	ASH45404
CTOT = CTOT / AN + RND0F	ASH45405
DU 465 J = 1,10	ASH45406
465 CA(J) = CA(J) / AN + RND0F	ASH45407
WRITE (P,95) CA,CTOT	ASH45408
C	ASH45409
470 CONTINUE	ASH45410
C	ASH45411
C CARD OUTPUT 1	ASH45412
C	ASH45413
475 CALL DATSW (3,I)	ASH45414
GO TO (535,480),I	ASH45415
480 IT = Y1 + 1	ASH45416
NYEAR = FYEAR	ASH45417
DU 530 I = 1,NYRS	ASH45418
IF (IT - 10)490,485,490	ASH45419
485 IT = 0	ASH45420
490 SEASN = (NYEAR*10) + IT	ASH45421
DD 525 J=1,NP	ASH45422
IF (PTST(J))525,525,495	ASH45423
495 IF (TEST(I,J))500,500,510	ASH45424
500 DD 505 K = 1,10	ASH45425
505 TPOP(K) = 0.0	ASH45426
GO TO 520	ASH45427
510 K = IREC(I,J,3)	ASH45428
READ (1*K) TPOP	ASH45429
DD 515 K = 1,10	ASH45430
515 TPOP(K) = TPOP(K) + RND0F	ASH45431
520 WRITE (H,100) SEASN,DCODE(J),TPOP	ASH45432
525 CONTINUE	ASH45433
IT=IT+1	ASH45434
NYEAR=NYEAR+1	ASH45435
530 CONTINUE	ASH45436
WRITE (H,105)	ASH45437
535 WRITE (1*1) NYRS,FYEAR,LYEAR,PTST	ASH45438
CALL EXIT	ASH45439
END	ASH45440
// DUP	
*DELETE	ASH45
*STORE	WS UA ASH45

```

// JOB
// FOR
*IOCS(DISK,PLOTTER,TYPEWRITER,2501 READER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH46
**ASH46, PLOTTER OUTPUT FOR ASH45, ASH48, AND ASH53.
C
C *****
C USE *FILES(1,PFILE),(2,AFILE),(3,TPOP),(4,PNAME),(100,REFX)
C
C INPUT - CONTROL CARD
C -----
C COLUMN 1 - 1 FOR PLOTS BY AREA FROM DATA LOADED BY PROGRAM ASH53
C ON DATA FILE AFILE
C - 2 FOR PLOTS BY POPULATION FROM DATA LOADED BY ASH45
C ON DATA FILE PFILE
C - 3 FOR PLOTS BY POPULATION (TOTAL, SPAWNERS + IMMATURES,
C AND IMMATURES) FROM DATA AS LOADED BY ASH48 ON DATA
C FILE TPOP.
C
C PLOTTER OUTPUT- HISTOGRAM
C -----
C * * * 1 TO BYPASS TURN ON DATSW 4
C BOTH TOTAL (CATCH + SPAWNERS) AND SPAWNERS ARE REPRESENTED IN
C IN MILLIONS OF FISH - HISTOGRAMMED FOR EACH YEAR PER
C POPULATION OR AREA.
C
C * * * 2 TO BYPASS TURN ON DATSW 5
C BOTH TOTAL (CATCH + SPAWNERS) AND SPAWNERS ARE REPRESENTED IN
C MILLIONS OF FISH AT AGE (1+,2+,3+,4+,5+-9+) - HISTOGRAMMED
C FOR EACH YEAR PER POPULATION OR AREA.
C
C PLOTS OF DATA FROM FILE TPOP WILL YIELD A REPRESENTATION OF TOTAL,
C SPAWNERS + IMMATURES, AND IMMATURES WITHIN EACH HISTOGRAM.
C
C SET PEN LESS THAN 9 INCHES FROM RIGHT HAND EDGE ON SMALL (12 INCH)
C PLOTTING PAPER.
C
C PROGRAM REQUIRES SUBROUTINES PUTI (INTEGER TO A1 CONVERSION),
C GRID (CONSTRUCTION OF X AND Y AXIS), AND FEET (A ROUTINE TO HALT
C PLOTTING AT END OF PLOTTING PAPER).
C
C IF AT ANY TIME DURING EITHER OUTPUT SET, THE PLOTTING IS DESIRED TO BE
C HALTED, TURN ON DATA SWITCH 1. PROGRAM WILL THEN CONTINUE TO END
C OF CURRENT PLOT AND THEN EXIT.
C
C TO RESTART AFTER THE ABOVE TERMINATION, RE-EXECUTE PROGRAM WITH DATA
C SWITCH 2 ON. PLOTTING WILL CONTINUE ON FROM WHERE HALT WAS
C IMPOSED.
C
C *****
C
C INTEGER T,PL,C

```

ASH46

ASH46 1  
ASH46 2  
ASH46 3  
ASH46 4  
ASH46 5  
ASH46 6  
ASH46 7  
ASH46 8  
ASH46 9  
ASH46 10  
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ASH46 43  
ASH46 44  
ASH46 45  
ASH46 46  
ASH46 47





NP = NA	ASH46104
GO TO 95	ASH46105
85 IGO = 2	ASH46106
MGO = 1	ASH46107
LGO = 1	ASH46108
F = 1	ASH46109
GO TO 95	ASH46110
90 IGO = 2	ASH46111
MGO = 1	ASH46112
LGO = 2	ASH46113
F = 3	ASH46114
95 GO TO (100,105), IGO	ASH46115
100 READ (100*1) AREA	ASH46116
READ (F*1) NYRS,FYEAR,LYEAR,ATST,I	ASH46117
GO TO 110	ASH46118
105 READ (F*1) NYRS,FYEAR,LYEAR,PTST,I	ASH46119
C	ASH46120
C CHECK FOR RESTART STATUS.	ASH46121
110 CALL DATSW(2,J)	ASH46122
GO TO (115,120), J	ASH46123
115 KK = I / 100	ASH46124
IJ = I - KK*100	ASH46125
GO TO (125,335), KK	ASH46126
C	ASH46127
C PLOTTER OUTPUT 1	ASH46128
C	ASH46129
120 CALL DATSW(4,I)	ASH46130
GO TO(330,125),I	ASH46131
C	ASH46132
C TO SET INITIAL PEN POSITION	ASH46133
125 CALL SCALE(1.0,1.0,0.0,0.0)	ASH46134
CALL EPLLOT (1,0.0,-9.0)	ASH46135
CALL SCALE (1.0,1.0,0.0,0.0)	ASH46136
CALL EPLLOT (1,0.0,1.5)	ASH46137
KK = 1	ASH46138
C	ASH46139
C DEFINE ANNOTATION CHARACTERS WIDTH AND HEIGHT IN INCHES.	ASH46140
C SCALE	ASH46141
SX = 0.35	ASH46142
SY = 0.80	ASH46143
C YEAR ANNOTATION	ASH46144
WX = 0.17	ASH46145
HX = 0.17	ASH46146
SPY = 0.06	ASH46147
C SEASON	ASH46148
WX1 = 0.20	ASH46149
HX1 = 0.25	ASH46150
C POPULATION NAME OR AREA CODE	ASH46151
WC = 0.20	ASH46152
HC = 0.40	ASH46153
SPC = 0.685	ASH46154
C Y AXIS ANNOTATION	ASH46155
WY = 0.12	ASH46156
HY = 0.20	ASH46157
SPX = 0.05	ASH46158
C Y AXIS HEADING	ASH46159

	WH = 0.20	ASH46160
	HH = 0.25	ASH46161
C		ASH46162
	DD 325 I = IJ,NP	ASH46163
	IF (ATST(I))325,325,130	ASH46164
130	TMAX = 0.0	ASH46165
	TMEAN = 0.0	ASH46166
	SMEAN = 0.0	ASH46167
	GO TO (140,140,135), F	ASH46168
135	AMEAN = 0.0	ASH46169
	NYRS = ATST(I)	ASH46170
140	AX = NYRS	ASH46171
	DD 170 J=1,NYRS	ASH46172
	K = IREC (J,I,2)	ASH46173
	READ (F*K) POPS,STOT	ASH46174
	K = K+1	ASH46175
	READ (F*K) POPT,TTOT	ASH46176
	GO TO (150,150,145), F	ASH46177
145	K = K + 1	ASH46178
	READ (F*K) POPA,ATOT	ASH46179
150	IF (TTOT - TMAX)160,160,155	ASH46180
155	TMAX = TTOT	ASH46181
160	PY2(J) = TTOT	ASH46182
	PY1(J) = STOT	ASH46183
	TMEAN = TMEAN + TTOT	ASH46184
	SMEAN = SMEAN + STOT	ASH46185
	GO TO (170,170,165), F	ASH46186
165	AMEAN = AMEAN + ATOT	ASH46187
	SMEAN = SMEAN + ATOT	ASH46188
	PY1(J) = PY1(J) + ATOT	ASH46189
	PY3(J) = ATOT	ASH46190
170	CONTINUE	ASH46191
C		ASH46192
C	TO FIND FIXED SCALE	ASH46193
	DD 200 M = 1,NNA	ASH46194
	IF (TMAX - UNT(M))200,200,175	ASH46195
175	IF (M-1)180,180,195	ASH46196
180	GO TO (185,190), IGO	ASH46197
185	WRITE (T,70) AREA(I)	ASH46198
	GO TO 325	ASH46199
190	READ (4,I) NAME	ASH46200
	WRITE (T,65) NAME	ASH46201
	GO TO 325	ASH46202
195	UNIT = UN(M-1)	ASH46203
	ISC = SC(M-1)	ASH46204
	GO TO 205	ASH46205
200	CONTINUE	ASH46206
	GO TO 325	ASH46207
C		ASH46208
205	TMEAN = TMEAN / (AX*UNIT)	ASH46209
	SMEAN = SMEAN / (AX*UNIT)	ASH46210
	CALL FEET(INCH)	ASH46211
	GO TO (215,215,210), F	ASH46212
210	AMEAN = AMEAN / (AX * UNIT)	ASH46213
C		ASH46214
C	CONSTRUCT X AND Y GRIDS	ASH46215

215	CALL GRID (HOLD,PL)	ASH46216
C		ASH46217
C	IN PLOT NUMBER OF FISH ON Y AXIS	ASH46218
	XX = -(5.0 * MY + SPX) / SX	ASH46219
	YY = - (HY / 2.0) / SY	ASH46220
	CALL ECHAR (XX,YY,MY,HY,0.0)	ASH46221
	GO TO (220,230,230,230), ISC	ASH46222
220	INC = (UNIT + 0.5)	ASH46223
	IT = INC	ASH46224
	DO 225 K = 1,10	ASH46225
	YY = YY + 1.0	ASH46226
	CALL EPLLOT (0,XX,YY)	ASH46227
	WRITE (PL,30) INC	ASH46228
	INC = INC + IT	ASH46229
225	CONTINUE	ASH46230
	GO TO 260	ASH46231
230	X = UNIT	ASH46232
	DO 255 K = 1,10	ASH46233
	YY = YY + 1.0	ASH46234
	CALL EPLLOT (1,XX,YY)	ASH46235
	GO TO (235,235,240,245), ISC	ASH46236
235	Y = X + 0.0501	ASH46237
	WRITE (PL,10) Y	ASH46238
	GO TO 250	ASH46239
240	Y = X + 0.00501	ASH46240
	WRITE (PL,15) Y	ASH46241
	GO TO 250	ASH46242
245	Y = X + 0.000501	ASH46243
	WRITE (PL,20) Y	ASH46244
250	X = X + UNIT	ASH46245
255	CONTINUE	ASH46246
C		ASH46247
260	X = XX - (3.0*SPX) / SX	ASH46248
	Y = (10.0 - (32.0 * WH) / SY) / 2.0	ASH46249
	CALL ECHAR (X,Y,WH,HH,THETA)	ASH46250
	WRITE (PL,35)	ASH46251
C		ASH46252
C	DATA PLOT	ASH46253
	X = 0.0	ASH46254
	DO 285 J = 1,NYRS	ASH46255
	IF (PY2(J) - 0.0000501)280,280,265	ASH46256
265	XX = X + 1.0	ASH46257
	YY1=PY1(J)/UNIT	ASH46258
	YY2 = PY2(J)/UNIT	ASH46259
	CALL EPLLOT(-2,X,0.0)	ASH46260
	CALL EPLLOT(0,X,YY2)	ASH46261
	CALL EPLLOT(0,XX,YY2)	ASH46262
	CALL EPLLOT(0,XX,YY1)	ASH46263
	CALL EPLLOT(0,X,YY1)	ASH46264
	CALL EPLLOT(0,XX,YY1)	ASH46265
	GO TO (275,275,270), F	ASH46266
270	YY1 = PY3(J) / UNIT	ASH46267
	CALL EPLLOT (0,XX,YY1)	ASH46268
	CALL EPLLOT (0,X,YY1)	ASH46269
	CALL EPLLOT (0,XX,YY1)	ASH46270
275	CALL EPLLOT (-1,XX,0.0)	ASH46271

280	X = X + 1.0	ASH46272
285	CONTINUE	ASH46273
C		ASH46274
C	TO PLOT TOTAL POPULATION AND SPAWNER MEANS	ASH46275
	X = XX + 0.5	ASH46276
	CALL EPLOTT (1,X,TMEAN)	ASH46277
	CALL EPLOTT (2,0.0,TMEAN)	ASH46278
	CALL EPLOTT (1,0.0,SMEAN)	ASH46279
	CALL EPLOTT (2,X,SMEAN)	ASH46280
	GO TO (295,295,290), F	ASH46281
290	CALL EPLOTT (1,X,AMEAN)	ASH46282
	CALL EPLOTT (2,0.0,AMEAN)	ASH46283
C		ASH46284
	295 XX = X + 6.0 / SX	ASH46285
	CALL EPLOTT (1,XX,0.0)	ASH46286
C		ASH46287
C	CHECK FOR HALT INSTRUCTION	ASH46288
	CALL DATSW (1,J)	ASH46289
	GO TO (300,325), J	ASH46290
300	IF (I - NP)310,305,305	ASH46291
305	KK = 2	ASH46292
	I = 0	ASH46293
310	J = KK * 100	ASH46294
	J = J + (I+1)	ASH46295
	GO TO (315,327), IGO	ASH46296
315	WRITE (F'1') NYRS,FYEAR,LYEAR,ATST,J	ASH46297
	GO TO 620	ASH46298
320	WRITE (F'1') NYRS,FYEAR,LYEAR,PTST,J	ASH46299
	GO TO 620	ASH46300
C		ASH46301
	325 CONTINUE	ASH46302
C		ASH46303
C	PLOTTER OUTPUT 2	ASH46304
C		ASH46305
	330 IJ = 1	ASH46306
	CALL DATSW (5,I)	ASH46307
	GO TO (620,335),I	ASH46308
	335 CALL SCALE(1.0,1.0,0.0,0.0)	ASH46309
	CALL EPLOTT (1,0.0,-9.0)	ASH46310
	CALL SCALE (1.0,1.0,0.0,0.0)	ASH46311
	CALL EPLOTT (1,0.0,1.25)	ASH46312
	KK = 2	ASH46313
C		ASH46314
C	SCALE	ASH46315
	SX = 0.35	ASH46316
	SY = 0.40	ASH46317
C	YEAR ANNOTATION	ASH46318
	HX = 0.15	ASH46319
	WX = 0.13	ASH46320
	SPY = 0.06	ASH46321
C	SEASON ANNOTATION	ASH46322
	WX1 = 0.20	ASH46323
	HX1 = 0.25	ASH46324
C	POPULATION NAME OR AREA CODE	ASH46325
	WC = 0.20	ASH46326
	HC = 0.40	ASH46327

SPC = (WC + 0.04) / SX	ASH46328
C Y AXIS NUMBERS	ASH46329
WY = 0.12	ASH46330
HY = 0.15	ASH46331
SPX = 0.05	ASH46332
C AGE LABELS	ASH46333
WY1 = 0.17	ASH46334
HY1 = 0.20	ASH46335
C Y AXIS HEADING	ASH46336
WH = 0.20	ASH46337
HH = 0.25	ASH46338
C	ASH46339
DO 615 I = IJ,NP	ASH46340
IF (ATST(I))615,615,340	ASH46341
340 GO TO (350,350,345), F	ASH46342
345 NYRS = ATST(I)	ASH46343
350 XHOLD = NYRS	ASH46344
DU 385 J=1,NYRS	ASH46345
ACATC(J,5) = 0.0	ASH46346
ACATS(J,5)=0.0	ASH46347
ACATA(J,5) = 0.0	ASH46348
K = IREC(J,I,2)	ASH46349
READ (F*K) POPS	ASH46350
K = K+1	ASH46351
READ (F*K) POPT	ASH46352
GO TO (370,370,355), F	ASH46353
355 K = K + 1	ASH46354
READ (F*K) POPA	ASH46355
DO 360 M = 1,4	ASH46356
ACATC(J,M) = POPT(M)	ASH46357
ACATS(J,M) = POPS(M) + PUPA(M)	ASH46358
360 ACATA(J,M) = POPA(M)	ASH46359
DO 365 M = 5,10	ASH46360
ACATC(J,5) = ACATC(J,5) + POPT(M)	ASH46361
ACATS(J,5) = ACATS(J,5) + (POPS(M) + POPA(M))	ASH46362
365 ACATA(J,5) = ACATA(J,5) + POPA(M)	ASH46363
GO TO 385	ASH46364
C	ASH46365
370 ACATC(J,1) = POPT(1) + PUPT(2)	ASH46366
ACATS(J,1) = POPS(1) + POPS(2)	ASH46367
DO 375 M = 3,5	ASH46368
ACATC(J,M-1) = POPT(M)	ASH46369
375 ACATS(J,M-1) = POPS(M)	ASH46370
DO 380 M=6,10	ASH46371
ACATC(J,5) = ACATC(J,5) + POPT(M)	ASH46372
380 ACATS(J,5) = ACATS(J,5) + POPS(M)	ASH46373
C	ASH46374
385 CONTINUE	ASH46375
C	ASH46376
C TO FIND OPTIMUM FIXED SCALE	ASH46377
DO 400 K = 1,5	ASH46378
AMAX(K) = 0.0	ASH46379
DO 395 J = 1,NYRS	ASH46380
TTOT = ACATC(J,K)	ASH46381
IF (AMAX(K) - TTOT)390,395,395	ASH46382
390 AMAX(K) = TTOT	ASH46383



395	CONTINUE	ASH46384
400	CONTINUE	ASH46385
	K = NNB	ASH46386
	DO 425 J = 1,NNB	ASH46387
	STEP = UN(K)	ASH46388
	L = J	ASH46389
	DO 410 M = 1,5	ASH46390
	TTOT = AMAX(M) / STEP	ASH46391
	IF((TTOT+L) - 32766.0)405,425,425	ASH46392
405	IT = TTOT	ASH46393
	L = L + IT + 1	ASH46394
410	CONTINUE	ASH46395
	IF ( L - 22)415,415,425	ASH46396
415	ISC = SC(K)	ASH46397
	J = L	ASH46398
	L = 0	ASH46399
	DO 420 M = 1,4	ASH46400
	TTOT = AMAX(M) / STEP	ASH46401
	IT = TTOT	ASH46402
	L = L + IT + 1	ASH46403
	RISE(M) = L	ASH46404
420	CONTINUE	ASH46405
	RISE(5) = 22.0	ASH46406
	CALL FEET(INCH)	ASH46407
	GO TO 430	ASH46408
425	K = K - 1	ASH46409
	GO TO 615	ASH46410
C		ASH46411
C	CONSTRUCT X AND Y GRIDS.	ASH46412
	430 CALL GRID (HOLD,PL)	ASH46413
C		ASH46414
C	INCREASE SPACING BETWEEN AGE GROUPS IF POSSIBLE	ASH46415
	K = 1	ASH46416
435	M = 4 * K + J	ASH46417
	IF (M - 21)440,440,445	ASH46418
440	K = K + 1	ASH46419
	GO TO 435	ASH46420
445	TTOT = K - 1	ASH46421
	STOT = TTOT	ASH46422
	DO 450 M = 1,4	ASH46423
	RISE(M) = RISE(M) + TTOT	ASH46424
450	TTOT = TTOT + STOT	ASH46425
C		ASH46426
C	DRAW AGE SEPARATION LINES	ASH46427
	M = 4	ASH46428
	DO 465 K = 1,4	ASH46429
	Y = RISE(M)	ASH46430
	IF (K/2*2-K)455,460,455	ASH46431
455	CALL EPLT (1,XHOLD,Y)	ASH46432
	CALL EPLT (2,-2.0,Y)	ASH46433
	GO TO 465	ASH46434
460	CALL EPLT (1,-2.0,Y)	ASH46435
	CALL EPLT (2,XHOLD,Y)	ASH46436
465	M = M - 1	ASH46437
C		ASH46438
C	ANNOTATE UNITS ON Y	ASH46439

IF (ISC - 5)470,475,475	ASH46440
470 X = -(5.0 * WY + SPX) / SX	ASH46441
GO TO 480	ASH46442
475 X = -(6.0 * WY + SPX) / SX	ASH46443
480 XX = (HY / 2.0) / SY	ASH46444
CALL ECHAR (X,1.0,WY,HY,0.0)	ASH46445
STOT = 0.0	ASH46446
DO 530 K = 1,5	ASH46447
TTOT = (RISE(K) - STOT - 1.0) + 0.501	ASH46448
L = TTOT	ASH46449
IF (L)525,525,485	ASH46450
485 YY = STOT + 1.0 - XX	ASH46451
Y = YY	ASH46452
TTOT = STEP	ASH46453
INC = (STEP + 0.5)	ASH46454
IT = INC	ASH46455
DO 520 M = 1,L	ASH46456
CALL EPLLOT (1,X,Y)	ASH46457
GO TO (490,495,500,505,510), ISC	ASH46458
490 WRITE (PL,30) IT	ASH46459
IT = IT + INC	ASH46460
GO TO 520	ASH46461
495 TMAX = TTOT + 0.0501	ASH46462
WRITE (PL,10) TMAX	ASH46463
GO TO 515	ASH46464
500 TMAX = TTOT + 0.00501	ASH46465
WRITE (PL,15) TMAX	ASH46466
GO TO 515	ASH46467
505 TMAX = TTOT + 0.000501	ASH46468
WRITE (PL,20) TMAX	ASH46469
GO TO 515	ASH46470
510 TMAX = TTOT + 0.0000501	ASH46471
WRITE (PL,25) TMAX	ASH46472
515 TTOT = TTOT + STEP	ASH46473
520 Y = Y + 1.0	ASH46474
525 STOT = RISE(K)	ASH46475
530 CONTINUE	ASH46476
C	ASH46477
C TO ANNOTATE AGE HEADINGS	ASH46478
CALL ECHAR (X,0.0,WY1,HY1,0.0)	ASH46479
XX = 0.0	ASH46480
YY = (HY1 / 2.0) / SY	ASH46481
GO TO (535,535,545), F	ASH46482
535 X = X - (4.0 * WY1 + SPX) / SX	ASH46483
Y = ((RISE(1)-XX)/2.0)+XX - YY	ASH46484
CALL EPLLOT (1,X,Y)	ASH46485
WRITE (PL,60)	ASH46486
XX = RISE(1)	ASH46487
X = X + (2.0*WY1) / SX	ASH46488
DO 540 K = 2,4	ASH46489
Y = ((RISE(K)-XX)/2.0)+XX - YY	ASH46490
CALL EPLLOT (1,X,Y)	ASH46491
WRITE (PL,45) K	ASH46492
XX = RISE(K)	ASH46493
540 CONTINUE	ASH46494
X = X - (2.0*WY1) / SX	ASH46495

Y = ((RISE(5) - XX)/2.0) + XX - YY	ASH46496
CALL EPLOTT (1,X,Y)	ASH46497
WRITE (PL,50)	ASH46498
GO TO 555	ASH46499
C	ASH46500
545 X = X - (2.0 * WY1 + SPX) / SX	ASH46501
DO 550 K = 1,4	ASH46502
M = K - 1	ASH46503
Y = ((RISE(K) - XX) / 2.0) + XX - YY	ASH46504
CALL EPLOTT (1,X,Y)	ASH46505
WRITE (PL,45) M	ASH46506
XX = RISE(K)	ASH46507
550 CONTINUE	ASH46508
X = X - (2.0 * WY1) / SX	ASH46509
Y = ((RISE(5)-XX)/2.0) + XX - YY	ASH46510
CALL EPLOTT (1,X,Y)	ASH46511
WRITE (PL,55)	ASH46512
C	ASH46513
C TO PLOT Y AXIS HEADINGS	ASH46514
555 Y = (22.0 - (30.0*WH)/SY) / 2.0	ASH46515
X = X - (5.0*SPX) / SX	ASH46516
CALL ECHAR (X,Y,WH,HH,THETA)	ASH46517
WRITE (PL,40)	ASH46518
C	ASH46519
C TO PLOT DATA	ASH46520
X = 0.0	ASH46521
DO 590 J = 1,NYRS	ASH46522
A = 0.0	ASH46523
DO 560 K = 1,5	ASH46524
560 A = A + ACATC(J,K)	ASH46525
IF (A - 0.0000501)585,585,565	ASH46526
565 XX = X + 1.0	ASH46527
YY = 0.0	ASH46528
DO 580 K = 1,5	ASH46529
YP1 = YY + (ACATS(J,K))/ STEP	ASH46530
YP2 = YY + ACATC(J,K) / STEP	ASH46531
CALL EPLOTT (-2,X,YY)	ASH46532
CALL EPLOTT (0,X,YP2)	ASH46533
CALL EPLOTT (0,XX,YP2)	ASH46534
CALL EPLOTT (0,XX,YP1)	ASH46535
CALL EPLOTT (0,X,YP1)	ASH46536
CALL EPLOTT (0,XX,YP1)	ASH46537
GO TO (575,575,570), F	ASH46538
570 YP1 = YY + ACATA(J,K) / STEP	ASH46539
CALL EPLOTT (0,XX,YP1)	ASH46540
CALL EPLOTT (0,X,YP1)	ASH46541
CALL EPLOTT (0,XX,YP1)	ASH46542
575 CALL EPLOTT (-1,XX,YY)	ASH46543
YY = RISE(K)	ASH46544
580 CONTINUE	ASH46545
585 X = X + 1.0	ASH46546
590 CONTINUE	ASH46547
C	ASH46548
C TO MOVE PEN POSITION FOR NEXT PLOT	ASH46549
X = XHOLD + 6.0 / SX	ASH46550
CALL EPLOTT (1,X,0.0)	ASH46551

C				ASH46552
C	CHECK FOR HALT INSTRUCTION			ASH46553
	CALL DATSW(1,J)			ASH46554
	GO TO (595,615), J			ASH46555
595	IF (I - NP)600,620,620			ASH46556
600	J = KK * 100			ASH46557
	J = J + (I + 1)			ASH46558
	GO TO (605,610), IGO			ASH46559
605	WRITE (F'1) NYRS,FYEAR,LYEAR,ATST,J			ASH46560
	GO TO 620			ASH46561
610	WRITE (F'1) NYRS,FYEAR,LYEAR,PTST,J			ASH46562
	GO TO 620			ASH46563
C				ASH46564
	615 CONTINUE			ASH46565
	620 CALL EXIT			ASH46566
	END			ASH46567
//	DUP			
*	DELETE		ASH46	
*	STORE	WS UA	ASH46	

```

// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
SUBROUTINE GRID (HOLD,PL)
C
C.....
C GRID CONSTRUCTION FOR ASH46
C
C SUBROUTINE DRAWS AND LABELS X AXIS (SEASONS), DRAWS Y AXIS, AND LABELS
C POPULATION NAME OR AREA CODE.
C.....
C
INTEGER AREA(62),HOLD(8),PL,FYEAR
DIMENSION NAME(29)
COMMON SX,SY,WX,HX,SPY,WX1,HX1,SPX,WC,HC,SPC,FYEAR,NYRS,AX,KK,I,
*IGO,AREA
C
5 FORMAT (I2)
10 FORMAT (A1)
15 FORMAT ('S E A S O N')
C
C X AXIS GRID CONSTRUCTION
CALL SCALE (SX,SY,0.0,0.0)
M = 1
NYL = FYEAR
X = (1.0 - (2.0 * WX) / SX) / 2.0
YY = -(SPY+HX) / SY
CALL ECHAR (0.0,YY,WX,HX,0.0)
20 XX = X
DO 25 L = 1,NYRS,2
CALL EPLT (1,XX,YY)
WRITE (PL,5) NYL
XX = XX + 2.0
25 NYL = NYL + 2
GO TO (30,35), M
30 CALL EGRID (2,AX,0.0,1.0,NYRS)
NYL = FYEAR + 1
YY = 2.0 * YY
M = 2
GO TO 20
35 X = (AX - (11.0 * WX1) / SX) / 2.0
YY = YY - (3.0 * SPY + HX1) / SY
CALL ECHAR (X,YY,WX1,HX1,0.0)
WRITE (PL,15)
C
C Y AXIS CONSTRUCTION
GO TO (40,45), KK
40 YY = 10.2
CALL EGRID (1,0.0,0.0,0.20,50)
GO TO 50

```

GRID

GRID 1  
GRID 2  
GRID 3  
GRID 4  
GRID 5  
GRID 6  
GRID 7  
GRID 8  
GRID 9  
GRID 10  
GRID 11  
GRID 12  
GRID 13  
GRID 14  
GRID 15  
GRID 16  
GRID 17  
GRID 18  
GRID 19  
GRID 20  
GRID 21  
GRID 22  
GRID 23  
GRID 24  
GRID 25  
GRID 26  
GRID 27  
GRID 28  
GRID 29  
GRID 30  
GRID 31  
GRID 32  
GRID 33  
GRID 34  
GRID 35  
GRID 36  
GRID 37  
GRID 38  
GRID 39  
GRID 40  
GRID 41  
GRID 42  
GRID 43  
GRID 44  
GRID 45  
GRID 46  
GRID 47  
GRID 48  
GRID 49  
GRID 50

45 CALL EGRID (1,0.0,0.0,1.0,22)	GRID 51
YY = 22.1	GRID 52
C LABEL POPULATION OR AREA NAME.	GRID 53
50 GO TO (55,65), IGO	GRID 54
55 M = AREA(I)	GRID 55
CALL PUTI (HOLD,6,8,M,0)	GRID 56
XX = (AX - 9.0 * SPC) / 2.0	GRID 57
CALL ECHAR (XX,YY,WC,HC,0.0)	GRID 58
DO 60 M = 1,8	GRID 59
CALL EPLOT (1,XX,YY)	GRID 60
WRITE (PL,10) HOLD(M)	GRID 61
60 XX = XX + SPC	GRID 62
RETURN	GRID 63
65 XX = (AX - 29.0 * SPC) / 2.0	GRID 64
CALL ECHAR (XX,YY,WC,HC,0.0)	GRID 65
READ (4'I) NAME	GRID 66
DO 70 M = 1,29	GRID 67
CALL EPLOT (1,XX,YY)	GRID 68
WRITE (PL,10) NAME(M)	GRID 69
70 XX = XX + SPC	GRID 70
RETURN	GRID 71
END	GRID 72
// DUP	
*DELETE	GRID
*STORE	WS UA GRID



```

// JOB
// FOR
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
C
SUBROUTINE FEET(INCH)
C
C .....
C ROUTINE TO HALT PLOTTING IF PLOTTER PAPER HAS RUN OUT.
C
C INCH IS INCREMENTED BY IADD (THE NUMBER OF INCHES PER PLOT - INCLUDING
C THE SPACE BETWEEN PLOTS) AND TESTED AGAINST AMAX, THE TOTAL NUMBER
C OF FEET AVAILABLE ON THE PLOTTER ROLL. IF INCH BECOMES EQUAL TO
C OR GREATER THAN AMAX A PAUSE 123 IS DISPLAYED IN THE ACCUMULATOR,
C AT WHICH TIME THE PLOTTING PAPER IS TO BE CHANGED. AFTER CHANGING
C THE PAPER PRESS START TO CONTINUE.
C INITIATE THE CALL TO FEET BEFORE PLOTTING ... INITIALLY INCH MUST BE
C SET TO 0 BY THE MAINLINE
C IOCS(TYPEWRITER) MUST BE IN MAINLINE.
C
C .....
C
DATA IADD,AMAX/15,112.0/,IT/1/
INCH = INCH + IADD
A = INCH
A = A / 12.0
IF (A - AMAX)15,5,5
5 WRITE (IT,10)
10 FORMAT (//'CHANGE PLOTTER PAPER - PRESS START'/'** CAUTION, DO NOT
*CHANGE Y POSITION OF PEN **')
PAUSE 123
INCH = IADD
15 RETURN
END
// DUP
*DELETE WS UA FEET
*STORE WS UA FEET
FEET 1
FEET 2
FEET 3
FEET 4
FEET 5
FEET 6
FEET 7
FEET 8
FEET 9
FEET 10
FEET 11
FEET 12
FEET 13
FEET 14
FEET 15
FEET 16
FEET 17
FEET 18
FEET 19
FEET 20
FEET 21
FEET 22
FEET 23
FEET 24
FEET 25
FEET 26
FEET 27
FEET 28
FEET 29
FEET 30
FEET 31

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// JOB
// FOR
*IOCS(2501 READER,1403 PRINTER,TYPEWRITER,DISK)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH47
**ASH47, NATURAL MORTALITY RATES BY POPULATION AND SEASON.
C
C .....
C USE *FILES(100,REFX),(1,PFILE) TO EXECUTE
C
C PROGRAM YIELDS BY POPULATION THE NATURAL MORTALITY RATES FOR AGES
C GREATER THAN THE AGE AT FULL RECRUITMENT (AS SPECIFIED BY CONTROL
C CARD) FOR EACH YEAR AVAILABLE.
C
C INPUT
C -----
C 1) TABLE AND PAGE VALUE CARD
C COLS 1-3 INITIAL TABLE VALUE (INCREMENTS BY POPULATION)
C 4-6 INITIAL PAGE VALUE
C 2) AGE AT FULL RECRUITMENT CONTROLS
C COLS 1-3 POPULATION CODE
C 4 BLANK
C 5 AGE AT FULL RECRUITMENT. E.G. 4 FOR AGE 4+
C ONE CARD PER POPULATION
C 3) DATA OF CATCH AND SPARNERS BY SEASON ON FILE PFILE, AS LOADED BY
C ASH45.
C .....
C INTEGER C,P,T
C INTEGER FYEAR,PTST(24),DUMMY(124),DCODE(24),IRC(24),AGE(16)
C DIMENSION AT(30,10),AS(30,10),AM(30,10),NAME(24,60)
C DIMENSION ATOT(10),HOLD(10),GM(10)
C DATA C,P,T/8,5,1/,NP/24/,RND0F/0.000501/,KI/2/,IRC/24*0/,LAGE/9/
C DATA ATOT,GM/10*0.0,10*0.0/
C
C DEFINE FILE 1(2161,33,U,KI)
C DEFINE FILE 100(13,320,U,KI)
C
C FORMATS
C 5 FORMAT (2I3)
C 10 FORMAT (I3,1X,I1)
C 15 FORMAT (/'NUMBER OF AGE AT FULL RECRUITMENT CARDS HAS EXCEEDED MAASH47
C *XIMUM NUMBER OF POPULATIONS')
C 20 FORMAT (/'POPULATION CODE ',I3,', CANNOT BE FOUND ON MASTER LOOK-
C *UP')
C 25 FORMAT (/'PROGRAM EXPECTS ',I2,', AGE AT RECRUITMENT CARDS'/ I2,'
C *HAVE BEEN READ - EACH POPULATION MUST BE ASSIGNED A VALUE')
C 30 FORMAT ('TABLE ',I3,', NATURAL MORTALITY RATES FOR THE ',60A1,T1ASH47
C *11,'PAGE ',I3/' ',I2X,'(19',I2,'-',I2,' TO 19',I2,'-',I2,')')
C 35 FORMAT ('OSEASON ',8(3X,I1,'+','-'),I1,'+')
C 40 FORMAT (' ')

```

45	FORMAT (' 19',I2,'-',I2,8F8.3)	ASH47 48
50	FORMAT ('0TOTAL',2X,8F8.3)	ASH47 49
55	FORMAT (' MEAN',3X,8F8.3)	ASH47 50
60	FORMAT (' G.MEAN ',8F8.3)	ASH47 51
C		ASH47 52
	IREC(I,J,K) = 90*(J-1) + (I-1)*3 + K+1	ASH47 53
C	READ POPULATION PARAMETERS FROM REF $\bar{X}$	ASH47 54
	READ (100*KI) DUMMY,DCODE	ASH47 55
	READ (100*KI) NAME	ASH47 56
C	READ DATA SERIES CONTROLS	ASH47 57
	READ (1'1) NYRS,FYEAR,LYEAR,PTST	ASH47 58
C	READ TABLE AND PAGE CONTROL CARD	ASH47 59
	READ (C,5) NTAB,IPAGE	ASH47 60
C	READ AGE AT FULL RECRUITMENT CARDS	ASH47 61
	N = 0	ASH47 62
65	READ (C,10) ICODE,I	ASH47 63
	IF (ICODE)100,100,70	ASH47 64
70	IF (N-NP)80,75,75	ASH47 65
75	WRITE (T,15)	ASH47 66
	GO TO 95	ASH47 67
80	DO 90 J = 1,NP	ASH47 68
	IF (DCODE(J)-ICODE)90,85,90	ASH47 69
85	IRC(J) = I	ASH47 70
	N = N+1	ASH47 71
	GO TO 65	ASH47 72
90	CONTINUE	ASH47 73
	WRITE (T,20) ICODE	ASH47 74
95	CALL EXIT	ASH47 75
C		ASH47 76
100	IF (N-NP)105,110,105	ASH47 77
105	WRITE (T,25) NP,N	ASH47 78
	GO TO 95	ASH47 79
C		ASH47 80
110	IYR1 = FYEAR + 1	ASH47 81
	IYR2 = LYEAR - 1	ASH47 82
	N = NYRS - 1	ASH47 83
	AN = N	ASH47 84
	DO 165 I = 1,NP	ASH47 85
	IF (PTST(I))165,165,115	ASH47 86
C	READ DATA (TOTAL AND SPAWNERS) FOR GIVEN POPULATION FROM DISK.	ASH47 87
115	KI = IREC(1,I,2)	ASH47 88
	DO 120 J = 1,NYRS	ASH47 89
	READ (1*KI) (AS(J,K),K=1,10)	ASH47 90
	READ (1*KI) (AT(J,K),K=1,10)	ASH47 91
	KI = KI + 1	ASH47 92
120	CONTINUE	ASH47 93
C		ASH47 94
	NN= IRC(I)+1	ASH47 95
C	CALCULATE NATURAL MORTALITY RATES.	ASH47 96
	DO 130 J = 1,N	ASH47 97
	DO 125 L = NN,LAGE	ASH47 98
	A = (AS(J,L) - AT(J+1,L+1)) / AS(J,L)	ASH47 99
	AM(J,L) = A + RND0F	ASH47100
	ATOT(L) = ATOT(L) + A	ASH47101
	GM(L) = GM(L) + ALOG(A)	ASH47102
125	CONTINUE	ASH47103

130 CONTINUE	ASH47104
C	ASH47105
C TO OUTPUT	ASH47106
L = LAGE-IRC(I)	ASH47107
K = IRC(I)	ASH47108
M = 1	ASH47109
DO 135 J=1,L	ASH47110
AGE(M) = K	ASH47111
K = K + 1	ASH47112
M = M + 1	ASH47113
AGE(M) = K	ASH47114
M = M + 1	ASH47115
135 CONTINUE	ASH47116
L = L * 2	ASH47117
C	ASH47118
I1 = FYEAR	ASH47119
LINE = 55	ASH47120
C	ASH47121
DO 150 J = 1,N	ASH47122
IF (LINE - 50)145,145,140	ASH47123
140 WRITE (P,30) NTAB,(NAME(I,K),K=1,60),IPAGE,FYEAR,IYR1,IYR2,LYEAR	ASH47124
IPAGE = IPAGE + 1	ASH47125
WRITE (P,35) (AGE(K),K=1,L)	ASH47126
WRITE (P,40)	ASH47127
LINE = 5	ASH47128
C	ASH47129
145 I2 = I1 + 1	ASH47130
WRITE (P,45) I1,I2,(AM(J,K),K=NN,LAGE)	ASH47131
I1 = I2	ASH47132
LINE = LINE + 1	ASH47133
150 CONTINUE	ASH47134
DO 155 J = NN,LAGE	ASH47135
HOLD(J) = ATOT(J) + RND0F	ASH47136
ATOT(J) = ATOT(J) / AN + RND0F	ASH47137
155 GM(J) = EXP(GM(J)/AN) + RND0F	ASH47138
WRITE (P,50) (HOLD(J),J=NN,LAGE)	ASH47139
WRITE (P,55) (ATOT(J),J=NN,LAGE)	ASH47140
WRITE (P,60) (GM(J),J=NN,LAGE)	ASH47141
C	ASH47142
DO 160 J =NN,LAGE	ASH47143
ATOT(J) = 0.0	ASH47144
160 GM(J) = 0.0	ASH47145
165 CONTINUE	ASH47146
CALL EXIT	ASH47147
END	ASH47148
// DUP	
*DELETE	ASH47
*STORE	WS UA ASH47

```
// JOB
// DUP
*DFILE UA TPOD 321
// FOR
*IOCS(2501 READER,1403 PRINTER,DISK,TYPEWRITER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH48
**ASH48, CATCH, SPAWNERS AND IMMATURES BY POPULATION.
C
C.....
C
C USE *FILES(100,REFX),(4,TPOD),(1,PFILE) TO EXECUTE
C
C ASH48 TABULATES CATCH, SPAWNERS, IMMATURES AND THE COMBINED TOTAL OVER
C A MAXIMUM OF 30 YEARS DATA BY POPULATION. (UNITS OF MILLIONS OF FISH)
C
C THESE ESTIMATES ARE PRESENTED BY YEAR CLASS AND BY SEASON
C
C AN AGE COMPOSITION BY SEASON PER POPULATION IS ALSO TABULATED, USING
C THE TOTAL NUMBER OF FISH
C
C INPUT
C -----
C 1) TABLE AND PAGE VALUE CONTROL CARD.
C COLS 1-3 INITIAL TABLE VALUE FOR PRINTED OUTPUT 1
C 4-6 INITIAL PAGE VALUE OF ABOVE
C 7-9 INITIAL TABLE VALUE FOR PRINTED OUTPUT 2
C 10-12 INITIAL PAGE OF ABOVE
C 13-15 INITIAL TABLE VALUE FOR PRINTED OUTPUT 3
C 16-18 INITIAL PAGE OF ABOVE
C
C 2) POPULATION PARAMETER CARDS (ONE CARD PER POPULATION)
C COLS 1-3 POPULATION CODE
C 4 BLANK
C 5 AGE AT FULL RECRUITMENT, E.G A 4 PUNCH FOR 4+ AGE
C 6-11 NATURAL MORTALITY RATE FOR 0+ TO 1+ AGES
C 12-17 NMR FOR 1+ TO 2+
C .
C .
C 54-59 NMR FOR 8+ TO 9+
C
C 3) DATA OF CATCH AND SPAWNERS AVAILABLE ON DISK FILE PFILE, AS
C LOADED BY ASH45.
C
C 4) BLANK CARD
C
C PRINTED OUTPUT
C -----
C 1) TABLE OF CATCH, SPAWNERS, IMMATURES AND TOTAL (PLUS A CALCULATED
C TOTAL FROM 5+ TO 9+ FROM NATURAL MORTALITY RATES) BY YEAR CLASS
C FOR EACH POPULATION
C
C 2) TABLE OF CATCH, SPAWNERS, IMMATURES AND TOTAL BY SEASON FOR EACH
```

```
ASH48
ASH48 1
ASH48 2
ASH48 3
ASH48 4
ASH48 5
ASH48 6
ASH48 7
ASH48 8
ASH48 9
ASH48 10
ASH48 11
ASH48 12
ASH48 13
ASH48 14
ASH48 15
ASH48 16
ASH48 17
ASH48 18
ASH48 19
ASH48 20
ASH48 21
ASH48 22
ASH48 23
ASH48 24
ASH48 25
ASH48 26
ASH48 27
ASH48 28
ASH48 29
ASH48 30
ASH48 31
ASH48 32
ASH48 33
ASH48 34
ASH48 35
ASH48 36
ASH48 37
ASH48 38
ASH48 39
ASH48 40
ASH48 41
ASH48 42
ASH48 43
ASH48 44
ASH48 45
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C      POPULATION. ASH48 46
C      ASH48 47
C      3) AGE COMPOSITION BY SEASON PER EACH POPULATION. ASH48 48
C      ASH48 49
C      DISK OUTPUT ASH48 50
C      ----- ASH48 51
C      - DISK FILE TPOP (321 SECTORS) IS LOADED WITH CATCH, SPAWN, ASH48 52
C      IMMATURES AND TOTAL BY SEASON AND POPULATION TO FACILITATE PLOTS ASH48 53
C      BY ASH46 ASH48 54
C      ASH48 55
C      DATA SWITCH OPTIONS ASH48 56
C      ASH48 57
C      1 ON TO BYPASS PRINTED OUTPUT 1 ASH48 58
C      2 ON TO BYPASS PRINTED OUTPUT 2 ASH48 59
C      3 ON TO BYPASS PRINTED OUTPUT 3 ASH48 60
C      ASH48 61
C      SUBROUTINES MOVE, PUT, AND EDIT ARE REQUIRED (FROM I.B.M. COMMERCIAL ASH48 62
C      SUBROUTINE PACKAGE SE 25X) ASH48 63
C      ASH48 64
C      ..... ASH48 65
C      ASH48 66
C      INTEGER C,P,T ASH48 67
C      INTEGER DCODE(24),PAGE1,PAGE2,PAGE3,FYEAR,PTST(24),DUMMY(124) ASH48 68
C      INTEGER OT1(90),OT2(90),OT3(90),OT4(90),OT5(90),HOLD(7) ASH48 69
C      DIMENSION P1(11),P2(11),P3(11),P4(11),ACOMP(10),TA(11) ASH48 70
C      DIMENSION AMR(24,9),IAGE(24),RM(9),AM(30,11),AT(30,11),AC(30,11) ASH48 71
C      DIMENSION AS(30,11),NAME(24,60),CA(11),SA(11),AA(11),MASK(9),A(10) ASH48 72
C      EQUIVALENCE (A(1),P1(1)),(ACOMP(1),P2(1)),(RM(1),P3(1)) ASH48 73
C      EQUIVALENCE (P4(1),TA(1)) ASH48 74
C      DEFINE FILE 1(2161,33,U,KI) ASH48 75
C      DEFINE FILE 4(2881,33,U,KI) ASH48 76
C      DEFINE FILE 100(13,320,U,KI) ASH48 77
C      ASH48 78
C      DATA C,P,T /8,5,1/ ASH48 79
C      DATA NP/24/,AM/330*0.0/,RNDUF/.000501/,KI/2/,SA/11*0.0/,CA/11*0.0/ ASH48 80
C      DATA AA/11*0.0/,MASK/' ',' ',' ',' ',' ',' ',' ',' ',' ',' ' ASH48 81
C      ASH48 82
C      FORMATS ASH48 83
C      5 FORMAT(6I3) ASH48 84
C      10 FORMAT(I3,I2,9F6.0) ASH48 85
C      15 FORMAT (/'NUMBER OF POPULATION PARAMETER CARDS IS INCORRECT/'CHEASH48 86
C      *CK AND RE-EXECUTE PROGRAM') ASH48 87
C      20 FORMAT (/'POPULATION CODE ',I3,', IS INVALID - CORRECT AND REPLACASH48 88
C      *E/'PRESS START') ASH48 89
C      25 FORMAT(/'TURN ON FOLLOWING DATA SWITCHES TO BYPASS ITEMS LISTED/'ASH48 90
C      *'1 CATCH, SPANNERS, IMMATURES AND TOTAL BY YEAR CLASS/'2 CATCH,ASH48 91
C      * SPANNERS, IMMATURES AND TOTAL BY SEASON/'3 AGE COMPOSITION FROMASH48 92
C      * TOTAL BY SEASON') ASH48 93
C      30 FORMAT ('1TABLE ',F5.2,'. MILLIONS OF FISH AT AGE IN THE ',60A1,TASH48 94
C      *I13,'PAGE ',I3) ASH48 95
C      35 FORMAT (' ',14X,'19',I2,'-',I2,' TO 19',I2,'-',I2,'.') ASH48 96
C      40 FORMAT(' ',14X,'19',I2,'-',I2,' TO 19',I2,'-',I2,') (CONTINUED).') ASH48 97
C      45 FORMAT('0',61X,'A G E/' SEASON',9X,10(6X,11,' +'),9X,'TOTAL') ASH48 98
C      50 FORMAT ('019',I2,'-',I2,4X,'CATCH ',10F9.3,F12.3) ASH48 99
C      55 FORMAT (' ',8X,'SPANNERS ',10F9.3,F12.3) ASH48100
C      60 FORMAT (' ',7X,'IMMATURES') ASH48101
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65 FORMAT ('+',17X,10F9.3) ASH48102
70 FORMAT ('+',107X,F12.3) ASH48103
75 FORMAT ('+',17X,90A1) ASH48104
80 FORMAT (' ',11X,'TOTAL ',10F9.3,F12.3) ASH48105
85 FORMAT ('O AVERAGE',4X,'CATCH ',10F9.3,F12.3) ASH48106
90 FORMAT (' ',7X,'IMMATURES ',10F9.3) ASH48107
95 FORMAT('O',61X,'A G E'/' YEAR CLASS',5X,10(6X,11,' +')) ASH48108
100 FORMAT('O19',12,7X,'CATCH ',90A1/' ',8X,'SPAWNERS ',90A1/' ',7X,'IASH48109
    *MMATURES ',90A1/' ',11X,'TOTAL ',90A1/' ',17X,90A1) ASH48110
105 FORMAT ('1',101X,'PAGE ',I3/' TABLE H',I3,'. PERCENT AGE COMPOSITASH48111
    *TION FOR THE ',60A1/' ',14X,'19',12,'-',12,' TO 19',12,'-',12,'.') ASH48112
110 FORMAT ('O',48X,'A G E'/' SEASON',10(7X,11,' +')) ASH48113
115 FORMAT (' ',19',12,'-',12,2X,10F10.3) ASH48114
120 FORMAT ('O AVERAGE ',10F10.3) ASH48115
125 FORMAT (' ',11X,'TOTAL ',10F9.3) ASH48116
130 FORMAT ('1',98X,'PAGE ',I3/' TABLE A.',I3,'. MILLIONS OF FISH ATASH48117
    * AGE IN THE ',60A1) ASH48118
C ASH48119
    IREC(I,J,K) = 90 * (J-1) + (I-1)*3 + K + 1 ASH48120
    JREC(I,J,K) = 120 * (J-1) + (I-1)*4 + K + 1 ASH48121
C ASH48122
C READ POPULATION PARAMETERS FROM FILE REF X ASH48123
    READ (100*KI) DUMMY,DCODE ASH48124
    READ (100*KI) NAME ASH48125
C READ DATA SERIES CONTROLS FROM PFILE ASH48126
    READ (1'1) NYRS,FYEAR,LYEAR,PTST ASH48127
    AN = NYRS ASH48128
C READ TABLE AND PAGE VALUE CARD ASH48129
    READ (C,5) NTAB1,PAGE1,NTAB2,PAGE2,NTAB3,PAGE3 ASH48130
C READ AGE AT RECRUITMENT AND MORTALITY RATE CARDS ASH48131
    WRITE (T,25) ASH48132
    N = 0 ASH48133
135 READ (C,10) J,K,RM ASH48134
    IF (J)160,160,140 ASH48135
140 DO 155 I = 1,NP ASH48136
    IF (J-DCODE(I))155,145,155 ASH48137
145 IAGE(I) = K ASH48138
    N = N + 1 ASH48139
    DO 150 J = 1,9 ASH48140
150 AMR(I,J) = RM(J) ASH48141
    GO TO 135 ASH48142
155 CONTINUE ASH48143
    WRITE (T,20) J ASH48144
    PAUSE 444 ASH48145
    GO TO 135 ASH48146
C ASH48147
160 IF (N- NP)165,170,165 ASH48148
165 WRITE (T,15) ASH48149
    CALL EXIT ASH48150
170 IYR1 = FYEAR + 1 ASH48151
    IYR2 = LYEAR - 1 ASH48152
    CALL DATSW(1,M1) ASH48153
    CALL DATSW(2,M2) ASH48154
    CALL DATSW(3,M3) ASH48155
    TABLE2 = NTAB2 ASH48156
C TO CALCULATE IMMATURES, ACCUMULATE A NEW TOTAL AND STORE ASH48157

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      DO 480 I = 1, NP
      IF (PTST(I)) 480, 480, 175
C READ FROM DISK FILE AND LOCATE IN ARRAYS
175 KI = IREC(1, I, 1)
      DO 180 J = 1, NYRS
      READ (1* KI) (AC(J, K), K = 1, 11)
      READ (1* KI) (AS(J, K), K = 1, 11)
      READ (1* KI) (AT(J, K), K = 1, 11)
180 CONTINUE
      KK = IAGE(I)
C PROCEDURE BEGINS AT AGE OF RECRUITMENT AND CALCULATES BACK TO AGE 0+
C BY YEAR CLASS FOR EACH SEASON
      DO 210 J = 1, NYRS
      K = KK
      N = NYRS - J
185 IF (N) 210, 210, 190
190 IF (K) 210, 210, 195
195 TTOT = AT(N+1, K+1) / (1.0 - AMR(I, K)) - AS(N, K)
      IF (TTOT) 200, 205, 205
200 TTOT = 0.0
205 AT(N, K) = AT(N, K) + TTOT
      AT(N, 11) = AT(N, 11) + TTOT
      AM(N, K) = TTOT
      AM(N, 11) = AM(N, 11) + TTOT
      K = K - 1
      N = N - 1
      GO TO 185
210 CONTINUE
C TO STORE ON FILE TPOP
      KI = JREC(1, I, 1)
      DO 215 J = 1, NYRS
      WRITE (4* KI) (AC(J, K), K = 1, 11)
      WRITE (4* KI) (AS(J, K), K = 1, 11)
      WRITE (4* KI) (AT(J, K), K = 1, 11)
      WRITE (4* KI) (AM(J, K), K = 1, 11)
215 CONTINUE
      LL = NYRS - KK
      PTST(I) = LL
C
C TO PRINT BY SEASON (PRINTED OUTPUT 2)
      GO TO (310, 220), M2
220 LINE = 55
      N = 1
      JJ = 1
      II = FYEAR
      TABL2 = TABL2 + 0.010000501
      DU 285 J = 1, NYRS
      IF (LINE - 50) 245, 245, 225
225 WRITE (P, 30) TABL2, (NAME(I, K), K = 1, 60), PAGE2
      PAGE2 = PAGE2 + 1
      LINE = 6
      GO TO (230, 235), N
230 WRITE (P, 35) FYEAR, IYR1, IYR2, LYEAR
      N = 2
      GO TO 240
235 WRITE (P, 40) FYEAR, IYR1, IYR2, LYEAR

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240	WRITE (P,45) (K,K=0,9)	ASH48214
C		
245	DO 250 K = 1,11	ASH48215
	CA(K) = CA(K) + AC(J,K)	ASH48216
	P1(K) = AC(J,K) + RND0F	ASH48217
	SA(K) = SA(K) + AS(J,K)	ASH48218
	P2(K) = AS(J,K) + RND0F	ASH48219
	AA(K) = AA(K) + AM(J,K)	ASH48220
	P3(K) = AM(J,K) + RND0F	ASH48221
	P4(K) = AT(J,K) + RND0F	ASH48222
250	CONTINUE	ASH48223
C		
	I2 = I1 + 1	ASH48224
	WRITE (P,50) I1,I2,P1	ASH48225
	I1 = I1 + 1	ASH48226
	WRITE (P,55) P2	ASH48227
	WRITE (P,60)	ASH48228
	IF (J-LL)255,255,260	ASH48229
255	WRITE (P,65) (P3(K),K=JJ,KK)	ASH48230
	WRITE (P,70) P3(11)	ASH48231
	GO TO 280	ASH48232
260	IF (J-NYRS)265,280,280	ASH48233
265	DO 270 K = 1,90	ASH48234
270	OT1(K) = 16448	ASH48235
	JJ = (J-LL) + 1	ASH48236
	K = 9*(JJ-1) + 1	ASH48237
	L = K + 8	ASH48238
	DO 275 M = JJ,KK	ASH48239
	REAL = P3(M) * 1000.0	ASH48240
	CALL MOVE (MASK,1,9,OT1,K)	ASH48241
	CALL PUT (HOLD,1,7,REAL,0.0,0)	ASH48242
	CALL EDIT (HOLD,1,7,OT1,K,L)	ASH48243
	K = K + 9	ASH48244
	L = K + 8	ASH48245
275	CONTINUE	ASH48246
	WRITE (P,75) OT1	ASH48247
	WRITE (P,70) P3(11)	ASH48248
280	WRITE (P,80) P4	ASH48249
	LINE = LINE + 5	ASH48250
285	CONTINUE	ASH48251
C	PRINT AVERAGE	ASH48252
	DO 290 K = 1,11	ASH48253
	CA(K) = CA(K) / AN	ASH48254
	TA(K) = CA(K)	ASH48255
	CA(K) = CA(K) + RND0F	ASH48256
	SA(K) = SA(K) / AN	ASH48257
	TA(K) = TA(K) + SA(K)	ASH48258
	SA(K) = SA(K) + RND0F	ASH48259
290	CONTINUE	ASH48260
	REAL = AN - 1.0	ASH48261
	J = KK	ASH48262
	DO 295 K = 1,KK	ASH48263
	AA(J) = AA(J) / REAL	ASH48264
	TA(J) = TA(J) + AA(J)	ASH48265
	AA(J) = AA(J) + RND0F	ASH48266
	REAL = REAL - 1.0	ASH48267
		ASH48268
		ASH48269

295	J = J - 1	ASH48270
	DO 300 K = 1,10	ASH48271
300	TA(K) = TA(K) + RND0F	ASH48272
	WRITE (P,85) CA	ASH48273
	WRITE (P,55) SA	ASH48274
	WRITE (P,90) (AA(J) , J =1, KK)	ASH48275
	WRITE (P,125) (TA(J),J=1,10)	ASH48276
C		ASH48277
	DO 305 J = 1,11	ASH48278
	CA(J) = 0.0	ASH48279
	SA(J) = 0.0	ASH48280
305	AA(J) = 0.0	ASH48281
C		ASH48282
310	GO TO (420,315), M1	ASH48283
C		ASH48284
C	TO PRINT BY YEAR CLASS (PRINTED OUTPUT 1)	ASH48285
315	LINE = 55	ASH48286
	N = 1	ASH48287
	I1 = FYEAR	ASH48288
	DO 415 J = 1,LL	ASH48289
	IF (LINE - 50)340,340,320	ASH48290
320	WRITE (P,130) PAGE1,NTAB1,(NAME(I,K),K=1,60)	ASH48291
	PAGE1 = PAGE1 + 1	ASH48292
	LINE = 6	ASH48293
	GO TO (325,330),N	ASH48294
325	WRITE (P,35) FYEAR,IYR1,IYR2,LYEAR	ASH48295
	N = 2	ASH48296
	GO TO 335	ASH48297
330	WRITE (P,40) FYEAR,IYR1,IYR2,LYEAR	ASH48298
335	WRITE (P,95) (K,K=0,9)	ASH48299
C		ASH48300
340	K = J	ASH48301
	DO 395 L = 1,10	ASH48302
	L1 = 9*(L-1) + 1	ASH48303
	L2 = L1 + 8	ASH48304
	REAL = AC(K,L) * 1000.0	ASH48305
	CALL MOVE (MASK,1,9,0T1,L1)	ASH48306
	CALL PUT (HOLD,1,7,REAL,0.501,0)	ASH48307
	CALL EDIT (HOLD,1,7,0T1,L1,L2)	ASH48308
	REAL = AS(K,L) * 1000.0	ASH48309
	CALL MOVE (MASK,1,9,0T2,L1)	ASH48310
	CALL PUT (HOLD,1,7,REAL,0.501,0)	ASH48311
	CALL EDIT(HOLD,1,7,0T2,L1,L2)	ASH48312
	IF (L - KK)345,345,350	ASH48313
345	REAL = AM(K,L) * 1000.0	ASH48314
	CALL MOVE (MASK,1,9,0T3,L1)	ASH48315
	CALL PUT (HOLD,1,7,REAL,0.501,0)	ASH48316
	CALL EDIT (HOLD,1,7,0T3,L1,L2)	ASH48317
	GO TO 360	ASH48318
350	DO 355 JJ = L1,L2	ASH48319
355	DT3(JJ) = 16448	ASH48320
360	REAL = AT(K,L) * 1000.0	ASH48321
	CALL MOVE (MASK,1,9,0T4,L1)	ASH48322
	CALL PUT (HOLD,1,7,REAL,0.501,0)	ASH48323
	CALL EDIT (HOLD,1,7,0T4,L1,L2)	ASH48324
	IF (L - (KK+2))380,365,365	ASH48325

365	REAL = AS(K-1,L-1) - AMR(I,L-1)*AS(K-1,L-1)	ASH48326
	IF (REAL)370,375,375	ASH48327
370	REAL = 0.0	ASH48328
375	REAL = REAL * 1000.0	ASH48329
	CALL MOVE (MASK,1,9,OT5,L1)	ASH48330
	CALL PUT (HOLD,1,7,REAL,0.501,0)	ASH48331
	CALL EDIT (HOLD,1,7,OT5,L1,L2)	ASH48332
	GO TO 390	ASH48333
380	DO 385 JJ = L1,L2	ASH48334
385	UT5(JJ) = 16448	ASH48335
C		ASH48336
390	K = K + 1	ASH48337
	IF (K - NYRS)395,395,400	ASH48338
395	CONTINUE	ASH48339
	GO TO 410	ASH48340
C		ASH48341
400	K = L + 1	ASH48342
	K = 9 * (K-1) + 1	ASH48343
	DO 405 L = K,90	ASH48344
	OT1(L) = 16448	ASH48345
	OT2(L) = 16448	ASH48346
	OT3(L) = 16448	ASH48347
	OT4(L) = 16448	ASH48348
405	OT5(L) = 16448	ASH48349
C		ASH48350
410	WRITE (P,100) I1,OT1,OT2,OT3,OT4,OT5	ASH48351
	I1 = I1 + 1	ASH48352
	LINE = LINE + 6	ASH48353
415	CONTINUE	ASH48354
	NTAB1 = NTAB1 + 1	ASH48355
C		ASH48356
420	GO TO (470,425),M3	ASH48357
C		ASH48358
C	AGE COMPOSITION BY SEASON (PRINTED OUTPUT 3)	ASH48359
425	I1 = FYEAR	ASH48360
	WRITE (P,105) PAGE3,NTAB3,(NAME(I,J),J=1,60),FYEAR,IYR1,IYR2,LYEAR	ASH48361
	WRITE (P,110) (J,J=0,9)	ASH48362
	PAGE3 = PAGE3 + 1	ASH48363
	NTAB3 = NTAB3 + 1	ASH48364
	DO 430 J = 1,10	ASH48365
430	A(J) = 0.0	ASH48366
	DO 460 J = 1,LL	ASH48367
	IF (AT(J,11))435,435,445	ASH48368
435	DO 440 K = 1,10	ASH48369
440	ACOMP(K) = 0.0	ASH48370
	GO TO 455	ASH48371
445	DO 450 K = 1,10	ASH48372
	REAL = (AT(J,K) / AT(J,11)) * 100.0	ASH48373
	A(K) = A(K) + REAL	ASH48374
450	ACOMP(K) = REAL + RND0F	ASH48375
455	I2 = I1 + 1	ASH48376
	WRITE (P,115) I1,I2,ACOMP	ASH48377
	I1 = I1 + 1	ASH48378
460	CONTINUE	ASH48379
	REAL = LL	ASH48380
	DO 465 J = 1,10	ASH48381

```
465 A(J) = A(J) / REAL + RND0F
WRITE (P,120) A
C
470 DO 475 J = 1,NYRS
DO 475 K = 1,11
475 AM(J,K) = 0.0
C
480 CONTINUE
C
WRITE (4*1) NYRS,FYEAR,LYEAR,PTST
CALL EXIT
END
// DUP
*DELETE ASH48
*STORE WS UA ASH48
```

ASH48382  
ASH48383  
ASH48384  
ASH48385  
ASH48386  
ASH48387  
ASH48388  
ASH48389  
ASH48390  
ASH48391  
ASH48392  
ASH48393



```

// JOB
// FOR
*IOCS(1403 PRINTER,2501 READER,TYPEWRITER,DISK)
*ONE WORD INTEGERS
*LIST ALL
*NAME ASH50
**ASH50, LISTS LOCALITY CODES BY AREA.
C
C
C *****
C SIX SECTORS OF DISK WORKING STORAGE REQUIRED.
C
C INPUT 1 CARD WITH DATE (COLS.1-8), SORT (COL.10), AGENCY (COL.12) AND
C ----- INITIAL PAGE NUMBER OF PRINT OUT (COLS14-16)
C (AGENCY = 1 FOR FRB AND 2 FOR MEB)
C 2 CARD WITH NAME (COLS.1-5), Namer(COLS.6-10), NAME2, (COLS.11-21)
C NAME3(COLS.25-28)
C E.G. NAMEE - 'FRB'
C Namer - 'MEB'
C NAME2 - 'CODE FOR AR'
C NAME3 - ',LOC'
C 3 LOCALITY CARDS SORTED BY 1 AREA AND NAME (SORT 1) OR
C (CARD TYPE I11) 2 AREA AND NUMBER (SORT 2) OR
C 3 NAME (SORT 3)
C 4 BLANK CARD TO INDICATE DATA TERMINATION.
C
C PRINTED OUTPUT - LISTING OF LOCALITY CODES BY AREA AND NAME OR NUMBER
C ----- FOR FRB CODINGS OR MEB CODING.
C FRB - FISHERIES RESEARCH BOARD
C MEB - MARKET ECONOMICS BRANCH.
C
C SUBROUTINE LTRAN REQUIRED
C
C *****
C
C INTEGER AREA,TYPE,AREA1,PLOC,FIRST,SORT,DATE(8),PAGE,C,P,TAB(3)
C INTEGER TAR(3),TAR1(3),TARS(3),TLOC(3),TLOC1(3),TLOCS(3),AGNCY,T
C DIMENSION NAME(27),NAME1(27),NAMEE(5),Namer(5),NAME2(11),NAME3(4)
C DIMENSION NAMES(27)
C COMMON NAMES,NAMEE,Namer,NAME2,NAME3,TARS,TLOCS,TYPE,AGNCY,NCHG
C DATA C,P,T/8,5,1/,FIRST,TAB/1,2,1,3/,IBLNK,IE,IR/' ','E','R'/'
C
C DEFINE FILE 1(51,35,U,K1)
C
C FORMATS
5 FORMAT (5A1,5A1,11A1,3X,4A1)
10 FORMAT (I3,1X,1A1,1X,I3,1X,27A1,1X,3A1,1X,3A1)
15 FORMAT (8A1,2I2,I4)
20 FORMAT (1H,11X,'ALPHABETICAL LISTING (REVISED ',8A1,')')
25 FORMAT (1H,7X,'ALPHABETICAL LISTING BY AREA (REVISED ',8A1,')')
30 FORMAT (1H,8X,'NUMERICAL LISTING BY AREA (REVISED ',8A1,')')
35 FORMAT (1H1,'TABLE',I2,'. FRB LOCALITY CODINGS FOR B.C. HERRING
*ATA.',6X,'PAGE',I3)
40 FORMAT (1H0,'CODE',5X,'LOCALITY',17X,'CODE',5X,'LOCALITY')
45 FORMAT (1H0,'CODE',5X,'LOCALITY')

```

```
50 FORMAT (1H1,'TABLE',I2,'. MEB LOCALITY CODINGS FOR B.C. HERRING DASH50 49
  *ATA.',6X,'PAGE',I3) ASH50 50
55 FORMAT (1H0,'AREA LOC.',5X,'PLACE NAME',12X,'AREA LOC.',5X,'PLACE ASH50 51
  *NAME') ASH50 52
60 FORMAT (1H0,'AREA LOC.',5X,'PLACE NAME') ASH50 53
65 FORMAT (1H ,I3,2X,27A1) ASH50 54
70 FORMAT (1H ,3X,'AREA ',I3) ASH50 55
75 FORMAT (1H ,' ') ASH50 56
80 FORMAT (1H ,I3,I4,2X,27A1) ASH50 57
85 FORMAT (1H+,34X,I3,2X,27A1) ASH50 58
90 FORMAT (1H+,37X,'AREA ',I3) ASH50 59
95 FORMAT (1H+,38X,I3,I4,2X,27A1) ASH50 60
100 FORMAT ('AREA ZERO. CORRECT ERROR OR TURN ON DATSW 1 TO FINISH PRASH50 61
  *CESSING') ASH50 62
C ASH50 63
  NCHG = 2 ASH50 64
  READ (C,15) DATE, SORT, AGENCY, PAGE ASH50 65
  READ (C,5) NAMEE, NAME1, NAME2, NAME3 ASH50 66
C ASH50 67
C READ AND STORE ONE COLUMN ASH50 68
105 READ (C,10) AREA, TYPE, LOC, NAME, TAR, TLOC ASH50 69
  IF (AREA)120,110,120 ASH50 70
110 WRITE (T,100) ASH50 71
  PAUSE 1 ASH50 72
  CALL DATSW (1,M1) ASH50 73
  GO TO (115,105),M1 ASH50 74
115 LPL1 = 1 ASH50 75
  LPL2 = K1-1 ASH50 76
  GO TO 505 ASH50 77
120 IF (FIRST)130,130,125 ASH50 78
125 FIRST = 0 ASH50 79
  IAREA = AREA ASH50 80
  ISRT3 = NAME(1) ASH50 81
  GO TO 465 ASH50 82
130 GO TO (145,145,135),SORT ASH50 83
135 IF (ISRT3-NAME(1))140,180,140 ASH50 84
140 ISRT3 = NAME(1) ASH50 85
  GO TO 155 ASH50 86
145 IF (AREA-IAREA)150,180,150 ASH50 87
150 IAREA = AREA ASH50 88
155 PLOC = 998 ASH50 89
  DD 165 I = 1,6 ASH50 90
  IF (K1-50)160,160,185 ASH50 91
160 WRITE (1*K1) AREA, PLOC, NAME, TAR, TLOC ASH50 92
165 CONTINUE ASH50 93
  GO TO (170,170,180),SORT ASH50 94
170 IF (K1-46)175,175,155 ASH50 95
175 PLOC = 999 ASH50 96
  WRITE (1*K1) AREA, PLOC, NAME, TAR, TLOC ASH50 97
  PLOC = 998 ASH50 98
  WRITE (1*K1) AREA, PLOC, NAME, TAR, TLOC ASH50 99
180 IF (K1-50)190,190,185 ASH50100
185 GO TO (190,190,415), SORT ASH50101
190 IF (TLOC(3) - IBLNK)195,235,195 ASH50102
195 GO TO (200,215,200), SORT ASH50103
200 GO TO (205,210), AGENCY ASH50104
```

205	IF (TYPE-IE)235,105,235	ASH50105
210	IF (TYPE-IR)235,105,235	ASH50106
215	DO 220 I = 1,3	ASH50107
	TARS(I) = TAR(I)	ASH50108
220	TLOCS(I) = TLOC(I)	ASH50109
	CALL LTRAN	ASH50110
	GO TO (225,235),NCHG	ASH50111
225	DO 230 I = 1,27	ASH50112
230	NAME(I) = NAMES(I)	ASH50113
235	IF (K1 - 50)240,240,375	ASH50114
240	WRITE (1*K1) AREA,LOC,NAME,TAR,TLOC	ASH50115
	GO TO 105	ASH50116
C		ASH50117
C	READ SECOND COLUMN AND PRINT BOTH COLUMNS	ASH50118
245	READ (C,10) AREA,TYPE,LOC,NAME,TAR,TLOC	ASH50119
	GO TO (250,265,250), SORT	ASH50120
250	GO TO (255,260), AGNCY	ASH50121
255	IF (TYPE-IE)290,245,290	ASH50122
260	IF (TYPE-IR)290,245,290	ASH50123
265	IF (TLOC(3) - IBLNK)270,290,270	ASH50124
270	DO 275 I = 1,3	ASH50125
	TARS(I) = TAR(I)	ASH50126
275	TLOCS(I) = TLOC(I)	ASH50127
	CALL LTRAN	ASH50128
	GO TO (280,290),NCHG	ASH50129
280	DO 285 I = 1,27	ASH50130
285	NAME(I) = NAMES(I)	ASH50131
290	IF (AREA)305,295,305	ASH50132
295	WRITE (T,100)	ASH50133
	PAUSE 1	ASH50134
	CALL DATSW (1,M1)	ASH50135
	GO TO (300,245),M1	ASH50136
300	LPL1 = LINE + 1	ASH50137
	LPL2 = 50	ASH50138
	GO TO 540	ASH50139
305	GO TO (325,325,310), SORT	ASH50140
310	IF (LINE - 1)415,415,315	ASH50141
315	IF (ISRT3 - NAME(1))320,415,320	ASH50142
320	ISRT3 = NAME(1)	ASH50143
	GO TO 335	ASH50144
325	IF (IAREA-AREA)330,415,330	ASH50145
330	IAREA = AREA	ASH50146
C		ASH50147
C	BLANK IN SECOND COLUMN	ASH50148
335	DO 370 J = 1,6	ASH50149
	IF (LINE-50)340,340,465	ASH50150
340	READ (1'LINE) AREA1,LOC1,NAME1,TAR1,TLOC1	ASH50151
	IF (LOC1-998)355,345,350	ASH50152
345	WRITE (P,75)	ASH50153
	GO TO 370	ASH50154
350	WRITE (P,70) AREA1	ASH50155
	GO TO 370	ASH50156
355	GO TO (360,360,365),SORT	ASH50157
360	WRITE (P,65) LOC1,NAME1	ASH50158
	GO TO 370	ASH50159
365	WRITE (P,80) AREA1,LOC1,NAME1	ASH50160

370	LINE = LINE + 1	ASH50161
	GO TO (375,375,415),SORT	ASH50162
C		ASH50163
C	AREA IN SECOND COLUMN	ASH50164
375	LBAR = 1	ASH50165
	IF (LINE-50)380,380,465	ASH50166
380	IF (LINE-46)385,385,335	ASH50167
385	READ (1'LINE) AREA1,LOC1,NAME1,TAR1,TLOC1	ASH50168
	IF (LOC1-998)400,390,395	ASH50169
390	WRITE (P,75)	ASH50170
	GO TO (405,410),LBAR	ASH50171
395	WRITE (P,70) AREA1	ASH50172
	GO TO (405,410),LBAR	ASH50173
400	WRITE (P,65) LOC1,NAME1	ASH50174
	GO TO (405,410), LBAR	ASH50175
405	WRITE (P,90) AREA	ASH50176
	LINE = LINE + 1	ASH50177
	LBAR = 2	ASH50178
	GO TO 385	ASH50179
410	LINE = LINE + 1	ASH50180
	LBAR = 1	ASH50181
C		ASH50182
C	LOCALITY IN SECOND COLUMN	ASH50183
415	IF (LINE-50)420,420,465	ASH50184
420	READ (1'LINE) AREA1,LOC1,NAME1,TAR1,TLOC1	ASH50185
	IF (LOC1-998)435,425,430	ASH50186
425	WRITE (P,75)	ASH50187
	GO TO (445,445,455), SORT	ASH50188
430	WRITE (P,70) AREA1	ASH50189
	GO TO (445,445,455), SORT	ASH50190
435	GO TO (440,440,450),SORT	ASH50191
440	WRITE (P,65) LOC1,NAME1	ASH50192
445	WRITE (P,85) LOC,NAME	ASH50193
	GO TO 460	ASH50194
450	WRITE (P,80) AREA1,LOC1,NAME1	ASH50195
455	WRITE (P,95) AREA,LOC,NAME	ASH50196
460	LINE = LINE + 1	ASH50197
	GO TO 245	ASH50198
C		ASH50199
C	PAGE HEADING FOR NEW PAGE	ASH50200
465	K1=1	ASH50201
	LINE = 1	ASH50202
	GO TO (475,470), AGNCY	ASH50203
470	WRITE (P,50) TAB(SORT),PAGE	ASH50204
	GO TO 480	ASH50205
475	WRITE (P,35) TAB(SORT),PAGE	ASH50206
480	PAGE = PAGE + 1	ASH50207
	GO TO (485,490,495),SORT	ASH50208
485	WRITE (P,25) DATE	ASH50209
	GO TO 500	ASH50210
490	WRITE (P,30) DATE	ASH50211
	GO TO 500	ASH50212
495	WRITE (P,20) DATE	ASH50213
	WRITE (P,55)	ASH50214
	WRITE (P,75)	ASH50215
	GO TO 180	ASH50216

500 WRITE (P,40)	ASH50217
GO TO 170	ASH50218
C	ASH50219
C LAST PAGE	ASH50220
505 PAGE = PAGE - 1	ASH50221
GO TO (510,515), AGNCY	ASH50222
510 WRITE (P,35) TAB(SORT),PAGE	ASH50223
GO TO 520	ASH50224
515 WRITE (P,50) TAB(SORT),PAGE	ASH50225
520 GO TO (525,530,535),SORT	ASH50226
525 WRITE (P,25) DATE	ASH50227
WRITE (P,45)	ASH50228
GO TO 540	ASH50229
530 WRITE (P,30) DATE	ASH50230
WRITE (P,45)	ASH50231
GO TO 540	ASH50232
535 WRITE (P,20) DATE	ASH50233
WRITE (P,60)	ASH50234
540 DD 570 J = LPL1,LPL2	ASH50235
READ (1*J) AREA1,LOC1,NAME1,TAR1,TLOC1	ASH50236
IF (LOC1-999)555,545,550	ASH50237
545 WRITE (P,75)	ASH50238
GO TO 570	ASH50239
550 WRITE (P,70) AREA1	ASH50240
GO TO 570	ASH50241
555 GO TO (560,560,565),SORT	ASH50242
560 WRITE (P,65) LOC1,NAME1	ASH50243
GO TO 570	ASH50244
565 WRITE (P,80) AREA1,LOC1,NAME1	ASH50245
570 CONTINUE	ASH50246
CALL EXIT	ASH50247
END	ASH50248
// DUP	
*DELETE	ASH50
*STORE WS UA	ASH50

```
// JOB
// FOR
*ONE WORD INTEGERS
*LIST ALL
C
SUBROUTINE LTRAN
C
C SUBSTITUTES TRANSFER AREA AND LOCALITY CODINGS FOR NAME IN ASH50
C
INTEGER NAMES(27),NAMEE(5),NAMER(5),NAME2(11),NAME3(4),TARS(3)
INTEGER TLOCS(3),TYPE,AGNCY
COMMON NAMES,NAMEE,NAMER,NAME2,NAME3,TARS,TLOCS,TYPE,AGNCY,NCHG
DATA IE,IR,IRPAR/'E','R',' '//'
C
GO TO (5,20),AGNCY
5 IF (TYPE - IE)55,10,55
10 DO 15 I = 1,5
15 NAMES(I) = NAMER(I)
GO TO 35
20 IF (TYPE - IR)55,25,55
25 DO 30 I = 1,5
30 NAMES(I) = NAMEE(I)
35 DO 40 I = 1,11
J = I + 5
40 NAMES(J) = NAME2(I)
DO 45 I = 1,3
J = I + 16
K = I + 23
NAMES(J) = TARS(I)
45 NAMES(K) = TLOCS(I)
DO 50 I = 1,4
J = I + 19
50 NAMES(J) = NAME3(I)
NAMES(27) = IRPAR
NCHG = 1
GO TO 60
55 NCHG = 2
60 RETURN
END
// DUP
*DELETE
*STORE WS UA
```

LTRAN 1  
LTRAN 2  
LTRAN 3  
LTRAN 4  
LTRAN 5  
LTRAN 6  
LTRAN 7  
LTRAN 8  
LTRAN 9  
LTRAN 10  
LTRAN 11  
LTRAN 12  
LTRAN 13  
LTRAN 14  
LTRAN 15  
LTRAN 16  
LTRAN 17  
LTRAN 18  
LTRAN 19  
LTRAN 20  
LTRAN 21  
LTRAN 22  
LTRAN 23  
LTRAN 24  
LTRAN 25  
LTRAN 26  
LTRAN 27  
LTRAN 28  
LTRAN 29  
LTRAN 30  
LTRAN 31  
LTRAN 32  
LTRAN 33  
LTRAN 34  
LTRAN 35



```

// JOB
// DUP
*DFILE          UA AFILE 621
// FOR
*IOCS(1442 PUNCH,2501 READER,1403 PRINTER,DISK,TYPEWRITER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
**NAME ASH53
**ASH53 - CATCH, SPAWNERS, AND TOTAL AT AGE BY AREA AND SEASON.
C
C
C *****
C USE *FILES(100,REFX),(1,AFILE) TO EXECUTE.
C
C ASH53 TABULATES BY AREA, MILLIONS OF FISH IN CATCH, SPAWN AND
C TOTAL (CATCH + SPAWN) OVER A MAXIMUM OF 30 YEARS DATA.
C
C AN AGE COMPOSITION IS ALSO COMPILED BY AREA FOR EACH SEASON,
C USING THE 'TOTAL' MILLIONS OF FISH.
C
C MILLIONS OF FISH IN CATCH , SPAWN AND TOTAL ARE LOADED ON FILE AFILE.
C ASH46 MAY THEN BE EXECUTED TO GRAPH THIS DATA. DISK FILE AFILE
C OCCUPIES 621 SECTORS OF USERS AREA.
C
C COMPLETE DATA PER AREA IS EXPECTED BETWEEN THE YEARS SPECIFIED ON
C CONTROL CARD. (A MISSING SEASON(S) WITHIN AN AREA IN WHICH DATA IS
C OTHERWISE PRESENT WILL BE SET TO ZEROES)
C
C INPUT
C -----
C 1 CONTROL CARD
C COLS. 1-2 YEAR CODE OF THE FIRST YEAR OF FIRST SEASON OF
C DATA SERIES. E.G. '50' FOR SEASON 1950-51
C -3 BLANK
C 4-5 YEAR CODE OF THE LAST YEAR OF LAST SEASON OF
C DATA SERIES. E.G. '69' FOR 1968-69
C IN THE ABOVE EXAMPLES, THE DATA SERIES WOULD RUN
C FROM 1950-51 TO 1968-69.
C -6 1 PUNCH FOR SMA SPAWN CARDS TO BE INPUTTED.
C 2 PUNCH FOR SEA SPAWN CARDS TO BE INPUTTED.
C 7-9 INITIAL TABLE VALUE OF PRINTED OUTPUT 1
C 10-12 INITIAL PAGE NUMBER OF ABOVE
C 13-15 INITIAL TABLE VALUE OF PRINTED OUTPUT 2
C 16-18 INITIAL PAGE NUMBER OF ABOVE
C 19-21 INITIAL TABLE VALUE FOR PRINTED OUTPUT 3
C 22-24 INITIAL PAGE VALUE FOR ABOVE
C 2 CARD CODE FA FROM ASH41 (CATCH AT AGE BY AREA AND SEASON)
C 3 CARD CODE SMA OR SEA FROM ASH43 (SPAWNERS AT AGE BY AREA AND
C SEASON)
C THE ORDER OF 2 AND 3 NOT MATTERING
C 4 BLANK CARD AT END OF DATA TO INDICATE DATA TERMINATION.
C
C PRINTED OUTPUT
C -----

```

```

ASH53 1
ASH53 2
ASH53 3
ASH53 4
ASH53 5
ASH53 6
ASH53 7
ASH53 8
ASH53 9
ASH53 10
ASH53 11
ASH53 12
ASH53 13
ASH53 14
ASH53 15
ASH53 16
ASH53 17
ASH53 18
ASH53 19
ASH53 20
ASH53 21
ASH53 22
ASH53 23
ASH53 24
ASH53 25
ASH53 26
ASH53 27
ASH53 28
ASH53 29
ASH53 30
ASH53 31
ASH53 32
ASH53 33
ASH53 34
ASH53 35
ASH53 36
ASH53 37
ASH53 38
ASH53 39
ASH53 40
ASH53 41
ASH53 42
ASH53 43
ASH53 44
ASH53 45

```

```
C 1 LISTS CATCH, SPAWNERS AND TOTAL IN MILLIONS OF FISH AT EACH AGE ASH53 46
C PER SEASON BY AREA. ASH53 47
C ** TURN ON DATA SWITCH 1 TO BYPASS. ASH53 48
C ASH53 49
C 2 AGE COMPOSITION BY SEASON PER EACH AREA. ASH53 50
C ** TURN ON DATA SWITCH 2 TO BYPASS. ASH53 51
C ASH53 52
C 3 SUMMARY OF CATCH PLUS SPAWNERS (IN MILLIONS OF FISH) FOR ALL ASH53 53
C SEASONS WITHIN AN AREA. (WILL PRINT ONLY IF OUTPUT 1 IS ASH53 54
C SPECIFIED) ASH53 55
C ASH53 56
C ALL VALUES ARE ROUNDED TO THE NEAREST 0.0005 ASH53 57
C ASH53 58
C CARD OUTPUT ASH53 59
C ----- ASH53 60
C ** TURN ON DATA SWITCH 3 TO BYPASS. ASH53 61
C 1 COLUMNS ASH53 62
C 1-3 SEASON CODE ASH53 63
C 4-7 AREA CODE ASH53 64
C 8-14 TOTAL POPULATION AT AGE 0+ ASH53 65
C 15-21 (MILLION OF FISH) 1+ ASH53 66
C 22-28 2+ ASH53 67
C 29-35 3+ ASH53 68
C 36-42 4+ ASH53 69
C 43-49 5+ ASH53 70
C 50-56 6+ ASH53 71
C 57-63 7+ ASH53 72
C 64-70 8+ ASH53 73
C 71-77 9+ ASH53 74
C 78-80 CARD CODE 'TYA, (NOT USED IN CURRENT SYSTEM) ASH53 75
C ASH53 76
C ASH53 77
C SORTING DATA CARD INPUT BY YEAR WITHIN AREA WILL INCREASE INPUT SPEED. ASH53 78
C WITHIN EACH YEAR PLACE THE CATCH CARD FIRST, FOLLOWED BY THE SPAWN. ASH53 79
C ASH53 80
C ..... ASH53 81
C ASH53 82
C INTEGER C,P,H,T ASH53 83
C INTEGER AREA(62),PAGE,PAGE1,PAGE2,PAGE3,FYEAR,DEC1,Y1,SEASN ASH53 84
C INTEGER TYPE,TYPE1,TYPE2,TYPE3,TEST(30,62),ATST(62) ASH53 85
C DIMENSION FISH(10),FPOP(10),POPC(10),POPS(10),TPOP(10) ASH53 86
C DIMENSION ACOMP(10),ZERO(11),CA(10),SP(10) ASH53 87
C EQUIVALENCE (FISH(1),ACOMP(1)),(IA,J) ASH53 88
C DATA TYPE1/'FA'/ ASH53 89
C DATA TYPE2/'MA'/ ASH53 90
C DATA TYPE3/'EA'/ ASH53 91
C DATA C,P,H,T / 8,5,9,1 / ASH53 92
C DATA ATST/62*0/,ZERO/11*0.0/,TEST/1860*0/,RND0F/0.000501/,NA/62/ ASH53 93
C ASH53 94
C DEFINE FILE 1(5582,33,U,KI) ASH53 95
C DEFINE FILE 100(13,320,U,IK) ASH53 96
C ASH53 97
C FORMATS ASH53 98
C 5 FORMAT(2I1,1X,I2,I1,6I3) ASH53 99
C 10 FORMAT (I3,I4,10F7.3,1X,A2) ASH53100
C 15 FORMAT (/'FIRST YEAR OF SEASON READ ',I3,', IS NOT WITHIN BOUNDS ASH53101
```

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*OF THE YEARS SPECIFIED ON CONTROL CARD') ASH53102
20 FORMAT ('0',38X,'SPAWNER DATA FROM FISH/MI. SPAWN AND MILES OF SPAASHS3103
  *WN') ASH53104
25 FORMAT ('0',38X,'SPAWNER DATA FROM SQ. YARDS OF SPAWN AND FECUNDITASH53105
  *Y') ASH53106
30 FORMAT('0',61X,'A G E/' SEASON',15X,'0 +',6X,'1 +',6X,'2 +',6X,'3ASH53107
  * +',6X,'4 +',6X,'5 +',6X,'6 +',6X,'7 +',6X,'8 +',6X,'9 +',9X,'TOTAASH53108
  *L') ASH53109
35 FORMAT('+',51X,'19',I2,'-',I2,' TO 19',I2,'-',I2,' (CONTINUED).')ASH53110
40 FORMAT ('+',51X,'19',I2,'-',I2,' TO 19',I2,'-',I2,'.') ASH53111
45 FORMAT ('019',I2,'-',I2,4X,'CATCH ',10F9.3,F12.3/' ',8X,'SPAWNERS ASH53112
  *',10F9.3,F12.3/' ',11X,'TOTAL ',10F9.3,F12.3) ASH53113
50 FORMAT ('0',48X,'A G E/' SEASON',8X,'0 +',7X,'1 +',7X,'2 +',7X,'3ASH53114
  * +',7X,'4 +',7X,'5 +',7X,'6 +',7X,'7 +',7X,'8 +',7X,'9 +/') ASH53115
55 FORMAT (' 19',I2,'-',I2,2X,10F10.3) ASH53116
60 FORMAT ('1TABLE ',F5.2,'. MILLIONS OF FISH AT AGE IN AREA ',I3,'ASH53117
  *',I13,'PAGE ',I3) ASH53118
65 FORMAT('1TABLE G',I3,'. PERCENT AGE COMPOSITION FOR AREA ',I3,'ASH53119
  * 19',I2,'-',I2,' TO 19',I2,'-',I2,'.',30X,'PAGE ',I3) ASH53120
70 FORMAT('1TABLE ',F5.2,'. MILLIONS OF FISH AT AGE IN AREA ',I3,'ASH53121
  *19',I2,'-',I2,' TO 19',I2,'-',I2,'.',32X,'PAGE ',I3) ASH53122
75 FORMAT ('0',29X,'SPAWNER DATA FROM FISH/MI. SPAWN AND MILES OF SPAASHS3123
  *WN') ASH53124
80 FORMAT ('0',29X,'SPAWNER DATA FROM SQ. YARDS OF SPAWN AND FECUNDITASH53125
  *Y') ASH53126
85 FORMAT ('0',52X,'A G E/' SEASON',10(6X,I1,' +'),9X,'TOTAL'/'') ASH53127
90 FORMAT (' 19',I2,'-',I2,1X,10F9.3,F12.3) ASH53128
95 FORMAT ('O AVERAGE ',10F9.3,F12.3) ASH53129
100 FORMAT (I3,I4,10F7.3,'TYA') ASH53130
105 FORMAT (' ') ASH53131
110 FORMAT (///TURN ON FOLLOWING DATA SWITCHES TO BYPASS ITEMS LISTED.ASH53132
  *///PRINT PUNCH '/' 1',13X,'MILLIONS OF FISH (CATCH, SPAWNERASH53133
  *S, AND TOTAL) BY SEASON AND AREA '/' 2',13X,'AGE COMPOSITIONASH53134
  * BY SEASON AND AREA '/8X,'3',7X,'TOTAL FISH (MILLIONS) AT AGEASH53135
  * BY SEASON AND AREA') ASH53136
115 FORMAT (/'CARD TYPE ',A3,' IS NOT A CORRECT INPUT CARD TYPE'/'') ASH53137
120 FORMAT (/'POP. ',I3,' IS INCORRECT') ASH53138
125 FORMAT (///CORRECT ERROR AND REPLACE DATA CARD') ASH53139
130 FORMAT('O AVERAGE',4X,'CATCH ',10F9.3,F12.3/' ',8X,'SPAWNERS ',10F9ASH53140
  *',3,F12.3/' ',11X,'TOTAL ',10F9.3,F12.3) ASH53141
135 FORMAT ('O AVERAGE',2X,10F10.3) ASH53142
140 FORMAT ('0',19X,'(ADJUSTED FOR SPAWNERS ESTIMATED FROM FISH/MI. SPASH53143
  *AWN AND MILES OF SPAWN') ASH53144
145 FORMAT ('0',19X,'(ADJUSTED FOR SPAWNERS ESTIMATED FROM SQ. YARDS OASH53145
  *F SPAWN AND FECUNDITY)') ASH53146
  ASH53147
C STATEMENT FUNCTION IREC CALCULATES FILE RECORD NUMBER OF AFILE, GIVEN ASH53148
C THE AREA J, THE YEAR I AND K EQUAL TO 1 FOR CATCH, K=2 FOR SPAWNERS, ASH53149
C AND K=3 FOR TOTAL (CATCH + SPAWNERS).. ASH53150
C THE FIRST TWO RECORDS OF AFILE ARE USED FOR STORING THE NUMBER OF YEARASH53151
C S OF DATA (NYRS), THE FIRST YEAR (FYEAR) AND THE LAST YEAR (LYEAR) OF ASH53152
C THE DATA SERIES, AND AS WELL DATA PRESENT FLAGS FOR EACH AREA (ATST) ASH53153
  IREC(I,J,K) = 90*(J-1) + (I-1)*3+K + 2 ASH53154
  WRITE (T,110) ASH53155
C READ IN FIRST AND LAST YEARS OF SERIES AND TABLE AND PAGE VALUES ASH53157
  READ(C,5) DEC1,Y1,LYEAR,I,NTAB1,PAGE1,NTAB2,PAGE2,NTAB3,PAGE3 ASH53158

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FYEAR = DECI * 10 + Y1	ASH53159
NYRS=LYEAR-FYEAR	ASH53160
AN = NYRS	ASH53161
NYEAR = LYEAR - 1	ASH53162
IYR1 = FYEAR + 1	ASH53163
IYR2 = LYEAR - 1	ASH53164
C TO READ IN CROSS REFERENCE TABLES FROM REF3	ASH53165
READ (100,1) AREA	ASH53166
C READ IN MAIN DATA	ASH53167
KT=1	ASH53168
GO TO (155,150),1	ASH53169
150 TYPE2 = TYPE3	ASH53170
KT = 2	ASH53171
155 READ (C,10) SEASN,IA,FISH,TYPE	ASH53172
IF (SEASN )210,210,160	ASH53173
160 IYR = SEASN / 10	ASH53174
IF ((FYEAR - IYR) *0.10*((IYR - NYEAR)))165,170,170	ASH53175
165 WRITE (T,15) SEASN	ASH53176
WRITE (T,125)	ASH53177
PAUSE 666	ASH53178
GO TO 155	ASH53179
C	ASH53180
170 IYR = IYR - FYEAR + 1	ASH53181
DO 205 I = 1,NA	ASH53182
IF (IA - AREA(I))205,175,205	ASH53183
175 IF (TYPE-TYPE1)180,190,180	ASH53184
180 IF (TYPE-TYPE2)185,195,185	ASH53185
185 WRITE (T,115) TYPE	ASH53186
WRITE (T,125)	ASH53187
PAUSE 1	ASH53188
GO TO 155	ASH53189
C	ASH53190
190 L = 1	ASH53191
TEST(IYR,I) = TEST(IYR,I) + 1	ASH53192
GO TO 200	ASH53193
195 L=2	ASH53194
TEST(IYR,I) = TEST(IYR,I) + 2	ASH53195
200 K=IREC (IYR,I,L)	ASH53196
WRITE(1,K) FISH	ASH53197
ATST(I) = 1	ASH53198
GO TO 155	ASH53199
205 CONTINUE	ASH53200
WRITE (T,120) IA	ASH53201
WRITE (T,125)	ASH53202
PAUSE 2	ASH53203
GO TO 155	ASH53204
C	ASH53205
C PRINTED OUTPUT 1	ASH53206
C	ASH53207
210 CALL DATSW (1,M1)	ASH53208
PAGE = PAGE1	ASH53209
TABLE = NTAB1 + 0.01	ASH53210
DO 335 I = 1,NA	ASH53211
IF (ATST(I))335,335,215	ASH53212
215 DO 220 J = 1,10	ASH53213
CA(J) = 0.0	ASH53214

220	SP(J) = 0.0	ASH53215
	LINE = 55	ASH53216
	II = 1	ASH53217
	DO 320 J = 1,NYRS	ASH53218
	II = J + (FYEAR-1)	ASH53219
	I2 = II + 1	ASH53220
	STOT = 0.0	ASH53221
	CTOT = 0.0	ASH53222
	IF (TEST(J,II))225,225,235	ASH53223
225	DO 230 L = 1,10	ASH53224
	POPC(L) = 0.0	ASH53225
	POPS(L) = 0.0	ASH53226
230	TPOP(L) = 0.0	ASH53227
	TTOT = 0.0	ASH53228
	K = IREC(J,1,1)	ASH53229
	WRITE (1'K) POPC,CTOT,POPS,STOT,TPOP,TTOT	ASH53230
	GO TO 275	ASH53231
235	M = TEST(J,II)	ASH53232
	K = IREC(J,1,1)	ASH53233
	GO TO (240,250,260), M	ASH53234
240	READ (1'K) FISH	ASH53235
	DO 245 L = 1,10	ASH53236
	CTOT = CTOT + FISH(L)	ASH53237
	POPC(L) = FISH(L) + RND0F	ASH53238
	TPOP(L) = POPC(L)	ASH53239
	CA(L) = CA(L) + FISH(L)	ASH53240
245	POPS(L) = ZERO(L)	ASH53241
	WRITE (1'K) FISH,CTOT	ASH53242
	K = K + 1	ASH53243
	WRITE (1'K) ZERO	ASH53244
	K = K + 1	ASH53245
	WRITE (1'K) FISH,CTOT	ASH53246
	CTOT = CTOT + RND0F	ASH53247
	TTOT = CTOT	ASH53248
	GO TO 275	ASH53249
C		ASH53250
250	WRITE (1'K) ZERO	ASH53251
	K = K + 1	ASH53252
	READ (1'K) FISH	ASH53253
	DO 255 L = 1,10	ASH53254
	STOT = STOT + FISH(L)	ASH53255
	POPS(L) = FISH(L) + RND0F	ASH53256
	TPOP(L) = POPS(L)	ASH53257
	SP(L) = SP(L) + FISH(L)	ASH53258
255	POPC(L) = ZERO(L)	ASH53259
	WRITE (1'K) FISH,STOT	ASH53260
	K = K + 1	ASH53261
	WRITE (1'K) FISH,STOT	ASH53262
	STOT = STOT + RND0F	ASH53263
	TTOT = STOT	ASH53264
	GO TO 275	ASH53265
C		ASH53266
260	READ (1'K) FISH	ASH53267
	DO 265 L = 1,10	ASH53268
	CTOT = CTOT + FISH(L)	ASH53269
	POPC(L) = FISH(L) + RND0F	ASH53270



CA(L) = CA(L) + FISH(L)	ASH53271
265 TPOP(L) = FISH(L)	ASH53272
WRITE(1,K) FISH,CTOT	ASH53273
C	ASH53274
K = K + 1	ASH53275
READ (1,K) FISH	ASH53276
DO 270 L=1,10	ASH53277
STOT = STOT + FISH(L)	ASH53278
PUPS(L) = FISH(L) + RND0F	ASH53279
FPOP(L) = TPOP(L) + FISH(L)	ASH53280
SP(L) = SP(L) + FISH(L)	ASH53281
270 TPOP(L) = FPOP(L) + RND0F	ASH53282
TTOT = CTOT + STOT	ASH53283
WRITE(1,K) FISH,STOT	ASH53284
K = K + 1	ASH53285
WRITE (1,K) FPOP,TTOT	ASH53286
CTOT = CTOT + RND0F	ASH53287
STOT = STOT + RND0F	ASH53288
TTOT = TTOT + RND0F	ASH53289
275 GO TO (320,280) , M1	ASH53290
C	ASH53291
280 IF (LINE - 50)315,315,285	ASH53292
285 WRITE (P,60) TABLE,AREA(I),PAGE	ASH53293
PAGE = PAGE + 1	ASH53294
LINE = 6	ASH53295
GO TO(295,290),II	ASH53296
290 WRITE (P,35) FYEAR,IYR1,IYR2,LYEAR	ASH53297
GO TO 310	ASH53298
295 LINE = LINE + 1	ASH53299
WRITE (P,40) FYEAR,IYR1,IYR2,LYEAR	ASH53300
II=2	ASH53301
GO TO (300,305),KT	ASH53302
300 WRITE (P,20)	ASH53303
GO TO 310	ASH53304
305 WRITE (P,25)	ASH53305
310 WRITE (P,30)	ASH53306
315 WRITE (P,45) I1,I2,POPC,CTOT,POPS,STOT,TPOP,TTOT	ASH53307
LINE = LINE + 4	ASH53308
320 CONTINUE	ASH53309
GO TO (335,325) , M1	ASH53310
325 TABLE = TABLE + 0.01000005	ASH53311
CTOT = 0.0	ASH53312
STOT = 0.0	ASH53313
DO 330 L = 1,10	ASH53314
CTOT = CTOT + CA(L)	ASH53315
STOT = STOT + SP(L)	ASH53316
TPOP(L) = (CA(L) + SP(L)) / AN + RND0F	ASH53317
CA(L) = CA(L) / AN + RND0F	ASH53318
330 SP(L) = SP(L) / AN + RND0F	ASH53319
TTOT = (CTOT + STOT) / AN + RND0F	ASH53320
CTOT = CTOT / AN + RND0F	ASH53321
STOT = STOT / AN + RND0F	ASH53322
WRITE (P,130) CA,CTOT,SP,STOT,TPOP,TTOT	ASH53323
335 CONTINUE	ASH53324
C	ASH53325
C TO PRINT AGE COMPOSITION BY SEASON AND AREA (PRINTED OUTPUT 2)	ASH53326



CALL DATSW (2,1)	ASH53327
GO TO (410,340), I	ASH53328
340 PAGE = PAGE2	ASH53329
DO 405 I = 1,NA	ASH53330
IF (ATST(I))405,405,345	ASH53331
345 WRITE (P,65) NTAB2,AREA(I),FYEAR,IYR1,IYR2,LYEAR,PAGE	ASH53332
GO TO (350,355), KT	ASH53333
350 WRITE (P,140)	ASH53334
GO TO 360	ASH53335
355 WRITE (P,145)	ASH53336
360 WRITE (P,50)	ASH53337
NYEAR = FYEAR	ASH53338
DO 365 J = 1,10	ASH53339
365 TPOP(J) = 0.0	ASH53340
DO 395 J = 1,NYRS	ASH53341
IT = NYEAR + 1	ASH53342
IF (TEST(J,I))370,370,380	ASH53343
370 DO 375 K = 1,10	ASH53344
375 ACOMP(K) = 0.0	ASH53345
GO TO 390	ASH53346
380 K = IREC(J,I,3)	ASH53347
READ (I,K) FPOP,TTOT	ASH53348
DO 385 K = 1,10	ASH53349
CTOT = (FPOP(K) / TTOT) * 100.0	ASH53350
TPOP(K) = TPOP(K) + CTOT	ASH53351
385 ACOMP(K) = CTOT + RND0F	ASH53352
390 WRITE (P,55) NYEAR,IT,ACOMP	ASH53353
395 NYEAR = NYEAR + 1	ASH53354
PAGE = PAGE + 1	ASH53355
NTAB2 = NTAB2 + 1	ASH53356
DO 400 J = 1,10	ASH53357
400 TPOP(J) = TPOP(J) / AN + RND0F	ASH53358
WRITE (P,135) TPOP	ASH53359
405 CONTINUE	ASH53360
C	ASH53361
C TOTAL MILLIONS OF FISH SUMMARY TABLE (PRINTED OUTPUT 3)	ASH53362
410 CALL DATSW (1,1)	ASH53363
GO TO (475,415), I	ASH53364
C	ASH53365
415 PAGE = PAGE3	ASH53366
TABLE = NTAB3	ASH53367
DO 470 I = 1,NA	ASH53368
IF (ATST(I))470,470,420	ASH53369
420 TABLE = TABLE + 0.01000005	ASH53370
WRITE (P,70) TABLE,AREA(I),FYEAR,IYR1,IYR2,LYEAR,PAGE	ASH53371
PAGE = PAGE + 1	ASH53372
GO TO (425,430), KT	ASH53373
425 WRITE (P,75)	ASH53374
GO TO 435	ASH53375
430 WRITE (P,80)	ASH53376
435 WRITE (P,85) (J,J=0,9)	ASH53377
C	ASH53378
DO 440 J = 1,10	ASH53379
440 CA(J) = 0.0	ASH53380
CTOT = 0.0	ASH53381
C	ASH53382

DO 460 J = 1,NYRS	ASH53383
I1 = J + (FYEAR - 1)	ASH53384
I2 = I1 + 1	ASH53385
IF (TEST(J,I))445,445,450	ASH53386
445 WRITE (P,90) I1,I2,ZERO	ASH53387
GO TO 460	ASH53388
450 K = IREC(J,I,3)	ASH53389
READ (I,K) TPOP,TTOT	ASH53390
CTOT = CTOT + TTOT	ASH53391
DU 455 K = 1,10	ASH53392
CA(K) = CA(K) + TPOP(K)	ASH53393
455 TPOP(K) = TPOP(K) + RND0F	ASH53394
TTOT = TTOT + RND0F	ASH53395
WRITE (P,90) I1,I2,TPOP,TTOT	ASH53396
460 CONTINUE	ASH53397
C	ASH53398
C COMPUTE AVERAGE	ASH53399
CTOT = CTOT / AN + RND0F	ASH53400
DD 465 J = 1,10	ASH53401
465 CA(J) = CA(J) / AN + RND0F	ASH53402
WRITE (P,95) CA,CTOT	ASH53403
C	ASH53404
470 CONTINUE	ASH53405
C	ASH53406
C CARD OUTPUT 1	ASH53407
C	ASH53408
475 CALL DATSW (3,I)	ASH53409
GO TO (535,480),I	ASH53410
480 IT = Y1 + 1	ASH53411
NYEAR = FYEAR	ASH53412
DD 530 I = 1,NYRS	ASH53413
IF (IT - 10)490,485,490	ASH53414
485 IT = 0	ASH53415
490 SEASN = (NYEAR*10) + IT	ASH53416
DD 525 J = 1,NA	ASH53417
IF (ATST(J))525,525,495	ASH53418
495 IF (TEST(I,J))500,500,510	ASH53419
500 DD 505 K = 1,10	ASH53420
505 TPOP(K) = 0.0	ASH53421
GO TO 520	ASH53422
510 K = IREC(I,J,3)	ASH53423
READ (I,K) TPOP	ASH53424
DD 515 K = 1,10	ASH53425
515 TPOP(K) = TPOP(K) + RND0F	ASH53426
520 WRITE (H,100) SEASN,AREA(J),TPOP	ASH53427
525 CONTINUE	ASH53428
IT=IT+1	ASH53429
NYEAR=NYEAR+1	ASH53430
530 CONTINUE	ASH53431
WRITE (H,105)	ASH53432
535 WRITE (I'1) NYRS,FYEAR,LYEAR,ATST	ASH53433
CALL EXIT	ASH53434
END	ASH53435
// DUP	
*DELETE	ASH53
*STORE WS UA	ASH53

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// JOB
// FOR
*IDCS(1403 PRINTER,2501 READER,1442 PUNCH,DISK,TYPEWRITER)
*ONE WORD INTEGERS
*EXTENDED PRECISION
*LIST ALL
*NAME ASH54
**ASH54, FISH PER TON BY SAMPLE AND AREA.
C
C .....ASH54 1
C .....ASH54 2
C .....ASH54 3
C USE *FILES(5,WEEKF) TO EXECUTE. ASH54 4
C .....ASH54 5
C 54 SECTORS DISK WORKING STORAGE REQUIRED. ASH54 6
C .....ASH54 7
C OUTPUT (FISH / TON IS IN UNITS OF THOUSANDS OF FISH PER TON) ASH54 8
C .....ASH54 9
C A) PRINT-OUT OF FISH PER TON BY SAMPLE (DATA SWITCH 2 ON TO BYPASS)ASH54 10
C .....ASH54 11
C B) PRINT-OUT OF AVERAGE FISH PER TON BY WEEK FOR AREAS 010 TO 066 ASH54 12
C .....ASH54 13
C C) B) FOR AREAS 067 TO 140 ASH54 14
C .....ASH54 15
C D) B) FOR AREAS 150 TO 290 ASH54 16
C .....ASH54 17
C E) PUNCH OUTPUT OF FISH PER TON BY WEEK AND AREA. (DATA SWITCH ONE ASH54 18
C ON TO BYPASS) - CARD CODE W - USED AS INPUT TO ASH41 ASH54 19
C INPUT ASH54 20
C ----- ASH54 21
C 1) CONTROL CARD ASH54 22
C COLS 1-3 SEASON TO BE PROCESSED ASH54 23
C 4-6 TABLE VALUE FOR OUTPUT A ASH54 24
C 7-9 INITIAL PAGE VALUE FOR ABOVE ASH54 25
C 10-12 TABLE VALUE FOR OUTPUT B ASH54 26
C 13-15 INITIAL PAGE VALUE FOR B ASH54 27
C 16-18 TABLE VALUE FOR OUTPUT C ASH54 28
C 19-21 INITIAL PAGE VALUE FOR C ASH54 29
C 22-24 TABLE VALUE FOR OUTPUT D ASH54 30
C 25-27 INITIAL PAGE VALUE FOR D ASH54 31
C .....ASH54 32
C PROGRAM WILL INCREMENT PAGE VALUES IF VALUES READ ARE ZERO. ASH54 33
C .....ASH54 34
C 2) DATA - CARD CODE H - 10 FISH PER CARD SAMPLING DATA SORTED BY ASH54 35
C SAMPLE NUMBER (SAME INPUT MAY BE USED AS FOR ASH37, ASH54 36
C INCLUDING CARD CODE S,AS PROGRAM SCREENS OUT ALL CARDS ASH54 37
C BUT CODE H) ASH54 38
C .....ASH54 39
C 3) BLANK CARD TO INDICATE DATA TERMINATION ASH54 40
C .....ASH54 41
C SUBROUTINES MOVE, PUT, EDIT (ALL FROM I.R.M. COMMERCIAL SUB. PACKAGE ASH54 42
C SE-25X) AND WKND ARE REQUIRED. ASH54 43
C .....ASH54 44
C AREA CODE 79 IS CHANGED TO AREA CODE 71. ASH54 45
C .....ASH54 46
C .....ASH54 47

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105 IDEC1 = IDEC	ASH54104
110 ISEAS = IDEC * 100 + IYR1 * 10 + IYR2	ASH54105
C TO READ DATA	ASH54106
C	ASH54107
C	ASH54108
115 LSAMP = JSAMP	ASH54109
READ (C,10) JSEAS,JSAMP,JAREA,MON,JDAY,JWT,NOF,JUNIT,JTYPE	ASH54110
IF (JSEAS)235,235,120	ASH54111
120 IF (JSEAS - ISEAS)125,130,125	ASH54112
125 WRITE (T,15) JSEAS,ISEAS	ASH54113
PAUSE 1	ASH54114
GO TO 115	ASH54115
130 IF (JTYPE - ITYPE)115,135,115	ASH54116
135 IF (JWT)115,115,140	ASH54117
140 IF (JAREA - 79)150,145,150	ASH54118
145 JAREA = 71	ASH54119
150 CALL WKND (IDEC,IYR1,MON,JDAY,JWK)	ASH54120
C WKND CONVERTS MONTH AND DAY INTO WEEK	ASH54121
C	ASH54122
C	ASH54123
DO 155 I = 1,51	ASH54124
IF (IREF(I) - JAREA)155,160,155	ASH54125
155 CONTINUE	ASH54126
WRITE (T,20) JAREA	ASH54127
GO TO 565	ASH54128
160 IWK(JWK) = 1	ASH54129
C TO CHECK FOR SAME SAMPLE	ASH54130
C	ASH54131
IF (INIT)165,200,165	ASH54132
165 IF (LSAMP - JSAMP)200,170,200	ASH54133
170 NOF = NOF + KNOF	ASH54134
IF (JUNIT - KUNIT)175,190,175	ASH54135
175 GO TO (180,185), KUNIT	ASH54136
180 JWT = JWT + IFIX(FLOAT(KJWT) * .022046223)	ASH54137
GO TO 195	ASH54138
185 JWT = JWT + IFIX(FLOAT(KJWT) / .022046223)	ASH54139
GO TO 195	ASH54140
190 JWT = JWT + KJWT	ASH54141
195 XSFPT = SFPT	ASH54142
200 IF (JUNIT - 1)210,205,210	ASH54143
C WEIGHTS IN GRAMS	ASH54144
C 1 GRAM = 0.0022046 POUNDS	ASH54145
C	ASH54146
C	ASH54147
205 SFPT = (FLOAT(NOF)/(FLOAT(JWT)*0.0022046223))*2.0	ASH54148
GO TO 215	ASH54149
C WEIGHTS IN TENTHS OF POUNDS	ASH54150
C	ASH54151
C	ASH54152
210 SFPT = (FLOAT(NOF) / FLOAT(JWT)) * 20.0	ASH54153
C TO CALCULATE THOUSANDS OF FISH PER TON	ASH54154
C	ASH54155
215 READ (1,JWK) FPT	ASH54156
FPT(I,1) = FPT(I,1) + SFPT	ASH54157
FPT(I,2) = FPT(I,2) + 1.0	ASH54158
IF (LSAMP - JSAMP)225,220,225	ASH54159



220	FPT(I,1) = FPT(I,1) - XSFPT	ASH54160
	FPT(I,2) = FPT(I,2) - 1.0	ASH54161
225	WRITE (1'JWK) FPT	ASH54162
C		ASH54163
C	PRINT FISH PER TON BY SAMPLE	ASH54164
	IF (INIT)235,230,235	ASH54165
230	INIT = 1	ASH54166
	KAREA = JAREA	ASH54167
	MAREA = 998	ASH54168
	KWK = JWK	ASH54169
	MWK = 99	ASH54170
	GO TO (360,350),M2	ASH54171
235	GO TO (360,240),M2	ASH54172
240	IF (JAREA - KAREA)255,245,255	ASH54173
245	IF (JWK - KWK)255,250,255	ASH54174
250	IF (ICOL - 8)355,255,255	ASH54175
255	IF (KAREA - MAREA)260,275,260	ASH54176
260	IF (INIA - 1)270,265,270	ASH54177
265	INIA = 2	ASH54178
	IF (NAREA - KAREA)270,280,270	ASH54179
270	JFOR = 1	ASH54180
	GO TO 290	ASH54181
275	IF (KWK - MWK)280,285,280	ASH54182
280	JFOR = 2	ASH54183
	GO TO 290	ASH54184
285	JFOR = 3	ASH54185
290	IF (LINE1 - 50)300,295,295	ASH54186
295	WRITE (P,65) NTAB4,IDEC,IYR1,IDEC1,IYR2,PAGE4	ASH54187
	PAGE4 = PAGE4 + 1	ASH54188
	LINE1 = 0	ASH54189
	JFOR = 1	ASH54190
300	LINE1 = LINE1 + 1	ASH54191
	DO 305 I = 1,ICOL	ASH54192
305	CFPT(I) = CFPT(I) + .00501	ASH54193
	GO TO (310,315,320),JFOR	ASH54194
310	WRITE (P,70) KAREA,KWK,(KSAMP(J),CFPT(J),J=1,ICOL)	ASH54195
	GO TO 325	ASH54196
315	WRITE (P,75) KWK,(KSAMP(J),CFPT(J),J=1,ICOL)	ASH54197
	GO TO 325	ASH54198
320	WRITE (P,80) (KSAMP(J),CFPT(J),J=1,ICOL)	ASH54199
325	IF (ICOL - 8)330,340,330	ASH54200
330	IF (INIA)340,335,340	ASH54201
335	MAREA = 997	ASH54202
	MWK = 99	ASH54203
	NAREA = KAREA	ASH54204
	INIA = 1	ASH54205
	GO TO 345	ASH54206
340	MAREA = KAREA	ASH54207
	MWK = KWK	ASH54208
345	KAREA = JAREA	ASH54209
	KWK = JWK	ASH54210
350	ICOL = 0	ASH54211
355	ICOL = ICOL + 1	ASH54212
	KSAMP(ICOL) = JSAMP	ASH54213
	CFPT(ICOL) = SFPT	ASH54214
	KUNIT = JUNIT	ASH54215



	XSFPT = SFPT	ASH54216
	KNOF = NOF	ASH54217
	KJMT = JMT	ASH54218
	360 IF (JSEAS)115,365,115	ASH54219
C	TO FIND AVERAGE FISH/TON BY WEEK AND AREA AND PRINT	ASH54220
C		ASH54221
	365 IF (PAGE1)375,370,375	ASH54222
	370 PAGE1 = PAGE4	ASH54223
	375 DU 395 I = 1,54	ASH54224
	IF (IWK(I))395,395,380	ASH54225
	380 READ (1'I) FPT	ASH54226
	DO 390 J = 1,51	ASH54227
	IF (FPT(J,2) - 0.5)390,390,385	ASH54228
	385 FPT(J,1) = FPT(J,1) / FPT(J,2) *100.0	ASH54229
	390 CONTINUE	ASH54230
	WRITE (1'I) FPT	ASH54231
	395 CONTINUE	ASH54232
		ASH54233
C		ASH54234
C	TO PRINT AREAS 10 TO 66 BY WEEK	ASH54235
	DO 435 I = 1,54	ASH54236
	IF (IWK(I))435,435,400	ASH54237
	400 READ (1'I) FPT	ASH54238
	IF (LINE - 46)410,410,405	ASH54239
	405 WRITE (P,25) NTAB1,IDECL,IYR1,IDECL,IYR2,PAGE1	ASH54240
	WRITE (P,30) (IREF(K),K=1,17)	ASH54241
	WRITE (P,35)	ASH54242
	PAGE1 = PAGE1 + 1	ASH54243
	LINE = 4	ASH54244
	410 DO 415 J = 1,119	ASH54245
	IPRN(J) = IBLNK	ASH54246
	415 CONTINUE	ASH54247
	DO 430 J = 1,17	ASH54248
	K = (J-1) * 7 + 1	ASH54249
	L = K + 6	ASH54250
	IF (FPT(J,2) - 0.5)420,420,425	ASH54251
	420 M = K + 4	ASH54252
	IPRN(M) = IPRD	ASH54253
	M = M + 1	ASH54254
	IPRN(M) = IPRD	ASH54255
	GO TO 430	ASH54256
	425 CALL MOVE(MASK,1,7,IPRN,K)	ASH54257
	CALL PUT (HOLD,1,6,FPT(J,1),0.501,0)	ASH54258
	CALL EDIT (HOLD,1,6,IPRN,K,L)	ASH54259
	430 CONTINUE	ASH54260
	WRITE (P,40) I	ASH54261
	WRITE (P,45) IPRN	ASH54262
	LINE = LINE + 1	ASH54263
	435 CONTINUE	ASH54264
		ASH54265
C		ASH54266
	LINE = 55	ASH54267
	IF (PAGE2)445,440,445	ASH54268
	440 PAGE2 = PAGE1	ASH54269
C		ASH54270
C	TO PRINT AREAS 067 TO 140	ASH54271
	445 DO 485 I = 1,54	

	IF (IWK(I))485,485,450	ASH54272
450	READ (1'I) FPT	ASH54273
	IF (LINE - 46)460,460,455	ASH54274
455	WRITE (P,50) NTAB2, IDEC, IYR1, IDEC1, IYR2, PAGE2	ASH54275
	WRITE (P,30) (IREF(K), K = 18,34)	ASH54276
	WRITE (P,35)	ASH54277
	LINE = 4	ASH54278
	PAGE2 = PAGE2 + 1	ASH54279
460	DO 465 J = 1,119	ASH54280
	IPRN(J) = IBLNK	ASH54281
465	CONTINUE	ASH54282
	DO 480 J = 1,17	ASH54283
	JJ = J + 17	ASH54284
	K = (J-1) * 7 + 1	ASH54285
	L = K + 6	ASH54286
	IF (FPT(JJ,2) - 0.5)470,470,475	ASH54287
470	M = K + 4	ASH54288
	IPRN(M) = IPRD	ASH54289
	M = M + 1	ASH54290
	IPRN(M) = IPRD	ASH54291
	GO TO 480	ASH54292
475	CALL MOVE(MASK,1,7,IPRN,K)	ASH54293
	CALL PUT (HOLD,1,6,FPT(JJ,1),0.501,0)	ASH54294
	CALL EDIT (HOLD,1,6,IPRN,K,L)	ASH54295
480	CONTINUE	ASH54296
	WRITE (P,40) I	ASH54297
	WRITE (P,45) IPRN	ASH54298
	LINE = LINE + 1	ASH54299
485	CONTINUE	ASH54300
C		ASH54301
	LINE = 55	ASH54302
	IF (PAGE3)495,490,495	ASH54303
490	PAGE3 = PAGE2	ASH54304
C		ASH54305
C	TO PRINT AREAS 150 TO 290	ASH54306
495	DO 535 I = 1,54	ASH54307
	IF (IWK(I))535,535,500	ASH54308
500	READ (1'I) FPT	ASH54309
	IF (LINE - 46)510,510,505	ASH54310
505	WRITE (P,55) NTAB3, IDEC, IYR1, IDEC1, IYR2, PAGE3	ASH54311
	WRITE (P,30) (IREF(K), K=35,51)	ASH54312
	WRITE (P,35)	ASH54313
	LINE = 4	ASH54314
	PAGE3 = PAGE3 + 1	ASH54315
510	DO 515 J = 1,119	ASH54316
	IPRN(J) = IBLNK	ASH54317
515	CONTINUE	ASH54318
	DO 530 J = 1,17	ASH54319
	JJ = J + 34	ASH54320
	K = (J-1) * 7 + 1	ASH54321
	L = K + 6	ASH54322
	IF (FPT(JJ,2) - 0.5)520,520,525	ASH54323
520	M = K + 4	ASH54324
	IPRN(M) = IPRD	ASH54325
	M = M + 1	ASH54326
	IPRN(M) = IPRD	ASH54327

GO TO 530	ASH54328
525 CALL MOVE (MASK,1,7,IPRN,K)	ASH54329
CALL PUT (HOLD,1,6,FPT(JJ,1),0.501,0)	ASH54330
CALL EDIT (HOLD,1,6,IPRN,K,L)	ASH54331
530 CONTINUE	ASH54332
WRITE (P,40) I	ASH54333
WRITE (P,45) IPRN	ASH54334
LINE = LINE + 1	ASH54335
535 CONTINUE	ASH54336
C	ASH54337
C TO PUNCH THOUSANDS OF FISH PER TON BY WEEK AND AREA	ASH54338
GO TO (565,540),M1	ASH54339
540 DD 560 I = 1,54	ASH54340
IF (IWK(I))560,560,545	ASH54341
545 READ (I,I) FPT	ASH54342
DU 555 J = 1,51	ASH54343
IF (FPT(J,2) - 0.5)555,555,550	ASH54344
550 FPT(J,1) = FPT(J,1) / 100.0 + 0.00501	ASH54345
WRITE (PH,60) ISCAS,IREF(J),I,FPT(J,1)	ASH54346
555 CONTINUE	ASH54347
560 CONTINUE	ASH54348
WRITE (PH,35)	ASH54349
565 CALL EXIT	ASH54350
END	ASH54351
// DUP	
*DELETE	ASH54
*STORE WS UA	ASH54

```

// JOB
// FOR
*IOCS(2501 READER,1403 PRINTER,TYPEWRITER)
*ONE WORD INTEGERS
*LIST ALL
*NAME ASH55
C
C
C.....
C
C PROGRAM TO LIST MILLIONS OF FISH AT AGE AND AGE COMPOSITION BY AREA
C AND POPULATION FOR ALL SEASONS INPUTTED. (CATCH DATA)
C
C OUTPUT (PRINTED LISTING BY SEASON WITHIN FOLLOWING)
C
C -----
C A) MILLIONS OF FISH AT AGE BY AREA
C B) MILLIONS OF FISH AT AGE BY POPULATION
C C) AGE COMPOSITION BY AREA
C D) AGE COMPOSITION BY POPULATION
C
C INPUT
C
C -----
C 1) TABLE AND PAGE VALUE CONTROL
C COLS 1-3 TABLE VALUE OF OUTPUT A
C 4-6 INITIAL PAGE VALUE OF A
C 7-9 TABLE VALUE OF B
C 10-12 INITIAL PAGE VALUE OF B
C 13-15 TABLE VALUE OF C
C 16-18 INITIAL PAGE VALUE OF C
C 19-21 TABLE VALUE OF D
C 22-24 INITIAL PAGE VALUE OF D
C
C 2) POPULATION NAME CARDS - ONE CARD PER NAME, WITH THE NAME
C CENTERED IN THE FIRST 57 COLUMNS, AND THE NAME CODE IN
C COLUMNS 78-80.
C
C 3) DATA CARDS. (SORT BY SEASON WITHIN AREA OR POPULATION BLOCK)
C 1) CARD CODE FA (FISH AT AGE BY AREA AND SEASON)
C 2) CARD CODE CYP (FISH AT AGE BY POPULATION AND SEASON)
C 3) CARD CODE ACA (AGE COMPOSITION BY AREA AND SEASON)
C 4) CARD CODE ACP (AGE COMP. BY POPULATION AND SEASON)
C
C PROGRAM WILL ACCEPT ONE, SOME, OR ALL OF INPUTS 1 TO 4 PER RUN.
C
C 4) BLANK CARD TO INDICATE DATA TERMINATION.
C
C.....
C
C INTEGER TYPE(3),Y1,Y2,DEC,YR1,YR2,AREA,FIRST,PAGE1,PAGE2,PAGE3
C INTEGER PAGE4,SET,HEAD(24,57),IHED(24),C,P,T
C DIMENSION DATA(11),SDATA(11),ADATA(11),IP(24)
C DATA IP/10,11,12,13,20,21,22,23,30,31,32,40,41,42,50,51,52,60,61,
C *62,70,80,90,100/

```

ASH55

ASH55 1  
ASH55 2  
ASH55 3  
ASH55 4  
ASH55 5  
ASH55 6  
ASH55 7  
ASH55 8  
ASH55 9  
ASH55 10  
ASH55 11  
ASH55 12  
ASH55 13  
ASH55 14  
ASH55 15  
ASH55 16  
ASH55 17  
ASH55 18  
ASH55 19  
ASH55 20  
ASH55 21  
ASH55 22  
ASH55 23  
ASH55 24  
ASH55 25  
ASH55 26  
ASH55 27  
ASH55 28  
ASH55 29  
ASH55 30  
ASH55 31  
ASH55 32  
ASH55 33  
ASH55 34  
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ASH55 38  
ASH55 39  
ASH55 40  
ASH55 41  
ASH55 42  
ASH55 43  
ASH55 44  
ASH55 45  
ASH55 46  
ASH55 47  
ASH55 48  
ASH55 49

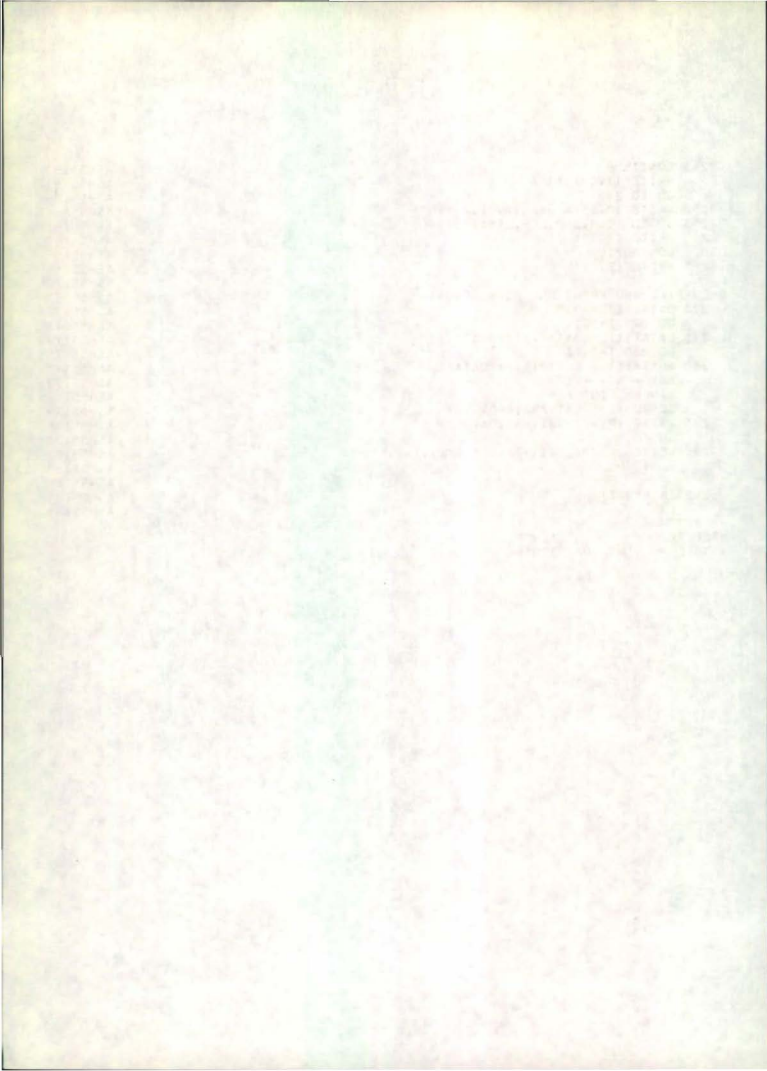
```
DATA C,P,T/8,5,1/,FIRST, LAST/0,0/,IBLNK,IF,IC,IA,IIP/' ','F','C','ASH55 50
*A','P'/'ASH55 51
CASH55 52
C FORMATSASH55 53
5 FORMAT ('CARD TYPE (COLS. 78-80) IS ',3A1,'. IT SHOULD BE'/5X,' FASH55 54
*A FOR FISH BY AREA'/5X,'CYP FOR FISH BY POP.'/5X,'ACA FOR AGE COMPASH55 55
*. BY AREA'/5X,'ACP FOR AGE COMP. BY POP.'/CORRECT ERROR AND PRESSASH55 56
* START TO CONTINUE')ASH55 57
10 FORMAT ('POPULATION NUMBER ',I3,' NOT ON INDEX FILE'/'JOB ABORTED'ASH55 58
*)ASH55 59
CASH55 60
15 FORMAT(3I1,I4,10F7.2,3A1)ASH55 61
20 FORMAT (57A1,20X,I3)ASH55 62
25 FORMAT (8I3)ASH55 63
30 FORMAT(1H1,'TABLE 5.','I2,'. MILLIONS OF FISH AT AGE IN THE ANNUALASH55 64
*CATCH FROM AREA ',I3,','31X,'PAGE ',I3)ASH55 65
35 FORMAT (1H0,48X,'MILLIONS OF FISH AT AGE/' ', 'SEASON',9X,'0+',7X,ASH55 66
*'1+',7X,'2+',7X,'3+',7X,'4+',7X,'5+',7X,'6+',7X,'7+',7X,'8+',7X,'9'ASH55 67
**+',7X,'TOTAL'//)ASH55 68
40 FORMAT (1H,'19',I2,'-',I2,3X,10(1X,F8.3),2X,F8.3)ASH55 69
45 FORMAT (1H0,'AVERAGE',3X,10(1X,F8.3),2X,F8.3)ASH55 70
50 FORMAT (1H1,'TABLE 6.','I2,'. MILLIONS OF FISH AT AGE IN THE ANNUAASH55 71
*L CATCH FROM THE',37X,'PAGE ',I3)ASH55 72
55 FORMAT (1H,'11X,57A1)ASH55 73
60 FORMAT (1H1,'TABLE 3.','I2,'. PERCENT AGE COMPOSITION FOR THE ANNUAASH55 74
*AL CATCH FROM AREA ',I3,','9X,'PAGE ',I3)ASH55 75
65 FORMAT (1H0,32X,'PERCENT AT AGE/' ', 'SEASON',8X,'0+',6X,'1+',6X,ASH55 76
*'2+',6X,'3+',6X,'4+',6X,'5+',6X,'6+',6X,'7+',6X,'8+',6X,'9+'//)ASH55 77
70 FORMAT (1H,'19',I2,'-',I2,2X,10(1X,F7.2))ASH55 78
75 FORMAT (1H0,'AVERAGE',2X,10(1X,F7.2))ASH55 79
80 FORMAT (1H1,'TABLE 4.','I2,'. PERCENT AGE COMPOSITION FOR THE ANNUAASH55 80
*AL CATCH FROM THE',15X,'PAGE ',I3)ASH55 81
CASH55 82
C READ TABLE AND PAGE NUMBERS AND POPULATION HEADINGSASH55 83
FIRST=0ASH55 84
LAST=0ASH55 85
READ (C,25) NTAB1,PAGE1,NTAB2,PAGE2,NTAB3,PAGE3,NTAB4,PAGE4ASH55 86
DO 85 I=1,24ASH55 87
READ (C,20) (HEAD(I,J),J=1,57),IHED(I)ASH55 88
85 CONTINUEASH55 89
CASH55 90
C READ DATA AND CHECK CARD TYPEASH55 91
90 READ (C,15) DEC,Y1,Y2,AREA,{DATA(I),I=1,10},TYPEASH55 92
YR1 = DEC * 10 + Y1ASH55 93
YR2 = YR1 + 1ASH55 94
IF (TYPE(1) - IBLNK)120,95,110ASH55 95
IF TYPE(1) IS BLANK GO TO 200ASH55 96
95 IF (TYPE(2) - IBLNK)100,115,110ASH55 97
100 IF (TYPE(2) - IF)110,105,110ASH55 98
C IF TYPE(2) = 'F' GO TO 2ASH55 99
105 SET = 1ASH55100
GO TO 155ASH55101
110 WRITE (T,5) TYPEASH55102
PAUSE 1ASH55103
GO TO 90ASH55104
115 LAST = 1ASH55105
```



C	IF LAST CARD TYPE(2) = 'BLANK'	ASH55106
	GO TO 175	ASH55107
120	IF(TYPE(1) - IC)130,125,110	ASH55108
C	IF TYPE(1) = 'C' GO TO 4	ASH55109
125	SET = 2	ASH55110
	GO TO 155	ASH55111
130	IF(TYPE(1) - IA)110,135,110	ASH55112
C	IF(TYPE(1) = A GO TO 201	ASH55113
135	IF(TYPE(3) - IA)110,145,140	ASH55114
140	IF(TYPE(3) - IIP)110,150,110	ASH55115
C	IF TYPE(3) = 'P' GO TO 11	ASH55116
145	SET = 3	ASH55117
	GO TO 155	ASH55118
150	SET = 4	ASH55119
C	TYPE = FA = SET1 , TYPE = CYP = SET2 , TYPE = ACA = SET3 ,	ASH55120
C	TYPE = ACP = SET4	ASH55121
C		ASH55122
C	PRINT AVERAGES AND HEADINGS	ASH55123
155	IF (FIRST)165,160,165	ASH55124
160	FIRST = 1	ASH55125
	GO TO 200	ASH55126
165	IF (SET - ISET)175,170,175	ASH55127
170	IF (YR1 - IYR)175,210,210	ASH55128
175	DO 180 I=1,11	ASH55129
180	ADATA(I) = SDATA(I) / FLOAT(NOY)	ASH55130
	GO TO (185,185,190,190),ISET	ASH55131
185	WRITE (P,45) ADATA	ASH55132
	GO TO 195	ASH55133
190	WRITE (P,75) (ADATA(I),I= 1,10)	ASH55134
195	IF (LAST)200,200,295	ASH55135
200	NOY = 0	ASH55136
	DO 205 I=1,11	ASH55137
205	SDATA(I) = C.0	ASH55138
	LINE = 55	ASH55139
210	ISET = SET	ASH55140
	IYR=YR2	ASH55141
	IF (LINE - 55)270,215,215	ASH55142
215	LINE = 8	ASH55143
	GO TO (220,225,230,235),SET	ASH55144
220	WRITE (P,30) NTAB1,AREA,PAGE1	ASH55145
	NTAB1 = NTAB1 + 1	ASH55146
	PAGE1 = PAGE1 + 1	ASH55147
	GO TO 255	ASH55148
225	WRITE (P,50)NTAB2,PAGE2	ASH55149
	NTAB2=NTAB2+1	ASH55150
	PAGE2 = PAGE2 + 1	ASH55151
	GO TO 240	ASH55152
230	WRITE (P,60) NTAB3,AREA,PAGE3	ASH55153
	NTAB3 = NTAB3 + 1	ASH55154
	PAGE3 = PAGE3 + 1	ASH55155
	GO TO 255	ASH55156
235	WRITE (P,80) NTAB4,PAGE4	ASH55157
	NTAB4 = NTAB4 + 1	ASH55158
	PAGE4 = PAGE4 + 1	ASH55159
240	DO 245 I=1,24	ASH55160
	IF (IP(I) - AREA)245,250,245	ASH55161



245 CONTINUE	ASH55162
WRITE (T,10) AREA	ASH55163
GO TO 295	ASH55164
250 WRITE (P,55) (HEAD(I,J),J=1,57)	ASH55165
255 GO TO (260,260,265,265),SET	ASH55166
260 WRITE (P,35)	ASH55167
GO TO 270	ASH55168
265 WRITE (P,65)	ASH55169
C	ASH55170
C COMPILE AND PRINT ONE YEAR OF DATA	ASH55171
270 DATA(I1) = 0.0	ASH55172
DO 275 I=1,10	ASH55173
275 DATA(I1) = DATA(I1) + DATA(I)	ASH55174
DO 280 I=1,11	ASH55175
280 SDATA(I) = SDATA(I) + DATA(I)	ASH55176
NOY = NOY + 1	ASH55177
LINE = LINE + 1	ASH55178
GO TO (285,285,290,290),SET	ASH55179
285 WRITE (P,40) YR1,YR2,DATA	ASH55180
GO TO 90	ASH55181
290 WRITE (P,70) YR1,YR2,(DATA(I),I=1,10)	ASH55182
GO TO 90	ASH55183
C	ASH55184
295 CALL EXIT	ASH55185
END	ASH55186
// DUP	
*DELETE	ASH55
*STORE	WS UA ASH55



E. EXAMPLE OUTPUT OF PROGRAMS

Table E1 provides an index of page numbers and printer output examples. An output number or letter is given where more than one output is produced by a program. This code refers to the number or letter of the output as found in the program's documentation.

Table E1. Page index to example outputs.

Program	Output number/letter	Page
ASH31	1	276
ASH32	C	277
ASH33	D	278
	E	279
	F	280
ASH35	1	281
	2	282
	3	283
ASH37	B	284
	C	285
	D	286
ASH38		
PAC38	A	287
FAL38	B	288
PLD38	C	289
PRB38	D	290
AGE38	E	291
ACS38	F	292
ACW38	G	293
ASH39	A	294
	B	295
	C	296
	D	297
ASH41	A1	298
	A2	299
	A3	300
	A4	301
ASH42		302
ASH43	A	303
	C	304
ASH44	1	305
	2	306
ASH45	1	307
	2	308
	3	309

Table E1 (cont'd)

Program	Output number/letter	Page
ASH46	1	311
	2	313
ASH48	1	315
	2	316
	3	317
ASH50	1	318
	2	319
	3	320
ASH53	1	321
	2	322
	3	323
ASH54	A	324
	B	325
ASH55	A	326
	C	327

TABLE 3. HERRING LANDINGS IN TONS FOR THE 1966-67 SEASON BY AREA, LOCALITY, WEEK AND BOAT. PAGE 8

CARD COLUMNS FOR MEB (E) AND FRB (R) CARDS ARE SHOWN ABOVE TABLE COLUMN HEADINGS ON FIRST PAGE, WHERE MEB AREA OR LOCALITY DATA HAVE BEEN REVISED ON FRB CARDS, MEB DATA ARE GIVEN BELOW.

M	1-2	5-6	8-10	11-13	14-15	3-4	28-32	42-49	17-21	53-54	22-23	24-25	26-27				
R	1-3	4-5	6-7	8-9	10-12	13-15	16-18	19-20	21-23	24-31	32-34	35-37	38-39	40			
SEAS.	WK.	MO.	DAY	PERIOD	SUBD.	AREA	LOCAL.	GEAR	BOAT	LISC.NO.	CATCH	DAYS	SETS	NBP	CO.	PLANT	DISP.
667	8	5	20	50	12	21	1	29	439	4939.	75.70	0	0	1	99	1	3
667	9	5	27	50	12	21	1	29	439	4939.	6.30	0	0	1	99	1	3
667	10	5	29	50	12	21	1	29	439	4939.	68.35	0	0	1	99	1	3
667	11	6	5	60	12	21	1	29	439	4939.	68.60	0	0	1	99	1	3
667	31	10	27	105	12	21	1	29	269	2070.	91.00	0	0	1	70	1	1
667	31	10	27	105	12	21	1	29	305	2519.	96.63	0	0	1	70	1	1
667	31	10	27	105	12	21	1	29	202	4611.	212.06	0	0	1	70	1	1
667	31	10	28	105	12	21	1	29	280	1962.	116.77	0	0	1	70	1	1
667	32	11	4	110	12	21	1	29	14	5747.	8.57	0	0	1	40	2	1
667	38	12	14	120	12	21	1	29	305	2519.	14.97	0	0	1	70	1	1
667	48	2	21	20	11	23	14	29	269	2070.	64.50	0	0	1	70	1	1
667	48	2	21	20	11	23	14	29	202	4611.	112.81	0	0	1	70	1	1
667	44	1	27	10	11	23	98	29	279	6063.	19.57	0	0	1	70	1	3
667	45	1	31	10	11	23	98	29	14	5747.	37.69	0	0	1	40	2	1
667	2	4	6	40	21	31	6	29	282	3796.	12.50	0	0	1	33	1	3
667	22	8	26	80	21	31	6	29	279	6063.	43.54	0	0	1	70	1	1
667	34	11	19	110	23	32	1	29	155	4756.	62.21	0	0	1	70	1	1
667	36	11	29	110	23	32	7	29	269	2070.	99.55	0	0	1	70	1	1
667	36	11	29	110	23	32	10	29	202	4611.	148.93	0	0	1	70	1	1
667	36	12	1	120	23	32	7	29	36	515.	8.98	0	0	1	70	1	1
667	37	12	8	120	23	32	10	29	282	3796.	61.45	0	0	1	40	2	1
667	37	12	9	120	23	32	10	29	77	4881.	13.36	0	0	1	40	2	1
667	37	12	10	120	23	32	2	29	155	4756.	32.70	0	0	1	70	1	1
667	38	12	15	120	23	32	7	29	269	2070.	173.91	0	0	1	70	1	1
667	38	12	15	120	23	32	7	29	202	4611.	156.13	0	0	1	70	1	1
667	38	12	16	120	23	32	7	29	36	515.	78.91	0	0	1	70	1	1
667	38	12	16	120	23	32	10	29	14	5747.	40.10	0	0	1	40	2	1
667	43	1	18	10	23	32	7	29	202	4611.	92.35	0	0	1	70	1	1



TABLE 1. 3. WEEKLY CATCH AND EFFORT FOR 1967-68 FROM THE  
UPPER CENTRAL POPULATION.  
(EFFORT = BOAT WEEKS)

WEEK	CATCH WITH EFFORT	EFFORT (BOAT WKS.)	CATCH / UNIT EFFORT	TOTAL CATCH	ADJUSTED EFFORT
11	211.75	5.0	42.35	211.75	5.0
12	468.63	8.0	58.58	468.63	8.0
13	402.12	5.0	80.42	402.12	5.0
14	34.50	1.0	34.50	34.50	1.0
16	244.42	2.0	122.21	244.42	2.0
17	297.80	3.5	85.09	297.80	3.5
18	36.50	0.5	73.00	36.50	0.5
26	70.00	1.0	70.00	70.00	1.0
27	69.25	0.0	0.00	69.25	0.0
28	110.30	1.0	110.30	110.30	1.0
29	341.75	2.0	170.88	341.75	2.0
43	48.56	1.5	32.37	48.56	1.5
46	18.51	1.0	18.51	18.51	1.0
ALL	2354.09	31.5	74.73	2354.09	31.5

TABLE 1. 4. WEEKLY CATCH AND EFFORT FOR 1967-68 FROM THE  
LOWER CENTRAL POPULATION.  
(EFFORT = BOAT WEEKS)

WEEK	CATCH WITH EFFORT	EFFORT (BOAT WKS.)	CATCH / UNIT EFFORT	TOTAL CATCH	ADJUSTED EFFORT
11	173.50	2.0	86.75	173.50	2.0
12	909.25	12.0	75.77	909.25	12.0
13	393.00	7.0	56.14	393.00	7.0
14	176.50	4.0	44.13	176.50	4.0
15	441.00	5.0	88.20	441.00	5.0
16	196.75	3.5	56.21	196.75	3.5
18	106.25	1.0	106.25	106.25	1.0
19	153.50	1.0	153.50	153.50	1.0
27	45.75	0.5	91.50	45.75	0.5
28	79.00	0.5	158.00	79.00	0.5
29	266.25	2.0	133.13	266.25	2.0
43	471.59	6.0	78.60	471.59	6.0
44	608.08	5.5	110.56	608.08	5.5
46	207.78	2.5	83.11	207.78	2.5
47	11.20	1.0	11.20	11.20	1.0
ALL	4239.40	53.5	79.24	4239.40	53.5

TABLE 1. WEEKLY CATCH (TONS) BY LOCALITY. PAGE 1  
1950-51.

AREA	LOCALITY	MONTH	WEEK	CATCH
23	5	2	49	316.56
			50	848.64
			ALL	1165.20
23	6	2	49	1973.06
			ALL	1973.06
41	6	12	36	445.69
			37	318.15
		ALL	763.84	
41	9	12	37	177.09
			ALL	177.09
42	0	1	41	35.50
			42	7.00
		ALL	42.50	
51	0	1	42	973.63
			43	4.50
		ALL	978.13	
51	10	12	38	448.00
			39	1094.00
		1	42	5773.62
			43	748.64
		ALL	8064.26	
51	11	12	37	4048.61
			38	17247.86
		12	39	6193.82
			42	8015.15
		1	43	5025.69
			ALL	40531.13
61	3	1	43	552.69
			44	235.78
		ALL	788.47	
61	7	1	41	157.00
			43	1236.93
		ALL	1393.93	
62	1	1	42	64.00
			ALL	64.00
67	1	11	36	79.59
			ALL	79.59



TABLE 3-1. WEEKLY CATCH (TONS) FOR THE QUEEN CHARLOTTE ISLANDS SUBDISTRICT, 1950-51.

WEEK	LOWER EAST AREA 023	UPPER EAST AREA 021	AREA 010	AREA 022	AREA 024	WEST COAST	ALL
49	2289.62	0.00	0.00	3.00	0.00	0.00	2289.62
50	848.64	0.00	0.00	0.00	0.00	0.00	848.64
ALL	3138.26	0.00	0.00	0.00	0.00	0.00	3138.26

TABLE 3-2. WEEKLY CATCH (TONS) FOR THE NORTHERN SUBDISTRICT, 1950-51.

WEEK	AREA 031	AREA 041	AREA 051	STRAITS	HARBOUR AREA 047	AREA 032	LOCAL	ALL
36	0.00	445.69	0.00	445.69	0.00	0.00	0.00	445.69
37	0.00	495.24	4048.61	4543.85	0.00	0.00	0.00	4543.85
38	0.00	0.00	17695.86	17695.86	0.00	0.00	0.00	17695.86
39	0.00	0.00	7287.82	7287.82	0.00	0.00	0.00	7287.82
41	0.00	0.00	0.00	0.00	35.50	0.00	0.00	35.50
42	0.00	0.00	14762.40	14762.40	7.00	0.00	0.00	14769.40
43	0.00	0.00	5778.83	5778.83	0.00	0.00	0.00	5778.83
ALL	0.00	940.93	49573.52	50514.45	42.50	0.00	0.00	50556.95

TABLE 3-3. WEEKLY CATCH (TONS) FOR THE UPPER CENTRAL SUBDISTRICT, 1950-51.

WEEK	AREA 061	AREA 062	MAJOR	AREA 063	AREA 064	AREA 065	AREA 066	LOCAL	ALL
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.59	79.59
41	157.00	0.00	157.00	0.00	0.00	0.00	0.00	218.40	375.40
42	0.00	64.00	64.00	0.00	0.00	0.00	0.00	0.00	64.00
43	1789.62	0.00	1789.62	0.00	0.00	0.00	0.00	0.00	1789.62
44	235.78	0.00	235.78	0.00	0.00	0.00	0.00	0.00	235.78
ALL	2182.40	64.00	2246.40	0.00	0.00	0.00	0.00	297.99	2544.39

TABLE 3-4. WEEKLY CATCH (TONS) FOR THE LOWER CENTRAL SUBDISTRICT, 1950-51.

WEEK	AREA 071	AREA 081	AREA 090	MAJOR	AREA 072	AREA 082	MINOR	ALL
35	0.00	0.00	766.00	0.00	0.00	0.00	0.00	766.00
36	0.00	10498.67	0.00	0.00	0.00	0.00	0.00	10498.67
37	0.00	6486.09	0.00	0.00	0.00	0.00	0.00	6486.09
38	0.00	109.50	0.00	0.00	0.00	0.00	0.00	109.50
41	110.00	0.00	0.00	110.00	0.00	0.00	0.00	110.00

27/03/73  
 ALPHABETICAL LISTING OF B.C. HERRING VESSELS WITH CORRESPONDING BOAT NUMBER (F.R.B.) AND LICENCE NUMBERS (ECON.BR.) FOR THE 1962-63 TO 1966-67 SEASONS. (1966 67 LICENCE NUMBERS APPLY FOR SUBSEQUENT SEASONS. SOME VESSELS HAD TWO LICENCE NUMBERS IN 1962-63.)

BOAT NAME	BOAT NUMBER	LICENCE NUMBERS					
		1966-67	1965-66	1964-65	1963-64	1962-63	
A P KNIGHT	10	..	..	..	..	..	..
A L H	584	10089.	..	..	..	..	..
ADRIATIC SEA	484	2409.	..	..	..	..	..
ADRIATIC STAR	1	4002.	173.	173.	173.	173.	37.
AGNES	503	440.	..	..	..	..	..
ALAMEEDA	448	..	..	..	..	..	..
ALASKA QUEEN	2	6153.	146.	146.	146.	146.	..
ALEUTIAN QUEEN	3	..	66.	66.	66.	1006.	..
ALIFORD BAY	379	..	..	..	..	..	..
ALL STAR	5	4764.	3796.	3796.	3796.	3796.	..
ALLEVERDY	4	4539.	..	..	..	..	..
ALTA	355	..	..	..	..	..	..
AMBER 3	658	4839.	..	..	..	..	..
AMLAC	6	858.	151.	151.	151.	151.	6.
ANNA M	7	6432.	148.	148.	148.	148.	1000.
ANNADALE	444	..	..	..	..	..	..
ANTHONY J	443	..	..	..	..	..	..
ANTLER	380	5571.	..	..	..	..	..
ARCTIC QUEEN	353	..	..	..	..	..	..
ARGENT	626	3721.	..	..	..	..	..
ARLENE P	537	506.	..	..	..	..	..
ATLANTIS	9	..	30002.	30002.	30002.	..	..
ATTU	8	1038.	293.	293.	293.	293.	47.
AUDREY B	370	..	..	..	..	..	..
AZURITE	421	..	..	..	..	..	..
B.C. ADVENTURE	11	827.	2897.	2897.	2897.	..	..
B.C. CLIPPER	25	513.	..	..	..	..	..
B.C. KID	28	4232.	..	..	..	..	..
B.C. LADY	26	1486.	..	..	..	..	..
B.C. PRIDE	14	5747.	1152.	1152.	1152.	7.	..
B.C. PRODUCER	24	737.	..	..	..	405.	..
B.C. ROVER	15	4376.	152.	152.	152.	152.	48.
BALSAC 1	30	..	7528.	7528.	..	..	..
BANKS ISLAND	418	..	..	..	..	..	..
BARGE 2	13	..	..	..	..	..	..
BELINA	16	3739.	143.	143.	143.	143.	81.
BELLEISLE	29	2777.	6530.	6530.	6530.	..	..
BENNETT	432	..	..	..	..	..	..
BERING SEA	17	460.	284.	284.	284.	284.	49.
BERTHA G	27	2913.	..	..	..	..	..
BETTY MARGE	430	..	..	..	..	..	..
BILLY BOB	514	..	..	39.	39.	39.	..
BLIGH ISLAND	18	4913.	281.	281.	281.	281.	50.
BLUE EAGLE	486	50.	..	..	..	..	..
BLUE OCEAN	19	3793.	..	3793.	3793.	3793.	307.
BLUE PACIFIC 1	20	884.	285.	285.	285.	285.	51.

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B.C. HERRING VESSELS BY BOAT NUMBER (F.R.B.) WITH CORRESPONDING LICENCE NUMBERS (ECON.BR.) FOR THE 1962-63 TO 1966-67 SEASONS.  
(1966-67 LICENCE NUMBERS APPLY TO SUBSEQUENT SEASONS. SOME VESSELS HAD TWO LICENCE NUMBERS IN 1962-63.)

BOAT NUMBER	LICENCE NUMBERS					BOAT NAME
	1966-67	1965-66	1964-65	1963-64	1962-63	
1	4002.	173.	173.	173.	173.	37. ADRIATIC STAR
2	6153.	146.	146.	146.	146.	.. ALASKA QUEEN
3	..	66.	66.	66.	1006.	.. ALEUTIAN QUEEN
4	4539.	..	..	..	..	.. ALLEVERDY
5	4764.	3796.	3796.	3796.	3796.	.. ALL STAR
6	868.	151.	151.	151.	151.	6. AMLAC
7	6432.	148.	148.	148.	148.	1000. ANNA M
8	1038.	293.	293.	293.	293.	47. ATTU
9	..	30002.	30002.	30002.	..	.. ATLANTIS
10	..	..	..	..	..	.. A P KNIGHT
11	827.	2897.	2897.	2897.	..	.. B.C. ADVENTURE
12	772.	283.	..	283.	283.	101. BROOKS BAY
13	..	..	..	..	..	.. BARGE 2
14	5747.	1152.	1152.	1152.	7.	.. B.C. PRIDE
15	4376.	152.	152.	152.	152.	48. B.C. ROVER
16	3739.	143.	143.	143.	143.	81. RELINA
17	460.	284.	284.	284.	284.	49. BERING SEA
18	4913.	281.	281.	281.	281.	50. BLIGH ISLAND
19	3793.	..	3793.	3793.	3793.	307. BLUE OCEAN
20	884.	285.	285.	285.	285.	51. BLUE PACIFIC 1
21	3585.	304.	304.	304.	304.	.. BOKAY
22	4914.	..	..	..	..	.. BURNABY M.
23	1294.	6501.	6501.	6501.	..	.. BRITANIA
24	737.	..	..	..	405.	.. B.C. PRODUCER
25	513.	..	..	..	..	.. B.C. CLIPPER
26	1486.	..	..	..	..	.. B.C. LADY
27	2913.	..	..	..	..	.. BERTHA G
28	4232.	..	..	..	..	.. B.C. KID
29	2777.	6530.	6530.	6530.	..	.. BELLEISLE
30	..	7528.	7528.	..	..	.. BALSAC 1
31	4377.	153.	153.	153.	153.	3. CAAMANO SOUND
32	..	10281.	10281.	10281.	..	.. CALM SEA
33	2737.	55082.	55082.	55082.	..	.. CANADIAN NO. 1
34	867.	..	..	..	..	.. CAPE BLANCO
35	4917.	150.	150.	150.	150.	52. CAPE CANSO
36	515.	10321.	10321.	10321.	..	.. CAPE DOUGLAS
37	4950.	45397.	45397.	45397.	..	.. CAPE JAMES
38	4926.	276.	276.	276.	276.	53. CAPE MARK
39	6180.	277.	277.	277.	277.	54. CAPE RUSSELL
40	4378.	403.	403.	..	..	.. CARINA NO. 1
41	6183.	6580.	6580.	6580.	1008.	.. CEE VEE
42	4108.	7940.	7940.	7940.	..	.. CHALLENGER
43	..	..	..	..	1012.	.. CHASM
44	5090.	4270.	4270.	4270.	..	.. CLIPPER NO. 1



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B.C. HERRING VESSELS BY LICENCE NUMBER (ECON.BR.) WITHCORRESPONDING  
BOAT NUMBERS (F.R.B.) FOR THE 1962-63 TO 19 66-67 SEASONS. (1966-67  
BOAT NUMBERS APPLY FOR SUBSEQUENT SEASONS.)

LICENCE NUMBER	BOAT NUMBERS				
	1966-67	1965-66	1964-65	1963-64	1962-63
1.			901	901	843
2.		199	199	199	844
3.					341
4.					840
6.					6
7.					14
8.					31
9.	902			285	285
10.					194
11.	916	903			196
12.					252
13.				513	513
14.					271
15.					273
16.					317
17.					318
18.					319
19.					320
20.		392			321
21.					322
22.					323
23.	498				324
24.		46	46	46	325
25.					327
26.					214
27.					72
28.					241
29.	502				47
30.					251
31.		169	169	169	292
32.					171
33.					151
34.					301
35.					276
36.					328
37.					1
38.					304
39.			514	514	514
40.					294
41.					226
42.					845
43.					65
44.					231
45.					71
46.					221

SPECIMEN DATA BY SAMPLE NUMBER AND TYPE, 1967-68.

NUMBER 1	TYPE 2	AREA 31	LOCALITY 6	WEEK 49	MONTH 2	DAY 29	PERIOD 0	GEAR 0	BOAT 211	SOURCE 2	PRESERVATION			WEIGHT 285	UNITS 2	NUMBER OF FISH			
											LEN.	SEX	AGE			LEN.	SEX	AGE	LEN.
1-5		145	1	0	C	157	1	0	0	160	2	0	169	1	0	172	1	0	0
6-10		175	1	0	0	178	2	0	0	181	1	0	184	1	0	187	2	0	0
11-15		145	1	0	C	157	2	0	0	160	2	0	169	1	0	172	1	0	0
16-20		175	1	0	0	178	2	0	0	181	2	0	184	1	0	187	2	0	0
21-25		151	1	0	0	157	2	0	0	160	2	0	169	1	0	172	1	0	0
26-30		175	1	0	C	178	2	0	0	181	2	0	184	2	0	190	1	0	0
31-35		151	2	0	0	157	2	0	0	163	2	0	169	2	0	172	1	0	0
36-40		175	2	0	0	178	2	0	0	181	2	0	184	2	0	190	1	0	0
41-45		151	3	0	0	150	1	0	0	163	2	0	169	2	0	172	2	0	0
46-50		178	1	0	0	181	1	0	0	183	2	0	187	1	0	190	2	0	0
51-55		154	1	0	0	150	1	0	0	163	2	0	169	2	0	172	2	0	0
56-60		178	1	0	0	181	1	0	0	181	2	0	187	1	0	190	2	0	0
61-65		154	1	0	0	150	1	0	0	166	1	0	169	3	0	172	2	0	0
66-70		178	1	0	0	181	1	0	0	184	1	0	187	1	0	190	2	0	0
71-75		154	2	0	0	150	1	0	0	166	1	0	169	1	0	172	2	0	0
76-80		178	2	0	0	181	1	0	0	184	1	0	187	1	0	190	2	0	0
81-85		154	2	0	0	150	1	0	0	166	2	0	169	2	0	172	2	0	0
86-90		179	2	0	0	181	1	0	0	184	1	0	187	1	0	190	2	0	0
91-95		157	1	0	0	150	1	0	0	166	2	0	169	1	0	172	1	0	0
96-100		178	2	0	C	181	1	0	0	184	1	0	187	2	0	190	1	0	0
101-105		193	2	0	0	196	1	0	0	196	1	0	199	1	0	202	2	0	0
106-110		202	2	0	0	206	2	0	0	217	2	0	229	2	0	238	2	0	0
111-115		193	2	0	0	196	1	0	0	196	2	0	199	2	0	202	2	0	0
116-120		205	2	0	0	211	2	0	0	226	1	0	239	2	0	244	1	0	0
121-125		193	2	0	0	196	1	0	0	199	1	0	202	1	0	205	2	0	0
126-130		206	1	0	C	214	2	0	0	229	1	0	232	1	0	237	1	0	0
131-135		193	2	0	0	196	1	0	0	199	1	0	202	2	0	205	1	0	0

NUMBER 2	TYPE 2	AREA 31	LOCALITY 6	WEEK 49	MONTH 2	DAY 29	PERIOD 1	GEAR 0	BOAT 133	SOURCE 2	PRESERVATION			WEIGHT 340	UNITS 2	NUMBER OF FISH			
											LEN.	SEX	AGE			LEN.	SEX	AGE	LEN.
1-5		142	1	0	0	163	1	0	0	169	1	0	175	1	0	178	1	0	0
6-10		181	1	0	0	181	2	0	0	184	2	0	187	1	0	190	1	0	0
11-15		148	1	0	0	163	1	0	0	169	2	0	175	1	0	178	1	0	0
16-20		181	1	0	0	181	2	0	0	189	2	0	190	1	0	190	1	0	0
21-25		148	2	0	0	166	1	0	0	169	2	0	175	2	0	178	1	0	0
26-30		181	2	0	0	184	1	0	0	187	1	0	189	2	0	190	1	0	0
31-35		151	1	0	0	166	1	0	0	169	2	0	175	2	0	178	1	0	0
36-40		181	2	0	0	184	1	0	0	187	1	0	189	2	0	190	1	0	0
41-45		151	2	0	0	165	1	0	0	172	1	0	175	2	0	178	1	0	0
46-50		181	2	0	0	186	1	0	0	192	1	0	195	2	0	190	1	0	0
51-55		157	2	0	0	166	2	0	0	172	1	0	175	2	0	178	2	0	0
56-60		181	2	0	0	186	2	0	0	192	2	0	195	2	0	190	1	0	0
61-65		157	2	0	0	166	2	0	0	172	2	0	175	2	0	178	2	0	0
66-70		181	2	0	0	186	2	0	0	192	2	0	195	2	0	190	1	0	0
71-75		160	1	0	0	184	1	0	0	187	1	0	187	2	0	178	2	0	0
76-80		181	2	0	0	184	1	0	0	187	1	0	187	2	0	178	2	0	0

TABLE 1. LISTING OF SAMPLES BY SAMPLE NUMBER, 1967-68.

SAMP. NO.	SAMP. TYPE	AREA	LOC.	WEEK	MONTH	DAY	PERIOD	GEAR	BOAT	SOURCE	PRES.	WEIGHT	UNITS	NO. OF FISH
1	2	31	6	49	2	29	0	0	211	2	0	285	2	135
2	2	31	6	49	2	29	0	0	133	2	0	340	2	150
3	2	32	10	43	1	18	1	0	335	2	0	195	2	166
4	2	32	10	43	1	18	1	0	269	2	0	170	2	119
5	2	41	29	44	1	26	1	0	174	2	0	150	2	95
6	2	41	29	44	1	26	1	0	999	2	0	625	2	381
7	2	41	9	44	1	22	1	0	174	2	0	165	2	86
8	2	41	29	44	1	26	1	0	202	2	0	165	2	92
9	2	41	9	44	1	26	1	0	335	2	0	115	2	80
10	2	41	9	44	1	21	1	0	221	2	0	150	2	108
11	2	41	9	44	1	24	1	0	227	2	0	140	2	84
12	2	41	29	44	1	25	1	0	299	2	0	140	2	104
13	2	41	29	44	1	26	1	0	174	2	0	130	2	82
14	2	41	9	45	1	30	1	0	202	2	0	120	2	79
15	2	41	9	45	1	30	1	0	269	2	0	130	2	83
16	2	41	42	7	44	1	26	1	211	2	0	105	2	63
17	2	42	7	45	1	29	1	0	221	2	0	110	2	54
18	2	42	7	45	1	30	1	0	335	2	0	120	2	54
19	2	41	42	7	45	1	30	1	211	2	0	100	2	70
20	2	41	42	7	45	1	30	1	174	2	0	130	2	71
21	2	42	7	45	1	30	1	0	133	2	0	75	2	64
22	2	42	11	45	1	30	1	0	299	2	0	120	2	119
23	2	42	11	45	1	31	1	0	133	2	0	100	2	109
24	2	42	11	45	1	31	1	0	299	2	0	120	2	137
25	2	42	11	45	1	31	1	0	335	2	0	100	2	102
26	2	42	11	45	2	1	1	0	174	2	0	120	2	117
27	2	42	11	45	2	1	1	0	211	2	0	107	2	90
28	2	65	99	29	10	10	1	0	999	2	0	300	2	245
29	2	65	99	29	10	11	1	0	65	2	0	195	2	190
30	2	71	9	42	1	8	1	0	21	2	0	135	2	160
31	2	71	9	42	1	8	1	0	335	2	0	140	2	77
32	2	71	9	42	1	8	1	0	174	2	0	90	2	76
33	2	71	9	42	1	9	1	0	269	2	0	150	2	65
34	2	71	9	46	2	6	1	0	202	2	0	110	2	43
35	2	81	5	29	10	11	1	0	62	2	0	225	2	162
36	2	83	98	44	1	24	1	0	133	2	0	105	2	102
37	2	83	98	44	1	24	1	0	211	2	0	120	2	109
38	2	83	98	44	1	23	1	0	335	2	0	150	2	109
39	2	83	98	44	1	21	1	0	269	2	0	120	2	137
40	2	83	98	44	1	21	1	0	202	2	0	135	2	133
41	2	83	98	44	1	21	1	0	221	2	0	115	2	92

TABLE 2. LIST OF 1967-68 SAMPLES BY AREA AND WEEK.

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AREA	WEEK	SAMP.	MON	DAY	LOC.	TYPE	PRES.	GEAR	SR.	WEIGHT	UNIT	FISH
10	28	45	10	5	3	2	0	0	2	285	2	287
10	28	46	10	2	1	2	0	0	2	190	2	199
10	29	47	10	9	1	2	0	0	2	260	2	272
31	49	1	2	29	6	2	0	0	2	285	2	135
31	49	2	2	29	6	2	0	0	2	340	2	150
32	43	3	1	18	10	2	0	0	2	195	2	166
32	43	4	1	18	10	2	0	0	2	170	2	119
32	43	5	1	18	10	2	0	0	2	150	2	95
41	44	6	1	26	29	2	0	0	2	625	2	381
41	44	7	1	22	9	2	0	0	2	165	2	86
41	44	8	1	22	9	2	0	0	2	165	2	92
41	44	9	1	26	29	2	0	0	2	115	2	80
41	44	10	1	21	9	2	0	0	2	150	2	108
41	44	11	1	24	9	2	0	0	2	140	2	84
41	44	12	1	25	29	2	0	0	2	140	2	104
41	44	13	1	26	29	2	0	0	2	130	2	82
41	45	14	1	30	9	2	0	0	2	120	2	79
41	45	15	1	30	9	2	0	0	2	130	2	83
42	44	16	1	26	7	2	0	0	2	105	2	92
42	45	17	1	29	7	2	0	0	2	110	2	63
42	45	18	1	30	7	2	0	0	2	120	2	54
42	45	19	1	30	7	2	0	0	2	100	2	70
42	45	20	1	30	7	2	0	0	2	130	2	71
42	45	21	1	30	7	2	0	0	2	75	2	64
42	45	22	1	30	11	2	0	0	2	120	2	119
42	45	23	1	31	11	2	0	0	2	100	2	109
42	45	24	1	31	11	2	0	0	2	120	2	137
42	45	25	1	31	11	2	0	0	2	100	2	102
42	45	26	2	1	11	2	0	0	2	120	2	117
42	45	27	2	1	11	2	0	0	2	100	2	90
62	29	28	10	10	1	2	0	0	2	300	2	245
65	29	29	10	11	99	2	0	0	2	195	2	190
71	42	30	1	8	9	2	0	0	2	135	2	66
71	42	31	1	8	9	2	0	0	2	140	2	77
71	42	32	1	8	9	2	0	0	2	90	2	26
71	42	33	1	9	9	2	0	0	2	150	2	75
71	46	34	2	6	9	2	0	0	2	110	2	59
81	29	35	10	11	5	2	0	0	2	225	2	162
83	43	42	1	18	99	2	0	0	2	220	2	240
83	43	43	1	18	99	2	0	0	2	160	2	113
83	43	44	1	18	99	2	0	0	2	120	2	112
83	44	36	1	24	98	2	0	0	2	120	2	102
83	44	37	1	24	98	2	0	0	2	130	2	105
83	44	38	1	23	98	2	0	0	2	150	2	137

TABLE 1. PRELIMINARY PERCENT AGE COMPOSITION BY SAMPLE (FOR FISH AGED FROM SCALES), 1952-53. PAGE 1

AREA	WEEK	SAMPLE	LOC.	0+	1+	2+	3+	4+	5+	6+	7+	8+	9+	NO. OF FISH			
41	43	AVERAGE	1	0.000	1.449	37.691	20.290	24.638	13.043	2.899	0.000	0.000	0.000	69			
			2	0.000	1.818	47.273	20.000	27.273	3.636	0.000	0.000	0.000	0.000	0.000	55		
			3	0.000	0.000	49.000	18.000	22.000	10.000	1.000	0.000	0.000	0.000	0.000	100		
			AVERAGE	0.000	1.089	44.651	19.430	24.637	8.893	1.300	0.000	0.000	0.000	0.000	224		
			44	AVERAGE	4	0.000	1.538	56.923	20.000	16.923	4.615	0.000	0.000	0.000	0.000	0.000	65
					5	0.000	0.000	40.580	24.638	15.942	14.493	2.899	1.449	0.000	0.000	0.000	69
					6	0.000	2.632	26.316	21.053	34.211	15.789	0.000	0.000	0.000	0.000	0.000	76
					7	0.000	0.000	24.561	28.070	22.807	21.053	3.509	0.000	0.000	0.000	0.000	57
					8	0.000	3.448	8.621	15.517	41.379	29.310	1.724	0.000	0.000	0.000	0.000	58
					9	0.000	2.041	38.776	17.347	23.469	16.327	2.041	0.000	0.000	0.000	0.000	98
AVERAGE	0.000	1.610			32.629	21.104	25.789	16.931	1.695	0.000	0.000	0.000	0.000	423			
45	AVERAGE	10			0.000	1.010	42.424	24.242	19.192	12.121	1.010	0.000	0.000	0.000	0.000	99	
		11			0.000	0.000	36.559	15.054	25.806	21.505	1.075	0.000	0.000	0.000	0.000	93	
		12			0.000	0.000	39.394	19.192	29.293	11.111	1.010	0.000	0.000	0.000	0.000	99	
		AVERAGE	0.000	0.337	39.459	19.496	24.764	14.913	1.032	0.000	0.000	0.000	0.000	291			
		AVERAGE	0.000	1.161	37.342	20.284	25.244	14.417	1.431	0.000	0.000	0.000	0.000	938			
		51	37	13	4	0.000	1.515	50.000	24.242	15.152	9.091	0.000	0.000	0.000	66		
14	4	0.000	4.478	37.313	26.865	26.866	4.478	0.000	0.000	0.000	0.000	0.000	67				
15	4	0.000	1.266	50.633	20.253	26.582	1.266	0.000	0.000	0.000	0.000	0.000	79				
16	4	0.000	1.316	50.000	28.947	19.737	0.000	0.000	0.000	0.000	0.000	0.000	76				
AVERAGE	0.000	2.144	46.987	25.077	22.084	3.709	0.000	0.000	0.000	0.000	0.000	0.000	288				
38	AVERAGE	17	4	0.000	0.000	18.182	27.273	43.939	9.091	1.515	0.000	0.000	0.000	66			
		18	4	0.000	0.000	23.438	39.063	31.250	6.250	0.000	0.000	0.000	0.000	64			
		19	4	0.000	1.587	31.746	38.095	22.222	6.349	0.000	0.000	0.000	0.000	63			
		AVERAGE	0.000	0.529	24.455	34.810	32.471	7.230	0.505	0.000	0.000	0.000	0.000	193			
		AVERAGE	0.000	1.452	37.330	29.248	26.535	5.218	0.216	0.000	0.000	0.000	0.000	481			
		62	45	20	5	0.000	3.061	25.510	31.633	29.592	10.204	0.000	0.000	0.000	98		
21	5	0.000	4.082	24.470	18.367	30.612	20.408	2.041	0.000	0.000	0.000	0.000	98				
22	5	2.105	13.684	24.211	23.158	25.263	11.579	0.000	0.000	0.000	0.000	0.000	95				
AVERAGE	0.702	6.942	24.737	24.386	28.489	14.064	0.680	0.000	0.000	0.000	0.000	0.000	291				
71	43	AVERAGE	23	50	0.000	0.000	19.355	31.183	36.559	9.677	2.151	1.075	0.000	0.000	93		
			24	50	0.000	0.000	22.105	25.263	35.789	11.579	5.263	0.000	0.000	0.000	95		

TABLE 2. 2. FREQUENCY AT AGE AND LENGTH GROUP FOR SAMPLE 2, 1952-53. PAGE 2  
(AREA 41, LOCALITY 2)

LENGTH GROUP NO. RANGE	A G E											ALL	
	0+	1+	2+	3+	4+	5+	6+	7+	8+	9+	UNKN.		
22 162-164	..	1	..	..	..	..	..	..	..	..	..	..	1
23 165-167	..	..	..	..	..	..	..	..	..	..	..	..	..
24 168-170	..	..	..	..	..	..	..	..	..	..	..	..	..
25 171-173	..	..	2	..	..	..	..	..	..	..	..	..	2
26 174-176	..	..	5	..	..	..	..	..	..	..	..	..	5
27 177-179	..	..	3	..	..	..	..	..	..	..	..	..	3
28 180-182	..	..	2	..	..	..	..	..	..	..	..	..	2
29 183-185	..	..	4	2	..	..	..	..	..	..	..	..	6
30 186-188	..	..	4	4	..	..	..	..	..	..	..	1	9
31 189-191	..	..	4	..	..	..	..	..	..	..	..	..	4
32 192-194	..	..	1	1	1	..	..	..	..	..	..	..	3
33 195-197	..	..	..	1	1	..	..	..	..	..	..	..	2
34 198-200	..	..	1	..	..	..	..	..	..	..	..	..	1
35 201-203	..	..	..	2	3	1	..	..	..	..	..	..	6
36 204-206	..	..	..	1	2	..	..	..	..	..	..	1	3
37 207-209	..	..	..	..	2	..	..	..	..	..	..	..	2
38 210-212	..	..	..	..	2	..	..	..	..	..	..	1	3
39 213-215	..	..	..	..	1	..	..	..	..	..	..	2	3
40 216-218	..	..	..	..	2	..	..	..	..	..	..	..	2
41 219-221	..	..	..	..	1	..	..	..	..	..	..	1	2
42 222-224	..	..	..	..	..	1	..	..	..	..	..	..	1
ALL	..	1	26	11	15	2	..	..	..	..	..	5	60





TABLE 3. 1. NORMAL PROBABILITIES OF LENGTH AT AGE, 1957-53.

AREA WEEKS USED FOR ACCUMULATED FREQUENCIES - 43 44

41 AGE GROUPS COMBINED - 7 8 9 10

LENGTH GROUP

A G E

	0+	1+	2+	3+	4+	5+	6+	7+	8+	9+
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.15	0.01	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.15	0.03	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.09	0.07	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.05	0.10	0.01	0.00	0.00	0.00	0.00	0.00
33	0.00	0.00	0.03	0.12	0.02	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.01	0.12	0.05	0.01	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.12	0.09	0.03	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.10	0.14	0.06	0.01	0.00	0.00	0.00
37	0.00	0.00	0.00	0.08	0.17	0.09	0.03	0.00	0.00	0.00
38	0.00	0.00	0.00	0.05	0.16	0.13	0.06	0.00	0.00	0.00
39	0.00	0.00	0.00	0.03	0.13	0.16	0.09	0.00	0.00	0.00
40	0.00	0.00	0.00	0.02	0.09	0.16	0.13	0.00	0.00	0.00
41	0.00	0.00	0.00	0.01	0.05	0.13	0.14	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.02	0.09	0.14	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.05	0.12	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 2. PROBABLE AGE DISTRIBUTION FOR UNAGED FISH BY LENGTH GROUPS WITHIN SAMPLES, 1952-53.

PAGE 12

SAMPLE	AREA	LOC.	WEEK	PROB. TABLE	LENGTH GRP. NUMBER	NO. OF FISH	ALLOCATED FREQUENCY AT AGE									
							0+	1+	2+	3+	4+	5+	6+	7+	8+	9+
1	41	2	43	1	39	1	0.00	0.00	0.00	0.11	0.52	0.32	0.04	0.00	0.00	0.00
2	41	2	43	1	30	1	0.00	0.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00
					38	1	0.00	0.00	0.00	0.18	0.74	0.08	0.00	0.00	0.00	0.00
					39	2	0.00	0.00	0.00	0.29	1.48	0.23	0.00	0.00	0.00	0.00
					41	1	0.00	0.00	0.00	0.10	0.66	0.23	0.00	0.00	0.00	0.00
3	41	2	43	NO UNAGED FISH												
4	41	2	44	2	29	1	0.00	0.00	0.93	0.07	0.00	0.00	0.00	0.00	0.00	0.00
					32	1	0.00	0.00	0.55	0.41	0.04	0.00	0.00	0.00	0.00	0.00
					33	1	0.00	0.00	0.33	0.56	0.11	0.00	0.00	0.00	0.00	0.00
					39	1	0.00	0.00	0.00	0.18	0.61	0.22	0.00	0.00	0.00	0.00
					43	1	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
5	41	2	44	2	40	1	0.00	0.00	0.00	0.09	0.30	0.52	0.07	0.03	0.00	0.00
6	41	2	44	2	39	1	0.00	0.00	0.00	0.09	0.57	0.34	0.00	0.00	0.00	0.00
7	41	2	44	2	38	1	0.00	0.00	0.00	0.18	0.45	0.37	0.00	0.00	0.00	0.00
					39	1	0.00	0.00	0.00	0.12	0.39	0.47	0.02	0.00	0.00	0.00
					40	1	0.00	0.00	0.00	0.08	0.31	0.55	0.06	0.00	0.00	0.00
8	41	2	44	2	39	1	0.00	0.00	0.00	0.05	0.49	0.46	0.01	0.00	0.00	0.00
					42	1	0.00	0.00	1.00	0.00	0.00	0.20	0.59	0.21	0.00	0.00
9	41	2	44	2	27	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	41	2	45	3	40	1	0.00	0.00	0.00	0.10	0.40	0.48	0.03	0.00	0.00	0.00
11	41	2	45	NO UNAGED FISH												
12	41	2	45	3	40	1	0.00	0.00	0.00	0.07	0.53	0.38	0.02	0.00	0.00	0.00
					34	1	0.00	0.00	0.38	0.62	0.00	0.00	0.00	0.00	0.00	0.00
					37	2	0.00	0.00	0.00	1.36	0.57	0.07	0.00	0.00	0.00	0.00
13	51	4	37	4	39	1	0.00	0.00	0.00	0.33	0.52	0.15	0.00	0.00	0.00	0.00
					37	1	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					30	1	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	51	4	37	4	29	1	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					30	1	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					37	1	0.00	0.00	0.00	0.59	0.39	0.01	0.00	0.00	0.00	0.00
15	51	4	37	NO UNAGED FISH												
16	51	4	37	4	21	1	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



TABLE 2. PERCENT AGE COMPOSITION BY AREA AND WEEK, 1952-53.

PAGE 8

AREA	WEEK	PERCENT AT AGE										
		0+	1+	2+	3+	4+	5+	6+	7+	8+	9+	
41	43	0.000	1.032	43.630	19.235	25.609	9.188	1.306	0.000	0.000	0.000	
	44	0.000	1.569	32.039	20.870	25.957	17.596	1.722	0.246	0.000	0.000	
	45	0.000	0.333	39.186	19.407	24.910	15.123	1.041	0.000	0.000	0.000	
AVERAGE		0.000	1.126	36.724	20.096	25.608	14.876	1.448	0.123	0.000	0.000	
51	37	0.000	2.370	46.149	25.825	22.043	3.613	0.000	0.000	0.000	0.000	
	38	0.000	0.476	22.968	34.963	33.749	7.367	0.476	0.000	0.000	0.000	
	AVERAGE		0.000	1.558	36.214	29.742	27.060	5.222	0.204	0.000	0.000	0.000
62	45	0.667	6.667	24.333	24.204	28.751	14.701	0.677	0.000	0.000	0.000	
	71	43	0.000	0.000	20.157	28.833	36.971	10.943	2.749	0.347	0.000	0.000
		44	0.000	1.167	24.101	22.844	31.260	14.994	2.256	1.377	0.000	0.000
45		1.111	13.333	31.676	26.534	21.581	5.209	0.444	0.111	0.000	0.000	
46		0.250	31.500	26.250	15.750	16.848	8.131	1.014	0.257	0.000	0.000	
47	0.000	0.502	31.833	24.894	31.590	9.118	1.647	0.417	0.000	0.000		
AVERAGE		0.393	9.143	28.077	24.098	26.773	9.604	1.418	0.494	0.000	0.000	
122	46	0.000	0.000	1.000	19.866	36.207	29.403	10.143	2.254	1.127	0.000	
	131	38	1.429	56.143	29.726	9.214	1.911	1.006	0.429	0.143	0.000	0.000
		42	0.500	15.000	35.000	23.249	13.520	0.388	3.343	0.000	0.000	0.000
43		0.000	19.888	48.386	21.646	4.133	5.057	0.889	0.000	0.000	0.000	
46		0.200	22.385	50.215	17.888	7.511	1.601	0.200	0.000	0.000	0.000	
AVERAGE		0.667	34.138	40.150	15.946	5.250	3.003	0.791	0.056	0.000	0.000	
140	46	0.000	0.000	47.500	28.500	17.423	6.077	0.000	0.500	0.000	0.000	
	171	35	0.000	0.518	56.849	33.787	3.399	0.232	0.071	0.143	0.000	0.000
		36	0.000	2.286	55.012	36.877	4.661	1.165	0.000	0.000	0.000	0.000
37		0.000	1.881	49.985	42.783	4.776	0.431	0.143	0.000	0.000	0.000	
38		0.000	1.000	57.491	37.175	3.668	0.333	0.000	0.333	0.000	0.000	
43		0.316	2.528	55.661	37.520	3.127	0.690	0.105	0.053	0.000	0.000	
44		0.500	2.684	60.835	32.177	3.333	0.500	0.000	0.000	0.000	0.000	
45		0.000	2.071	63.023	30.338	3.399	1.002	0.167	0.000	0.000	0.000	
46		0.250	5.500	69.074	23.172	2.004	0.000	0.000	0.000	0.000	0.000	
47		0.167	4.000	67.195	24.970	3.168	0.500	0.000	0.000	0.000	0.000	
AVERAGE		0.153	2.250	58.102	35.314	3.493	0.563	0.069	0.056	0.000	0.000	

TABLE A 1. 1. AGE-LENGTH KEY FOR AREA 32 IN WEEK 0, 1969-70.  
( 5 SAMPLES)

LENGTH GROUP NO. RANGE	A G E										NO. OF FISH		
	0+	1+	2+	3+	4+	5+	6+	7+	8+	9+			
1 0-80	100.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2 81-86	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 87-92	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4 93-98	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5 99-104	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6 105-110	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7 111-116	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8 117-122	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 123-128	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10 129-134	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11 135-139	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12 140-144	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 145-149	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14 150-154	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 155-159	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 160-164	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17 165-169	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18 170-174	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19 175-179	0.00	96.87	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20 180-184	0.00	88.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21 185-189	0.00	76.27	23.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22 190-194	0.00	50.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23 195-199	0.00	20.68	79.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24 200-204	0.00	6.06	90.90	3.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25 205-209	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26 210-214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27 215-219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28 220-224	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29 225-229	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30 230-234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31 235-239	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32 240-244	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33 245-249	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34 250-254	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35 255-259	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36 260-264	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37 265-269	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38 270-274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39 275-279	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40 280-284	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41 285-289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42 290-294	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43 295-299	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44 300-304	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45 305-309	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46 310-314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47 315-319	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48 320-324	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



TABLE 2. 1. FREQUENCY AT AGE AND LENGTH GROUP FOR FISH AGED FROM AGE-LENGTH KEY  
IN SAMPLE 1, 1969-70 (AREA 32, LOCALITY 1, WEEK 44).

PAGE 1

LENGTH GROUP NO. RANGE	AGE											ALL
	0+	1+	2+	3+	4+	5+	6+	7+	8+	9+		
11 129-131	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2
12 132-134	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
13 135-137	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4
14 138-140	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5
15 141-143	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10
16 144-146	0.00	9.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9
17 147-149	0.00	11.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11
18 150-152	0.00	4.45	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5
19 153-155	0.00	9.68	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10
20 156-158	0.00	6.16	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7
21 159-161	0.00	4.91	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7
22 162-164	0.00	3.50	3.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7
23 165-167	0.00	0.20	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
24 168-170	0.00	0.12	1.61	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2
25 171-173	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3
26 174-176	0.00	0.00	0.97	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
27 177-179	0.00	0.04	1.75	0.16	0.04	0.00	0.00	0.00	0.00	0.00	0.00	2
28 180-182	0.00	0.00	2.90	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3
29 183-185	0.00	0.00	0.85	0.10	0.00	0.02	0.00	0.00	0.00	0.00	0.00	1
30 186-188	0.00	0.00	1.62	0.16	0.21	0.00	0.00	0.00	0.00	0.00	0.00	2
31 189-191	0.00	0.00	3.31	0.57	0.11	0.00	0.00	0.00	0.00	0.00	0.00	4
33 195-197	0.00	0.00	0.88	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
34 198-200	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1
35 201-203	0.00	0.00	0.50	0.21	0.28	0.00	0.00	0.00	0.00	0.00	0.00	1
ALL	0.00	71.09	26.71	1.51	0.65	0.02	0.00	0.00	0.00	0.00	0.00	100



TABLE 4. PERCENT AGE COMPOSITION BY WEEK FOR FISH AGED FROM AGE-LENGTH KEYS, 1969-70.

PAGE 1

AREA	WEEK	PERCENT AT AGE										UNITS OF DATA
		0+	1+	2+	3+	4+	5+	6+	7+	8+	9+	
32	44	0.000	65.011	31.233	2.316	1.108	0.214	0.115	0.000	0.000	0.000	3
	46	0.000	21.977	68.402	5.941	2.748	0.519	0.410	0.000	0.000	0.000	2
	AVERAGE	0.000	43.494	49.816	4.129	1.928	0.366	0.262	0.000	0.000	0.000	2
41	42	0.719	13.890	63.153	22.235	0.000	0.000	0.000	0.000	0.000	0.000	2
	51	0.000	0.400	17.632	81.966	0.000	0.000	0.000	0.000	0.000	0.000	1
	AVERAGE	0.359	7.145	40.392	52.450	0.000	0.000	0.000	0.000	0.000	0.000	1.5
42	43	0.104	37.788	42.896	14.563	4.425	0.222	0.000	0.000	0.000	0.000	2
	44	0.000	32.935	47.006	17.735	2.321	0.000	0.000	0.000	0.000	0.000	1
	45	0.760	38.108	37.422	19.504	4.774	0.428	0.000	0.000	0.000	0.000	3
	AVERAGE	0.288	36.277	42.441	16.934	3.840	0.217	0.000	0.000	0.000	0.000	3
52	42	0.000	3.930	71.959	13.655	9.969	0.484	0.000	0.000	0.000	0.000	1
	43	0.000	53.060	34.462	4.652	2.770	0.054	0.000	0.000	0.000	0.000	3
	45	0.000	37.816	49.620	7.539	4.798	0.224	0.000	0.000	0.000	0.000	2
	46	0.000	7.410	66.617	13.688	9.639	0.642	0.000	0.000	0.000	0.000	1
	AVERAGE	0.000	27.304	55.664	9.884	6.794	0.351	0.000	0.000	0.000	0.000	4
61	45	44.682	24.131	24.863	1.766	0.388	0.166	0.000	0.000	0.000	0.000	2
	AVERAGE	44.682	24.131	24.863	1.766	0.388	0.166	0.000	0.000	0.000	0.000	2
62	45	38.081	34.567	26.094	0.882	0.374	0.000	0.000	0.000	0.000	0.000	3
	AVERAGE	38.081	34.567	26.094	0.882	0.374	0.000	0.000	0.000	0.000	0.000	3
63	43	5.546	86.273	7.725	0.455	0.000	0.000	0.000	0.000	0.000	0.000	2
	44	11.680	83.729	4.482	0.107	0.000	0.000	0.000	0.000	0.000	0.000	1
	45	2.428	81.282	13.753	0.957	1.577	0.000	0.000	0.000	0.000	0.000	1
	46	1.182	65.309	28.197	3.319	1.674	0.316	0.000	0.000	0.000	0.000	2
	AVERAGE	5.209	79.148	13.539	1.209	0.813	0.079	0.000	0.000	0.000	0.000	4
64	46	0.000	8.470	84.317	5.545	1.666	0.000	0.000	0.000	0.000	0.000	1

TABLE 1. FISH AT AGE IN CATCH BY AREA AND WEEK FOR 1950-51.  
 \* FISH PER TON AND AGE COMPOSITION FROM AREA SHOWN  
 \*\* FISH PER TON AND AGE COMPOSITION FROM WEEK SHOWN

WEEK	0+	1+	2+	3+	4+	5+	6+	7+	8+	9+	TOTAL
AREA 23											
49	0.000	0.023	3.295	12.432	3.722	2.590	0.913	0.099	0.025	0.000	23.102
50	0.000	3.000	1.371	4.426	1.237	1.085	0.391	0.077	0.000	0.000	5.588
ALL	0.000	3.023	4.667	16.858	4.960	3.674	1.303	0.175	0.025	0.000	31.690
AREA 41											
36	0.005	0.444	1.034	2.443	0.392	0.197	0.049	0.009	0.000	0.000	4.568
37	0.005	0.494	1.153	2.715	0.425	0.219	0.055	0.010	0.000	0.000	5.076
ALL	0.010	0.938	2.191	5.159	0.817	0.416	0.104	0.020	0.000	0.000	9.645
AREA 42											
41	0.000	0.037	0.067	0.176	0.037	0.031	0.014	0.002	0.000	0.000	0.334
42	0.000	0.031	0.010	0.040	0.008	0.004	0.003	0.000	0.000	0.000	0.066
ALL	0.000	0.068	0.077	0.217	0.044	0.034	0.017	0.002	0.000	0.000	0.400
AREA 51											
37	0.041	4.038	9.427	22.195	3.473	1.790	0.449	0.085	0.000	0.000	41.498
38	0.000	5.250	30.302	102.287	16.892	10.490	4.719	0.353	0.064	0.000	172.358
39	0.000	0.605	14.085	40.584	5.530	4.894	1.692	0.000	0.000	0.000	73.389
40	0.139	2.328	20.972	84.868	16.093	8.858	5.638	0.326	0.000	0.000	139.357
43	0.000	2.340	7.876	34.309	5.247	2.187	2.199	0.595	0.435	0.000	55.188
ALL	0.181	20.543	92.652	294.244	49.236	28.217	14.697	1.360	0.499	0.155	481.790
AREA 61											
41	0.000	0.244	0.242	0.715	0.131	0.124	0.029	0.000	0.000	0.000	1.485
43	0.000	2.783	2.759	8.156	1.497	1.411	0.326	0.000	0.000	0.000	16.930
44	0.000	0.186	0.417	1.330	0.245	0.095	0.000	0.000	0.000	0.000	2.273
ALL	0.000	3.212	3.417	10.201	1.873	1.620	0.355	0.000	0.000	0.000	20.688
AREA 62											
42	0.000	0.000	0.017	0.379	0.052	0.045	0.030	0.006	0.000	0.000	0.529
ALL	0.000	0.000	0.017	0.379	0.052	0.045	0.030	0.006	0.000	0.000	0.529
AREA 67											
36	0.000	0.000	0.021	0.471	0.065	0.055	0.038	0.008	0.000	0.000	0.657
ALL	0.000	0.000	0.021	0.471	0.065	0.055	0.038	0.008	0.000	0.000	0.657
AREA 68											
41	0.000	0.000	0.056	1.293	0.178	0.152	0.104	0.021	0.000	0.000	1.804
ALL	0.000	0.000	0.056	1.293	0.178	0.152	0.104	0.021	0.000	0.000	1.804

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TABLE 21. FISH AT AGE IN CATCH BY SUBDISTRICT AND WEEK FOR 1950-51.

WEEK	0+	1+	2+	3+	4+	5+	6+	7+	8+	9+	TOTAL
QUEEN CHARLOTTE ISLANDS POPULATION											
LOWER EAST COAST SUBPOPULATION											
49	0.000	0.023	3.298	12.432	3.722	2.590	0.913	0.099	0.025	0.000	23.102
50	0.000	0.000	1.371	4.426	1.237	1.086	0.891	0.077	0.000	0.000	8.588
ALL	0.000	0.023	4.669	16.858	4.960	3.676	1.803	0.175	0.025	0.000	31.690
NORTHERN POPULATION											
36	0.005	0.444	1.038	2.443	0.382	0.197	0.049	0.009	0.000	0.003	4.568
37	0.047	4.532	10.580	24.909	3.898	2.007	0.706	0.096	0.000	0.000	46.574
38	0.000	5.250	30.302	102.287	18.892	10.490	4.712	0.353	0.000	0.000	172.358
39	0.000	6.605	14.085	40.584	5.530	8.894	1.892	0.000	0.000	0.000	73.389
41	0.000	0.007	0.087	0.176	0.037	0.031	0.014	0.002	0.000	0.000	0.334
42	0.139	2.309	20.982	84.909	16.101	8.863	5.691	0.326	0.000	0.155	139.623
43	0.000	2.340	7.876	34.309	5.247	2.187	2.179	0.565	0.235	0.000	55.188
ALL	0.191	21.486	84.930	289.619	50.087	28.668	14.818	1.383	0.439	0.155	491.835
STRAITS SUBPOPULATION											
36	0.005	0.444	1.038	2.443	0.382	0.197	0.049	0.009	0.000	0.000	4.568
37	0.047	4.532	10.580	24.909	3.898	2.007	0.706	0.096	0.000	0.000	46.574
38	0.000	5.250	30.302	102.287	18.892	10.490	4.712	0.353	0.000	0.000	172.358
39	0.000	6.605	14.085	40.584	5.530	8.894	1.892	0.000	0.000	0.000	73.389
42	0.139	2.308	20.972	84.868	16.093	8.858	2.838	0.326	0.000	0.155	139.357
43	0.000	2.340	7.876	34.309	5.247	2.187	2.199	0.565	0.235	0.000	55.188
ALL	0.191	21.479	84.853	289.472	50.043	28.633	14.801	1.380	0.439	0.155	491.435
HARBOUR SUBPOPULATION											
41	0.000	0.007	0.067	0.176	0.037	0.031	0.014	0.002	0.000	0.000	0.334
42	0.000	0.001	0.010	0.040	0.008	0.004	0.003	0.000	0.000	0.000	0.066
ALL	0.000	0.008	0.077	0.217	0.044	0.033	0.017	0.002	0.000	0.000	0.400
UPPER CENTRAL POPULATION											
36	0.000	0.000	0.021	0.471	0.065	0.054	0.038	0.008	0.000	0.000	0.657
41	0.000	0.244	0.298	2.008	0.310	3.276	0.133	0.021	0.000	0.000	3.889
42	0.000	0.000	0.017	0.379	0.052	1.044	0.033	0.006	0.000	0.000	0.629
43	0.000	2.783	2.758	8.156	1.497	1.411	0.326	0.000	0.000	0.000	16.310
44	0.000	1.186	0.417	1.330	2.245	3.094	0.000	0.000	0.000	0.000	5.273
ALL	0.000	3.212	3.511	12.344	2.169	1.881	0.527	0.034	0.000	0.000	23.678





TABLE 61. PERCENT AGE COMPOSITION IN CATCH BY POPULATION, 1950-51.

PAGE E 1

POPULATION	A G E									
	0+	1+	2+	3+	4+	5+	6+	7+	8+	9+
QUEEN CHARLOTTE ISLANDS	0.00	0.07	14.73	53.20	15.65	11.60	4.11	0.55	0.08	0.00
LOWER EAST	0.00	0.07	14.73	53.20	15.65	11.60	4.11	0.55	0.08	0.00
NORTHERN										
STRAITS	0.04	4.37	17.27	58.89	10.18	5.83	3.01	0.28	0.10	0.03
HARBOUR	0.04	4.37	17.27	58.89	10.18	5.83	3.01	0.28	0.10	0.03
	0.02	1.90	19.23	54.14	11.07	8.83	4.20	0.59	0.00	0.02
UPPER CENTRAL										
MAJOR	0.00	13.57	14.83	52.13	9.16	7.95	2.23	0.15	0.00	0.00
MINOR	0.00	15.14	16.19	49.87	9.07	7.89	1.82	0.03	0.00	0.00
	0.00	0.00	3.12	71.65	9.89	8.42	5.76	1.15	0.00	0.00
LOWER CENTRAL										
MAJOR	0.20	4.46	29.50	48.47	11.58	4.72	1.05	0.02	0.00	0.00
	0.20	4.46	29.50	48.47	11.58	4.72	1.05	0.02	0.00	0.00
UPPER EAST COAST OF VANCOUVER ISLAND										
ISLAND	0.00	7.32	46.54	32.29	9.62	2.07	1.13	1.04	0.00	0.00
MAINLAND	0.00	8.36	41.34	36.42	11.39	1.68	0.81	0.00	0.00	0.00
	0.00	6.64	49.93	29.59	8.46	2.32	1.34	1.71	0.00	0.00
MIDDLE EAST COAST OF VANCOUVER ISLAND										
ISLAND	0.22	3.60	29.57	52.14	10.46	3.03	0.75	0.16	0.06	0.00
	0.22	3.60	29.57	52.14	10.46	3.03	0.75	0.16	0.06	0.00
LOWER EAST COAST OF VANCOUVER ISLAND										
	0.02	5.12	64.36	23.56	5.59	1.04	0.23	0.07	0.00	0.00
LOWER WEST COAST OF VANCOUVER ISLAND										
	0.05	12.57	37.21	41.99	6.48	1.39	0.28	0.02	0.02	0.00

TABLE 1. HERRING SPAWNINGS BY AREA FOR 1964-65. PAGE 2

AREA	LOC.	MONTH	DAY	LENGTH (YARDS)	WIDTH (YARDS)	INTEN- SITY	MILES OF SPAWN	EGGS (EO9)
66	1	3	19	120.	20.	1	0.02	0.32
	13	3	26	200.	6.	1	0.04	0.16
66		ALL					0.06	0.48
71	34	3	15	1200.	6.	5	0.68	13.62
	40	3	27	20.	5.	1	0.00	0.01
	41	4	5	1000.	5.	5	0.57	9.46
	53	3	29	200.	3.	3	0.08	0.41
	55	4	10	3700.	5.	5	2.10	35.00
		4	10	1300.	3.	5	0.74	7.38
	62	4	6	500.	30.	5	0.28	28.38
		4	8	1500.	2.	3	0.57	2.03
	115	4	8	300.	5.	5	0.17	2.84
71		ALL					5.19	99.13
81	1	4	4	2000.	9.	3	0.76	12.17
	5	4	3	5425.	4.	5	3.08	41.06
81		ALL					3.84	53.23
82	2	5	13	12500.	2.	7	9.47	101.32
82		ALL					9.47	101.32
90	1	4	3	3500.	2.	5	1.99	13.24
	12	4	3	2700.	3.	5	1.53	15.33
		4	3	1000.	2.	5	0.57	3.78
90		ALL					4.09	32.36
100	6	3	20	200.	2.	3	0.08	0.27
		3	20	50.	2.	5	0.03	0.19
		3	23	50.	2.	3	0.02	0.07
		3	26	1200.	1.	3	0.45	0.81
	7	4	6	700.	2.	5	0.40	2.65
		4	7	1200.	4.	5	0.68	9.08
		4	13	100.	2.	3	0.04	0.14
	8	4	7	1000.	3.	7	0.76	12.16
100		ALL					2.45	25.36
122	1	3	19	1700.	25.	3	0.64	28.74
	18	3	10	1500.	15.	5	0.85	42.57
		3	10	1600.	20.	5	0.91	60.55
		3	13	800.	15.	5	0.45	22.71
	21	3	19	500.	15.	7	0.38	30.39
122		ALL					3.24	184.96
123	9	4	29	700.	5.	3	0.27	2.37
	20	3	14	1800.	10.	5	1.02	34.06
123		ALL					1.29	36.43

TABLE 5. MILLIONS OF SPAWNERS AT AGE BY AREA, 1950-51.  
 (CALCULATED FROM NUMBERS OF EGGS)  
 \* AGE COMPOSITION FROM AREA SHOWN

AREA	A G E									TOTAL	
	1+	2+	3+	4+	5+	6+	7+	8+	9+		
21	0.004	0.856	3.093	0.910	0.674	0.239	0.032	0.005	0.000	5.813	* 23
23	0.056	11.719	42.324	12.451	9.229	3.270	0.438	0.064	0.000	79.549	
31	3.659	8.543	20.110	3.147	1.621	0.406	0.079	0.000	0.000	37.564	* 41
41	17.581	41.051	96.630	15.123	7.787	1.951	0.379	0.000	0.000	180.503	
42	19.864	201.045	566.021	115.734	92.316	43.910	6.168	0.000	0.209	1045.268	
51	7.947	32.011	110.061	19.065	10.932	5.690	0.522	0.187	0.056	186.470	
61	2.765	2.942	8.781	1.612	1.403	0.306	0.000	0.000	0.000	17.809	
62	0.000	1.574	36.155	4.991	4.249	2.907	0.580	0.000	0.000	50.455	
66	0.000	0.009	0.203	0.028	0.024	0.016	0.003	0.000	0.000	0.284	* 67
67	0.000	0.061	1.397	0.193	0.164	0.112	0.022	0.000	0.000	1.949	
71	1.301	19.277	32.498	7.746	3.106	0.686	0.000	0.000	0.000	64.614	
72	0.055	0.814	1.372	0.327	0.131	0.029	0.000	0.000	0.000	2.728	* 71
83	0.006	0.069	0.125	0.030	0.013	0.003	0.000	0.000	0.000	0.246	* 81
90	1.418	1.045	0.221	0.009	0.009	0.000	0.000	0.000	0.000	2.703	
100	10.278	7.575	1.601	0.066	0.066	0.000	0.000	0.000	0.000	19.586	* 90
110	0.002	0.017	0.011	0.003	0.001	0.001	0.001	0.000	0.000	0.035	* 123
121	0.723	3.576	3.150	0.985	0.145	0.070	0.000	0.000	0.000	8.650	* 122
122	0.749	3.705	3.264	1.021	0.151	0.073	0.000	0.000	0.000	8.962	
123	0.722	5.498	3.331	0.961	0.278	0.159	0.203	0.000	0.000	11.153	
124	0.841	6.410	3.864	1.121	0.324	0.196	0.237	0.000	0.000	13.003	* 123
131	0.090	0.740	1.305	0.262	0.076	0.019	0.004	0.002	0.000	2.497	
132	0.001	0.007	0.012	0.002	0.001	0.000	0.000	0.000	0.000	0.023	* 131
133	0.087	0.718	1.266	0.254	0.074	0.018	0.004	0.001	0.000	2.422	* 131
140	40.957	336.418	593.196	119.003	34.472	8.533	1.820	0.683	0.000	1135.062	* 131
150	3.433	28.196	49.717	9.974	2.889	0.715	0.153	0.057	0.000	95.134	* 131
160	2.110	17.332	30.560	6.131	1.776	0.440	0.094	0.035	0.000	58.477	* 131
171	2.453	51.338	24.930	7.235	1.222	0.554	0.123	0.000	0.000	87.854	
172	0.810	9.268	3.002	0.657	0.136	0.014	0.010	0.000	0.000	13.897	
180	0.103	1.215	0.477	0.106	0.016	0.004	0.000	0.000	0.000	1.921	
190	0.005	0.058	0.023	0.005	0.001	0.000	0.000	0.000	0.000	0.091	* 180
202	0.003	0.031	0.012	0.003	0.000	0.000	0.000	0.000	0.000	0.049	* 180
230	1.564	6.558	7.464	1.156	0.249	0.049	0.003	0.003	0.000	17.047	
240	31.336	3.774	1.310	0.000	0.000	0.000	0.000	0.000	0.000	36.420	
250	747.320	90.000	31.251	0.000	0.000	0.000	0.000	0.000	0.000	868.571	* 243
260	17.154	2.066	0.717	0.000	0.000	0.000	0.000	0.000	0.000	19.938	* 240
270	20.050	2.415	0.838	0.000	0.000	0.000	0.000	0.000	0.000	23.304	* 240



TABLE A 1. HERRING ABUNDANCE AT AGE BY AREA, 1951-52.

PAGE 1

AREA		MILLIONS AT AGE										TOTAL	
		0 +	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +		
21	CATCH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	SPAWN	0.000	0.935	1.921	3.291	1.949	0.346	0.089	0.008	0.000	0.000	0.000	8.539
	TOTAL	0.000	0.935	1.921	3.291	1.949	0.346	0.089	0.008	0.000	0.000	0.000	8.539
23	CATCH	0.598	12.075	24.809	42.512	25.172	4.473	1.156	0.101	0.000	0.000	0.000	110.896
	SPAWN	0.000	8.689	17.848	30.582	18.111	3.215	0.830	0.072	0.000	0.000	0.000	79.347
	TOTAL	0.598	20.764	42.657	73.094	43.283	7.688	1.986	0.173	0.000	0.000	0.000	190.243
31	CATCH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	SPAWN	0.000	0.335	0.633	2.432	3.298	0.431	0.072	0.027	0.004	0.000	0.000	7.232
	TOTAL	0.000	0.335	0.633	2.432	3.298	0.431	0.072	0.027	0.004	0.000	0.000	7.232
41	CATCH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	SPAWN	0.000	1.568	2.963	11.377	15.431	2.018	0.339	0.125	0.017	0.000	0.000	33.838
	TOTAL	0.000	1.568	2.963	11.377	15.431	2.018	0.339	0.125	0.017	0.000	0.000	33.838
42	CATCH	0.960	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	SPAWN	0.000	9.378	17.724	68.060	92.306	12.073	2.026	0.749	0.101	0.000	0.000	202.417
	TOTAL	0.960	9.378	17.724	68.060	92.306	12.073	2.026	0.749	0.101	0.000	0.000	202.417
51	CATCH	0.347	19.991	37.838	145.222	196.951	25.763	4.305	1.596	0.217	0.000	0.000	432.209
	SPAWN	0.000	0.331	0.625	2.460	3.254	0.426	0.071	0.026	0.004	0.000	0.000	7.137
	TOTAL	0.347	20.322	38.463	147.682	200.205	26.189	4.376	1.622	0.221	0.000	0.000	439.337
62	CATCH	0.264	16.293	25.332	32.343	62.273	6.345	1.781	0.283	0.000	0.000	0.000	144.929
	SPAWN	0.000	2.413	3.752	4.791	9.224	0.940	0.264	0.043	0.000	0.000	0.000	21.427
	TOTAL	0.264	18.706	29.084	37.134	71.503	7.285	2.045	0.326	0.000	0.000	0.000	166.347
63	CATCH	0.049	2.294	0.776	0.111	0.000	0.035	0.000	0.000	0.000	0.000	0.000	3.265
	SPAWN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	TOTAL	0.049	2.294	0.776	0.111	0.000	0.035	0.000	0.000	0.000	0.000	0.000	3.265
67	CATCH	0.012	0.553	0.187	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.787
	SPAWN	0.000	5.365	1.814	0.260	0.000	0.082	0.000	0.000	0.000	0.000	0.000	7.521
	TOTAL	0.012	5.918	2.001	0.287	0.000	0.082	0.000	0.000	0.000	0.000	0.000	8.308
71	CATCH	0.276	2.150	37.008	55.653	46.907	6.373	2.383	0.887	0.105	0.000	0.000	151.672
	SPAWN	0.000	0.443	7.611	11.445	9.649	1.310	0.490	0.181	0.022	0.000	0.000	31.150
	TOTAL	0.276	2.593	44.619	67.098	56.556	7.683	2.873	1.068	0.127	0.000	0.000	182.822

TABLE A 2. HERRING ABUNDANCE AT AGE BY POPULATION, 1951-52.

POPULATION		MILLIONS AT AGE										
		0 +	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +	TOTAL
QUEEN CHARLOTTE ISLANDS POPULATION												
CATCH	0.598	12.075	24.809	42.512	25.172	4.473	1.156	0.101	0.000	0.000	0.000	110.896
SPAWN.	0.000	9.624	19.769	33.873	20.063	3.561	0.919	0.080	0.000	0.000	0.000	87.886
TOTAL	0.598	21.699	44.578	76.385	45.233	8.034	2.075	0.181	0.000	0.000	0.000	198.782
LOWER EAST COAST												
CATCH	0.598	12.075	24.809	42.512	25.172	4.473	1.156	0.101	0.000	0.000	0.000	110.896
SPAWN.	0.000	8.689	17.849	30.582	18.111	3.215	0.830	0.072	0.000	0.000	0.000	79.347
TOTAL	0.598	20.764	42.657	73.094	43.283	7.688	1.986	0.173	0.000	0.000	0.000	190.243
UPPER EAST COAST												
CATCH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SPAWN.	0.000	0.935	1.921	3.291	1.949	0.346	0.089	0.008	0.000	0.000	0.000	8.539
TOTAL	0.000	0.935	1.921	3.291	1.949	0.346	0.089	0.008	0.000	0.000	0.000	8.539
NORTHERN POPULATION												
CATCH	0.347	19.991	37.808	145.222	196.951	25.763	4.305	1.596	0.217	0.000	0.000	432.200
SPAWN.	0.000	11.612	21.945	84.269	114.289	18.948	2.508	0.927	0.126	0.000	0.000	250.624
TOTAL	0.347	31.603	59.753	229.491	311.240	40.711	6.813	2.523	0.343	0.000	0.000	682.824
STRAITS												
CATCH	0.347	19.991	37.808	145.222	196.951	25.763	4.305	1.596	0.217	0.000	0.000	432.200
SPAWN.	0.000	2.234	4.221	16.209	21.983	2.875	0.482	0.178	0.025	0.000	0.000	48.207
TOTAL	0.347	22.225	42.029	161.431	218.934	28.638	4.787	1.774	0.242	0.000	0.000	480.407
HARBOUR												
CATCH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SPAWN.	0.000	9.378	17.724	68.060	92.306	12.073	2.026	0.749	0.101	0.000	0.000	202.417
TOTAL	0.000	9.378	17.724	68.060	92.306	12.073	2.026	0.749	0.101	0.000	0.000	202.417
UPPER CENTRAL POPULATION												
CATCH	0.325	19.140	26.295	32.481	62.279	6.388	1.781	0.283	0.000	0.000	0.000	148.972
SPAWN.	0.000	7.778	5.566	5.051	9.224	1.022	0.264	0.043	0.000	0.000	0.000	28.948
TOTAL	0.325	26.918	31.861	37.532	71.503	7.410	2.045	0.326	0.000	0.000	0.000	177.920
MAJOR												
CATCH	0.264	16.293	25.332	32.343	62.279	6.345	1.781	0.283	0.000	0.000	0.000	144.920
SPAWN.	0.000	2.413	3.752	4.791	9.224	0.940	0.264	0.043	0.000	0.000	0.000	21.427
TOTAL	0.264	18.706	29.084	37.134	71.503	7.285	2.045	0.326	0.000	0.000	0.000	166.347



TABLE 2.01. MILLIONS OF FISH AT AGE IN THE QUEEN CHARLOTTE ISLANDS POPULATION 1950-51 TO 1969-70. PAGE 15

SEASON		0 +	1 +	2 +	3 +	4 +	A G E	5 +	6 +	7 +	8 +	9 +	TOTAL
1950-51	CATCH	0.000	0.023	4.669	16.858	4.960	3.676	1.303	0.175	0.025	0.000	0.000	31.689
	SPAWNERS	0.000	0.060	12.575	45.417	13.360	9.903	3.509	0.470	0.068	0.000	0.000	85.582
	TOTAL	0.000	0.083	17.244	62.275	19.320	13.579	4.812	0.645	0.093	0.000	0.000	117.651
1951-52	CATCH	0.598	12.075	24.809	42.512	25.172	9.473	1.156	0.101	0.000	0.000	0.000	110.896
	SPAWNERS	0.000	9.624	19.769	33.873	20.061	3.561	0.919	0.080	0.000	0.000	0.000	87.887
	TOTAL	0.598	21.699	44.578	76.385	45.233	8.034	2.075	0.181	0.000	0.000	0.000	198.783
1952-53	CATCH	0.000	0.017	0.705	0.311	0.414	0.169	0.021	0.000	0.000	0.000	0.000	1.617
	SPAWNERS	0.000	1.124	47.695	21.033	27.996	10.046	1.432	0.000	0.000	0.000	0.000	109.328
	TOTAL	0.000	1.141	48.400	21.344	28.410	10.195	1.453	0.000	0.000	0.000	0.000	110.945
1953-54	CATCH	0.164	7.687	92.830	73.667	112.334	36.094	7.146	2.817	0.790	0.000	0.000	333.731
	SPAWNERS	0.000	0.248	46.896	46.176	16.691	15.332	0.268	3.587	0.030	0.000	0.000	131.289
	TOTAL	0.164	7.935	141.726	121.863	127.025	51.430	7.414	6.414	0.820	0.275	0.000	465.016
1954-55	CATCH	0.000	15.880	35.699	114.163	46.479	31.790	8.616	0.513	0.117	0.000	0.000	255.378
	SPAWNERS	0.000	0.899	1.761	9.069	3.395	4.060	1.619	0.133	0.000	0.000	0.000	20.716
	TOTAL	0.000	16.779	37.460	123.232	49.874	37.850	10.235	0.646	0.117	0.000	0.000	276.094
1955-56	CATCH	0.069	9.684	149.819	81.539	409.066	60.551	23.215	3.664	0.398	0.219	0.000	738.164
	SPAWNERS	0.000	0.014	2.743	1.463	8.193	1.108	0.400	0.056	0.000	0.000	0.000	13.969
	TOTAL	0.069	9.698	152.562	82.992	417.259	61.659	23.623	3.720	0.398	0.219	0.000	752.133
1956-57	CATCH	0.610	49.255	59.532	41.098	26.776	74.583	7.789	1.462	0.495	0.000	0.000	262.000
	SPAWNERS	0.000	1.668	1.059	1.282	0.663	2.446	0.246	0.043	0.014	0.000	0.000	8.591
	TOTAL	0.610	51.623	61.491	42.440	27.439	76.989	8.035	1.505	0.509	0.000	0.000	270.651
1957-58	CATCH	0.000	183.042	36.463	2.832	0.370	0.321	0.321	0.000	0.000	0.000	0.000	223.372
	SPAWNERS	0.000	0.205	1.687	0.038	0.613	0.011	0.015	0.000	0.000	0.000	0.000	10.015
	TOTAL	0.000	183.247	38.150	2.870	0.983	0.335	0.335	0.000	0.000	0.000	0.000	233.387
1958-59	CATCH	0.000	9.675	134.839	42.864	23.090	19.074	9.139	4.930	2.544	0.552	0.000	249.587
	SPAWNERS	0.000	3.242	48.016	23.517	7.374	0.774	1.174	1.014	0.621	0.656	0.000	106.508
	TOTAL	0.000	12.917	182.855	66.421	30.464	20.748	10.313	5.944	3.165	3.208	0.000	356.155
1959-60	CATCH	0.000	11.358	19.264	16.476	1.452	0.360	0.127	0.141	0.041	0.000	0.000	49.219
	SPAWNERS	0.000	51.811	47.063	75.134	6.622	1.639	0.586	0.451	0.180	0.000	0.000	224.484
	TOTAL	0.000	63.169	107.127	91.610	8.074	1.994	0.711	0.792	0.221	0.000	0.000	273.703
1960-61	CATCH	0.000	2.021	12.362	11.460	8.515	0.463	0.127	0.101	0.202	0.000	0.000	45.231
	SPAWNERS	0.000	9.978	39.271	31.940	24.129	1.351	0.353	0.297	0.606	0.000	0.000	94.909
	TOTAL	0.000	12.019	51.633	43.400	32.644	1.764	0.480	0.398	0.802	0.000	0.000	139.140

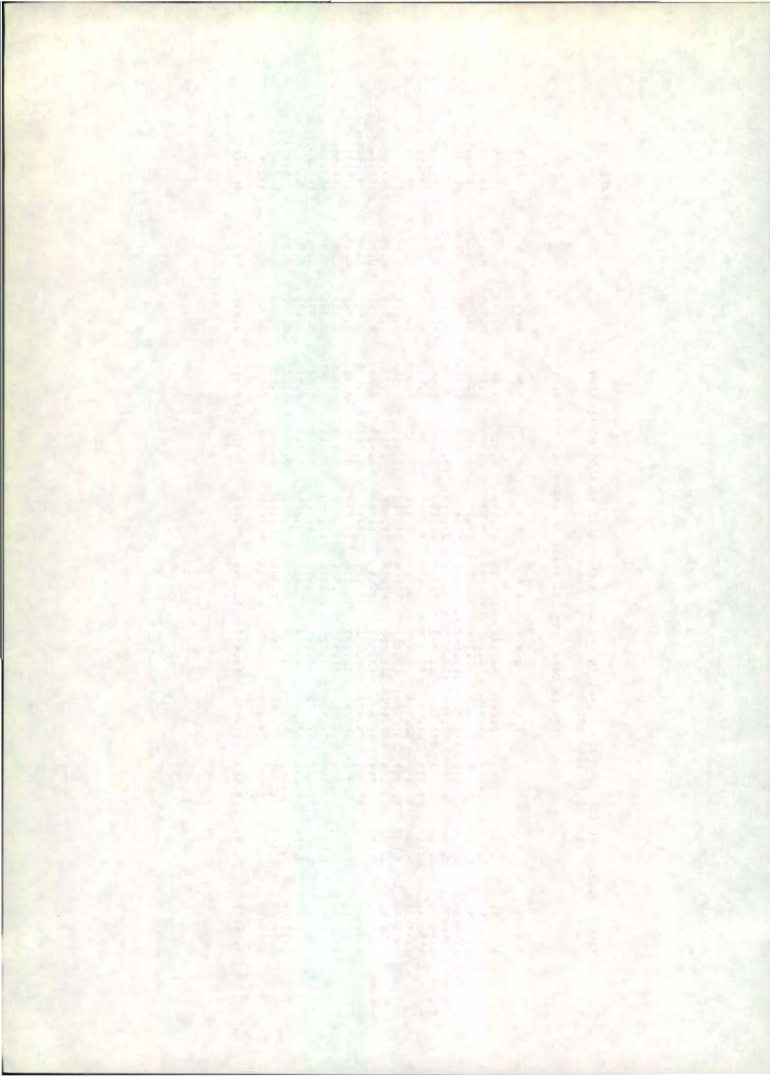
TABLE F 1. PERCENT AGE COMPOSITION FOR THE QUEEN CHARLOTTE ISLANDS POPULATION  
1950-51 TO 1969-70.

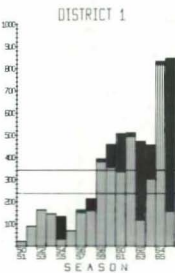
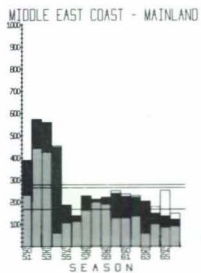
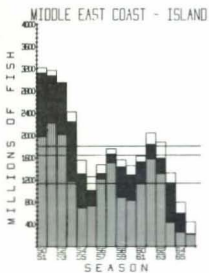
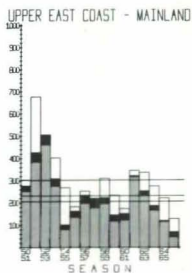
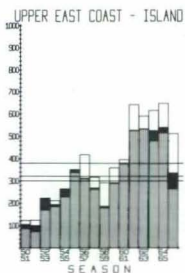
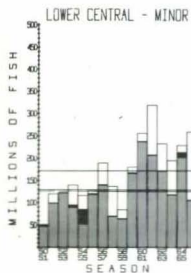
(ADJUSTED FOR SPANNERS ESTIMATED FROM SQ. YARDS OF SPAWN AND FECUNDITY)

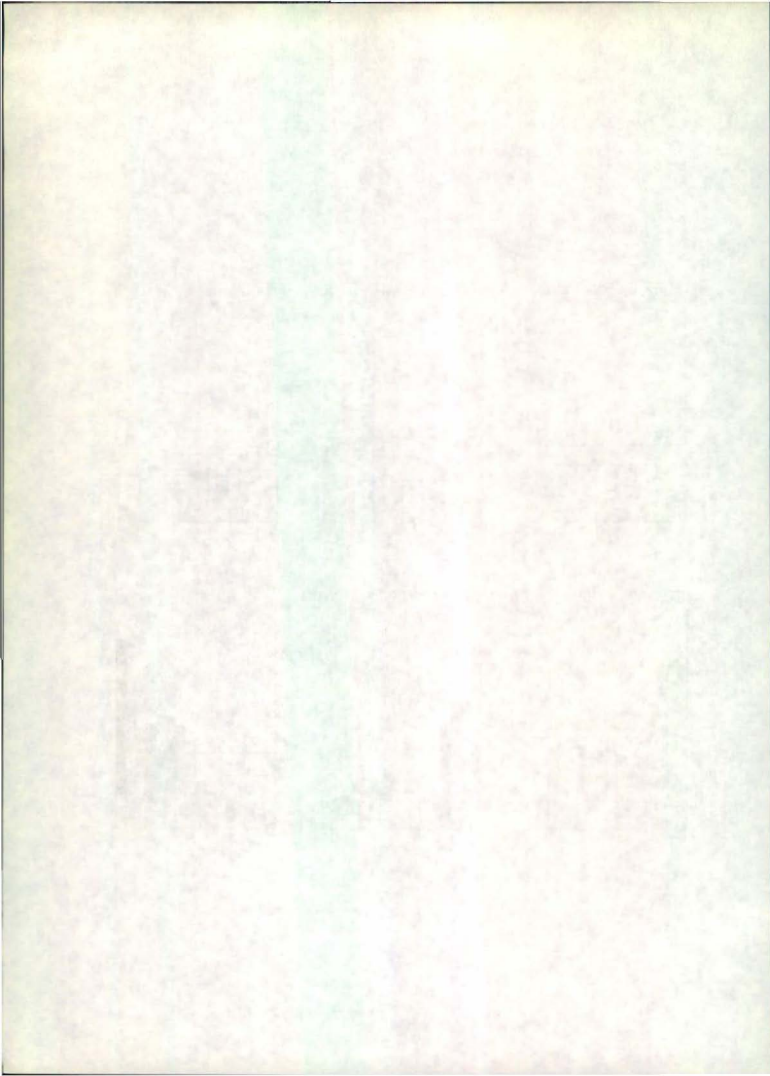
SEASON	A G E									
	0 +	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +
1950-51	0.000	0.071	14.732	53.203	15.651	11.601	4.111	0.551	0.079	0.000
1951-52	0.301	10.916	22.425	38.426	22.755	4.042	1.044	0.091	0.000	0.000
1952-53	0.000	1.030	43.625	19.238	25.607	9.189	1.310	0.000	0.000	0.000
1953-54	0.035	1.715	30.478	26.202	27.316	11.060	1.594	1.379	0.176	0.044
1954-55	0.000	6.074	13.568	44.627	18.061	13.709	3.635	0.234	0.042	0.051
1955-56	0.009	1.289	20.289	11.028	55.477	8.198	3.141	0.487	0.053	0.030
1956-57	0.151	19.074	22.720	15.684	10.212	28.446	2.969	0.556	0.188	0.000
1957-58	0.000	82.034	16.261	1.255	0.144	0.144	0.142	0.000	0.000	0.000
1958-59	0.000	3.632	56.985	18.649	8.554	5.826	2.896	1.669	0.889	0.901
1959-60	0.000	23.079	39.140	33.471	2.950	0.730	0.260	0.289	0.081	0.000
1960-61	0.000	5.934	35.247	32.100	24.156	1.320	0.355	0.295	0.593	0.000
1961-62	0.000	15.381	24.388	36.581	12.418	9.537	0.905	0.206	0.142	0.442
1962-63	0.000	0.432	45.797	24.832	20.076	4.652	3.782	0.144	0.108	0.178
1963-64	0.000	1.503	16.184	54.732	16.958	7.074	2.575	0.805	0.170	0.000
1964-65	0.000	2.235	73.961	13.026	6.040	2.539	1.426	0.664	0.069	0.021
1965-66	0.959	33.100	32.887	16.906	8.634	3.067	1.800	1.434	0.627	0.587
1966-67	0.544	4.089	57.639	22.306	6.473	5.506	1.782	1.293	0.326	0.020
1967-68	0.125	35.741	43.075	18.003	2.773	0.323	0.000	0.000	0.000	0.000
1968-69	1.464	72.285	22.811	3.006	0.338	0.094	0.000	0.000	0.000	0.000
1969-70	0.000	0.000	35.990	24.530	22.070	13.320	2.070	2.070	0.000	0.000
AVERAGE	0.179	15.981	33.410	25.390	15.372	7.019	1.790	0.608	0.177	0.114

TABLE 3.01. MILLIONS OF FISH AT AGE IN THE QUEEN CHARLOTTE ISLANDS POPULATION  
1950-51 TO 1969-70.

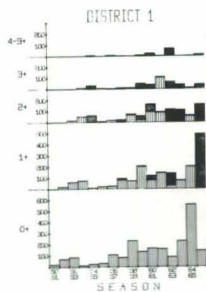
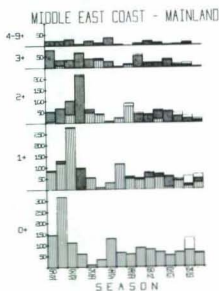
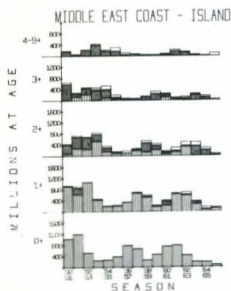
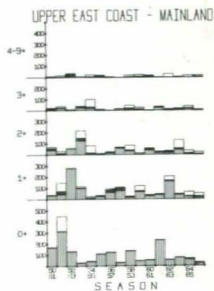
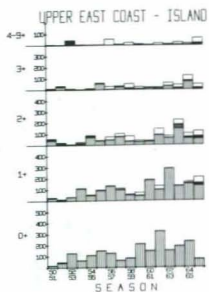
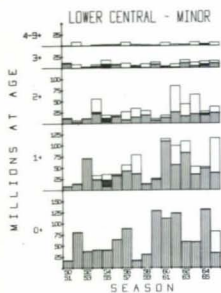
SEASON	SPAWNER DATA FROM SQ. YARDS OF SPAWN AND FECUNDITY										TOTAL
	0 +	1 +	2 +	3 +	A G E		6 +	7 +	8 +	9 +	
1950-51	0.000	0.083	17.244	52.275	18.320	13.579	4.812	0.645	0.093	0.000	117.051
1951-52	0.598	21.699	44.578	76.385	45.233	8.034	2.075	0.181	0.000	0.000	198.783
1952-53	0.000	1.143	48.400	21.344	28.410	10.195	1.453	0.000	0.000	0.000	110.945
1953-54	0.164	7.975	141.726	121.843	127.025	51.430	7.414	6.414	0.820	0.205	465.016
1954-55	0.000	16.769	37.460	123.212	49.864	37.850	10.035	0.646	0.117	0.141	276.094
1955-56	0.069	9.690	152.602	82.942	417.259	61.659	23.623	3.660	0.398	0.223	752.133
1956-57	0.410	51.623	61.491	42.450	27.639	76.989	8.035	1.505	0.509	0.000	270.651
1957-58	0.000	191.457	37.950	2.930	0.383	0.335	0.332	0.000	0.000	0.000	233.387
1958-59	0.000	12.937	202.955	66.421	30.464	20.748	10.313	5.944	3.165	3.268	356.155
1959-60	0.000	63.169	107.127	91.610	8.074	1.999	0.711	0.792	0.221	0.000	273.703
1960-61	0.000	8.019	47.533	43.380	32.644	1.784	0.480	0.398	0.802	0.000	135.140
1961-62	0.000	47.051	74.603	111.902	37.988	29.173	2.769	0.630	0.433	1.352	305.901
1962-63	0.000	0.988	134.744	56.795	45.916	10.639	8.651	0.329	0.248	0.406	228.716
1963-64	0.000	5.540	59.652	201.737	62.504	26.075	9.490	2.966	0.626	0.000	368.590
1964-65	0.000	9.906	327.763	57.726	26.854	11.250	6.318	2.942	0.304	0.095	443.158
1965-66	1.489	51.403	51.073	26.254	13.408	4.763	2.796	2.227	0.973	0.911	155.297
1966-67	0.219	1.645	23.186	8.973	2.612	2.215	0.717	0.520	0.131	0.008	40.226
1967-68	0.024	6.867	8.276	3.459	0.525	0.062	0.000	0.000	0.000	0.000	19.213
1968-69	1.649	81.403	25.688	3.385	0.381	0.106	0.000	0.000	0.000	0.000	112.612
1969-70	0.000	0.000	123.258	84.009	75.413	45.618	7.089	7.089	0.000	0.000	342.476
AVERAGE	0.231	29.469	84.870	64.452	52.546	20.725	5.356	1.844	0.442	0.327	260.262











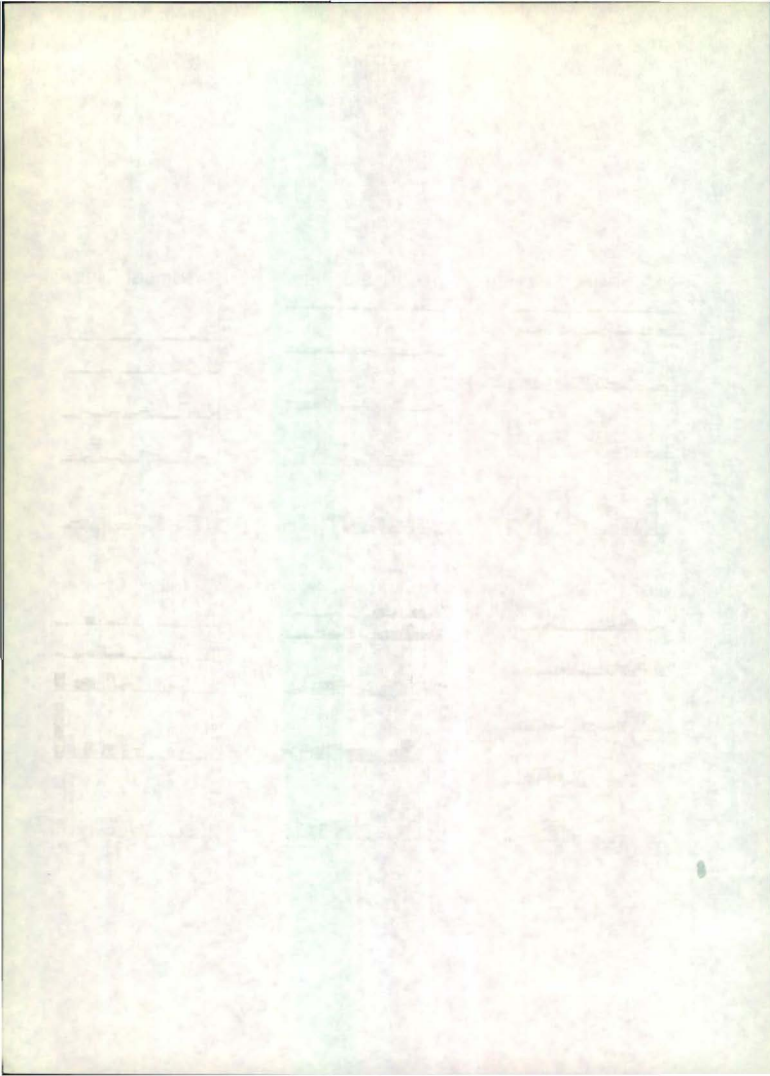


TABLE A. 1. MILLIONS OF FISH AT AGE IN THE QUEEN CHARLOTTE ISLANDS POPULATION 1950-51 TO 1969-70.

YEAR CLASS	0 +	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +
1950										
CATCH	.000	12.075	.705	73.667	46.479	60.551	7.789	.000	2.544	.000
SPAWNERS	.000	9.624	47.695	48.176	3.385	1.108	.246	.000	.621	.000
IMMATURES	346.368	285.495	181.439	34.861	49.864	61.659	8.035	.000	3.165	.000
TOTAL	346.368	307.194	229.839	156.704	1.1785	.513	.100	.000	.000	.215
1951										
CATCH	.598	.017	32.830	114.143	409.066	74.543	.321	4.930	.041	.000
SPAWNERS	.000	1.126	48.896	9.069	8.193	2.446	.011	1.014	.180	.000
IMMATURES	1847.004	1636.965	1134.019	685.784	417.259	76.989	.332	5.944	.221	.000
TOTAL	1847.602	1638.108	1275.745	808.996	4.320	1.132	.004	.004	.362	.062
1952										
CATCH	.000	7.687	35.699	81.539	26.776	.324	9.139	.141	.202	.773
SPAWNERS	.000	.288	1.761	1.403	.863	.011	1.174	.651	.600	.579
IMMATURES	330.399	285.056	184.766	44.624	27.639	.335	10.313	.792	.802	1.352
TOTAL	330.399	293.031	222.226	127.566	.455	.005	.005	.477	.232	.208
1953										
CATCH	.164	15.880	149.819	41.098	.370	19.974	.127	.101	.248	.281
SPAWNERS	.000	.889	2.783	1.352	.013	.774	.584	.297	.185	.125
IMMATURES	324.672	271.183	59.287	.000	.383	20.748	.711	.398	.433	.406
TOTAL	324.836	287.952	211.889	42.450	.007	.007	.358	.237	.106	.064
1954										
CATCH	.000	9.684	59.532	2.832	23.090	1.630	.127	.354	.079	.000
SPAWNERS	.000	.014	1.959	.098	7.374	1.369	.353	.276	.169	.000
IMMATURES	210.497	176.992	76.361	50.633	30.464	1.999	.480	.630	.248	.000
TOTAL	210.497	186.690	137.852	53.563	.027	3.888	.759	.144	.099	.027
1955										
CATCH	.069	49.955	36.463	42.844	1.452	.463	1.571	.232	.095	.095
SPAWNERS	.000	1.668	1.487	23.577	6.622	1.321	1.198	.097	.220	.000
IMMATURES	249.724	169.857	95.634	.000	8.074	1.784	2.769	.329	.626	.095
TOTAL	249.793	221.480	133.584	66.421	.074	3.492	.612	.487	.035	.076
1956										
CATCH	.610	183.062	134.839	16.476	8.515	16.433	6.040	1.612	.304	.506
SPAWNERS	.000	8.395	68.116	75.134	24.129	12.740	2.611	1.354	.000	.405
IMMATURES	595.554	336.740	65.835	.000	.000	.000	.000	.000	.000	.000
TOTAL	595.964	528.197	268.791	91.610	37.644	12.723	5.899	1.062	.483	.000
1957										
CATCH	.000	9.675	19.264	11.440	21.420	7.634	6.153	2.791	4.333	.004
SPAWNERS	.000	3.262	87.463	31.940	16.568	3.205	3.337	.151	.540	.094
IMMATURES	196.935	161.724	21.364	31.321	10.639	9.400	2.942	.973	.008	.008
TOTAL	196.935	174.661	126.491	74.701	37.988	10.639	9.400	2.942	.973	.008
						6.736	1.484	1.357	.054	.187

TABLE 3.01. MILLIONS OF FISH AT AGE IN THE QUEEN CHARLOTTE ISLANDS POPULATION  
1950-51 TO 1969-70.

SEASON	0 +	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +	TOTAL
1950-51											
CATCH	0.000	0.023	4.669	16.858	4.960	3.676	1.303	0.175	0.025	0.000	31.669
SPAWNERS	0.000	0.060	12.575	45.617	13.360	9.703	3.509	0.470	0.068	0.000	85.362
IMMATURES	346.368	429.532	111.764	29.909	71.909	42.184	18.320	6.645	0.093	0.000	924.573
TOTAL	346.368	429.532	133.008	72.184	18.320	11.979	4.812	0.645	0.093	0.000	1041.624
1951-52											
CATCH	0.598	12.075	26.809	42.512	25.172	6.473	1.156	0.101	0.000	0.000	110.896
SPAWNERS	0.000	0.622	19.760	33.873	20.061	3.561	0.919	0.080	0.000	0.000	87.887
IMMATURES	184.004	295.695	289.998	13.638	13.638	13.638	13.638	13.638	13.638	13.638	245.925
TOTAL	184.602	307.194	336.566	59.823	45.233	8.034	2.075	0.181	0.000	0.000	263.478
1952-53											
CATCH	0.000	0.017	3.705	0.311	0.434	0.169	0.021	0.000	0.000	0.000	1.617
SPAWNERS	0.000	1.126	47.695	21.033	27.996	10.046	1.452	0.009	0.000	0.000	109.328
IMMATURES	330.399	1636.965	181.439	190.899	190.899	10.195	1.453	0.000	0.000	0.000	2329.301
TOTAL	330.399	1638.108	227.859	211.843	28.410	10.195	1.453	0.000	0.000	0.000	2459.246
1953-54											
CATCH	0.164	7.687	92.830	73.667	112.334	36.098	7.146	2.817	0.790	0.198	333.731
SPAWNERS	0.000	0.268	48.898	48.176	14.691	13.332	0.268	3.597	0.030	0.007	131.285
IMMATURES	324.672	285.056	1134.019	34.561	14.691	13.332	0.268	3.597	0.030	0.007	1778.609
TOTAL	324.836	293.031	1277.745	156.704	127.025	51.430	7.414	6.414	0.820	0.205	2243.625
1954-55											
CATCH	0.000	15.880	35.699	114.143	46.479	33.790	8.616	0.513	0.117	0.141	235.378
SPAWNERS	0.000	0.889	1.791	9.069	3.385	4.060	1.419	0.133	0.000	0.000	20.716
IMMATURES	210.497	271.183	184.766	685.784	685.784	685.784	685.784	685.784	685.784	685.784	1352.629
TOTAL	210.497	287.952	222.226	808.996	40.864	37.850	10.035	0.646	0.117	0.141	1628.323
1955-56											
CATCH	0.069	9.684	149.819	81.539	409.066	63.551	23.215	3.694	0.398	0.219	738.164
SPAWNERS	0.000	0.014	2.783	1.403	8.193	1.108	0.408	0.056	0.000	0.004	13.969
IMMATURES	249.724	176.992	59.287	44.624	41.259	61.659	23.623	3.660	0.398	0.223	530.627
TOTAL	249.793	186.690	211.869	127.566	417.259	61.659	23.623	3.660	0.398	0.223	1282.760
1956-57											
CATCH	0.410	49.955	59.552	41.098	25.776	74.543	7.789	1.462	0.495	0.000	262.060
SPAWNERS	0.000	1.668	1.959	1.352	0.863	2.446	0.246	0.043	0.014	0.000	8.591
IMMATURES	598.554	169.857	70.361	0.000	0.000	0.000	0.000	0.000	0.000	0.000	841.773
TOTAL	598.964	221.460	137.852	42.450	27.639	76.989	8.035	1.505	0.509	0.000	1112.424
1957-58											
CATCH	0.000	193.062	36.463	2.832	0.370	0.324	0.321	0.000	0.000	0.000	223.372
SPAWNERS	0.000	8.395	1.487	0.098	0.013	0.011	0.011	0.000	0.000	0.000	10.015
IMMATURES	190.935	336.740	95.634	50.633	0.383	0.335	0.332	0.000	0.000	0.000	679.942
TOTAL	190.935	528.197	133.564	53.563	0.383	0.335	0.332	0.000	0.000	0.000	913.329
1958-59											
CATCH	0.000	9.675	134.839	42.844	23.040	19.074	9.139	4.930	2.544	2.552	249.587
SPAWNERS	0.000	3.262	68.116	23.577	7.374	0.774	1.174	1.014	0.621	0.656	106.568
IMMATURES	325.982	161.724	65.836	0.000	0.000	0.000	0.000	0.000	0.000	0.000	533.542
TOTAL	325.982	174.661	268.791	66.421	30.464	20.748	10.313	5.944	3.165	3.208	909.697

TABLE H 1. PERCENT AGE COMPOSITION FOR THE QUEEN CHARLOTTE ISLANDS POPULATION  
1950-51 TO 1969-70.

SEASON	A G E									
	0 +	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +
1950-51	33.253	41.245	13.057	8.850	1.759	1.304	0.462	0.062	0.009	0.000
1951-52	70.125	11.660	12.698	3.409	1.717	0.305	0.079	0.007	0.000	0.000
1952-53	13.484	66.855	9.380	8.646	1.159	0.416	0.059	0.000	0.000	0.000
1953-54	14.478	13.061	56.861	6.984	5.662	2.292	0.330	0.286	0.037	0.009
1954-55	12.927	17.684	13.648	49.683	3.062	2.324	0.616	0.040	0.007	0.009
1955-56	19.473	14.554	16.518	9.945	32.528	4.807	1.842	0.285	0.031	0.017
1956-57	53.574	19.910	12.392	3.816	2.485	6.921	0.722	0.135	0.046	0.000
1957-58	21.562	57.832	14.626	5.865	0.042	0.037	0.036	0.000	0.000	0.000
1958-59	35.834	19.200	29.547	7.301	3.349	2.281	1.134	0.653	0.348	0.353
1959-60	41.208	32.624	14.499	10.337	0.911	0.226	0.080	0.089	0.025	0.000
1960-61	46.460	26.637	17.790	6.144	2.695	0.147	0.039	0.033	0.066	0.000
1961-62	19.205	42.013	21.019	11.696	3.195	2.446	0.232	0.053	0.036	0.113
1962-63	39.709	15.665	28.476	11.046	3.541	0.920	0.667	0.025	0.019	0.031
1963-64	8.445	45.490	15.705	20.233	6.226	2.597	0.945	0.295	0.062	0.000
1964-65	10.902	12.100	56.715	12.596	4.371	1.810	1.017	0.473	0.049	0.015
1965-66	62.413	13.899	11.814	6.073	3.191	1.102	0.647	0.515	0.225	0.211
AVERAGE	31.441	28.152	21.547	11.414	4.733	1.865	0.557	0.185	0.060	0.047

TABLE 2. MER LOCALITY CODINGS FOR R.C. HERRING DATA.  
ALPHABETICAL LISTING BY AREA (REVISED 04/04/73)

CODE AREA	LOCALITY 10	CODE AREA	LOCALITY 21
5	AWUN BAY	28	VILLAGE BAY
7	JUSKATLA INLET		
1	LANGARA (NORTH) ISLAND		
2	MASSET INLET		
3	NADEN HARBOUR		
1	NORTH (LANGARA) ISLAND		
8	ROSE SPIT-OFFSHORE		
6	SALT LAGOON		
4	SHAG ROCK		
			AREA 22
		13	ATHLOW BAY
		29	BOOMCHAIN BAY
		14	BOTANY BAY
		15	CLAPP BASIN
		16	CLONARD BAY
		17	DAWSON HARBOUR
		18	DOUGLAS INLET
		12	DOWNIE ISLAND
		31	EMPIRE ANCHORAGE
		8	ENGLEFIELD BAY
		19	FAIRFAX INLET
		3	INSKIP CHANNEL
		20	KAND INLET
		10	MCKENZIE COVE
		21	MITCHELL INLET
		22	MUDGE INLET
		7	NEWCOME INLET
		23	PEEL INLET
		5	PORT CHANAL
		1	PORT LOUIS
		24	REID POINT
		2	RENNELL SOUND
		25	SEAL INLET
		30	SECURITY COVE
		9	SECURITY INLET
		11	SHIELDS BAY
		6	SKIDEGATE CHANNEL-WEST
		26	TARTU INLET
		4	TASU SOUND
		27	TWO MOUNTAIN BAY
		28	WILSON BAY
	AREA 21		
3	ALLIFORD BAY		
4	ANTHRACITE POINT		
27	BARE ISLAND		
5	BEATTIE POINT		
6	CHRISTIE BAY		
31	DEENA CREEK		
24	FLOWERY ISLAND		
23	GILLATT ISLAND		
30	GRASSIE ISLAND		
2	HECATE STR-OFF SKIDEGATE		
8	IMAGE POINT		
9	JEWELL ISLAND		
10	KAGAN BAY		
11	KWUNA POINT		
33	LAWN POINT		
12	LILLIHORN ISLAND		
13	LINA ISLAND		
14	LONG INLET		
16	MAPLE ISLAND		
15	MAUDE ISLAND		
17	ONWARD POINT		
26	QUEEN CHARLOTTE CITY		
32	ROONEY BAY		
18	SALTSPRING BAY		
19	SANDILANDS ISLAND		
20	SHINGLE BAY		
1	SKIDEGATE INLET		
29	SKIDEGATE VILLAGE		
21	SOUTH BAY		
22	TORRENS ISLAND		
25	TREE ISLAND		



TABLE 1. MER LOCALITY CODINGS FOR P.C. HERRING DATA.  
NUMERICAL LISTING BY AREA (REVISED 04/04/73)

CODE AREA	LOCALITY 10	CODE AREA	LOCALITY 21
0	(FRB CODE FOR ARO10, LOC 80)	30	GRASSIE ISLAND
1	LANGARA (NORTH) ISLAND	31	DEENA CREEK
1	NORTH (LANGARA) ISLAND	32	RODNEY BAY
2	MASSET INLET	33	LAWN POINT
3	NADEN HARBOUR	80	UNKNOWN
4	SHAG ROCK		
5	AWUN BAY		
6	SALT LAGOON		
7	JUSKATLA INLET		
8	ROSE SPIT-OFFSHORE		
80	UNKNOWN		
			AREA 22
		0	(FRB CODE FOR ARO22, LOC 80)
		1	PORT LOUIS
		2	RENNELL SOUND
		3	INSKIP CHANNEL
		4	TASU SOUND
		5	PORT CHANAL
		6	SKIDEGATE CHANNEL-WEST
		7	NEWCOMBE INLET
		8	ENGLEFIELD BAY
		9	SECURITY INLET
		10	MCKENZIE COVE
		11	SHIELDS BAY
		12	DOWNIE ISLAND
		13	ATHLOW BAY
		14	BOTANY BAY
		15	CLAPP BASIN
		16	CLONARD BAY
		17	DAWSON HARBOUR
		18	DOUGLAS INLET
		19	FAIRFAX INLET
		20	KANO INLET
		21	MITCHELL INLET
		22	MUDGE INLET
		23	PEEL INLET
		24	REID POINT
		25	SEAL INLET
		26	TARTU INLET
		27	TWO MOUNTAIN BAY
		28	WILSON BAY
		29	BUOMCHAIN BAY
		30	SECURITY COVE
		31	EMPIRE ANCHORAGE
		80	UNKNOWN
	AREA 21		
0	(FRB CODE FOR ARO21, LOC 80)		
1	SKIDEGATE INLET		
2	HECATE STR-OFF SKIDEGATE		
3	ALLIFORD BAY		
4	ANTHRACITE POINT		
5	BEATTIE POINT		
6	CHRISTIE BAY		
8	IMAGE POINT		
9	JEWELL ISLAND		
10	KAGAN BAY		
11	KWUNA POINT		
12	LILLIHORN ISLAND		
13	LINA ISLAND		
14	LONG INLET		
15	MAUDE ISLAND		
16	MAPLE ISLAND		
17	ONWARD POINT		
18	SALTSPRING BAY		
19	SANDILANDS ISLAND		
20	SHINGLE BAY		
21	SOUTH BAY		
22	TORRENS ISLAND		
23	GILLATT ISLAND		
24	FLOWERY ISLAND		
25	TREE ISLAND		
26	QUEEN CHARLOTTE CITY		
27	BARE ISLAND		
28	VILLAGE BAY		
29	SKIDEGATE VILLAGE		

TABLE 3. MEB LOCALITY CODINGS FOR B.C. HERRING DATA. PAGE 38  
ALPHABETICAL LISTING (REVISED 04/04/73)

AREA LOC.	PLACE NAME	AREA LOC.	PLACE NAME
63	1 AALTANASH INLET	160	31 BARGAIN NARROWS
51	27 ABSALOM ISLAND	23	20 BARGE POINT
180	10 ACTIVE PASS	230	14 BARKLEY SOUND
81	7 ADDENBROKE ISLAND	61	1 BARNARD HARBOUR
240	31 ADVENTURE POINT	122	10 BARONET PASSAGE
124	3 AHNUHATI POINT	42	28 BARPET ROCK
52	6 ALA PASS	121	1 GATES PASSAGE
79	7 ALARM COVE	140	9 BAYNES SOUND
190	2 ALBERT HEAD	240	20 BAWDEN BAY
121	5 ALERT BAY	133	4 BEAR BAY
62	4 ALEXANDER INLET	23	21 BEATTIE ANCHORAGE
90	17 ALLARD BAY	21	5 BEATTIE POINT
21	3 ALLIFORD BAY	121	9 BEAVER COVE
110	6 ALLISON HARBOUR	121	14 BEAVER HARBOUR (FT. RUPERT)
260	4 AMAT (DEEP) INLET	51	5 BEAVER PASSAGE
260	10 AMOS ISLAND	180	12 BEAVER POINT
230	19 AMPHITRITE POINT	202	16 BECHER BAY
270	19 ANCHORAGE ISLAND	280	15 BEDWELL BAY
230	37 ANCHORAGE ISLAND	180	31 BEDWELL HARBOUR
160	28 ANDERSON BAY	240	9 BEDWELL SOUND
202	7 ANDERSON COVE	202	5 BEECHEY HEAD
250	23 ANDERSON POINT	110	3 BELIZE INLET
52	17 ANGER ISLAND	23	22 BELJAY BAY
160	16 ANNETTE INLET	71	9 BELLA BELLA
21	4 ANTHRACITE POINT	83	99 BELLA COOLA
270	11 APPLE BAY	123	1 BELLEISLE SOUND
71	76 ARDMILLAN BAY	42	20 BELLETTI ISLAND
41	7 ARTHUR PASSAGE	508	3 BELLINGHAM BAY
61	25 ASHDOWN (PASSAGE) ISLAND	131	18 BELLS BAY
22	13 ATHLOW BAY	122	29 BEND ISLAND
260	22 ATKIS ISLAND	172	57 BEN MOHR ROCK
23	17 ATLI INLET	71	34 BERRY INLET
150	14 ATREVIDA REEF	122	24 BEWARE COVE
10	5 AWUN BAY	122	18 BEWARE PASSAGE
		230	26 BIG BANK
		42	4 BIG BAY
		23	23 BIG GOOSE BAY
		140	22 BIG QUALICUM RIVER
		23	11 BIGSBY INLET
		240	32 BIG WHITEPINE COVE
		51	24 BILLY ISLAND
23	19 BAG HARBOUR	508	1 BIRCH BAY
52	9 BAKER INLET	180	24 BIRDSEYE COVE
71	32 BALAGNY PASSAGE	31	5 BIRNIE ISLAND
171	12 BALLENAS CHANNEL	66	16 BISHOP BAY
160	34 BALLETT BAY	172	24 BLACKBERRY POINT
172	46 BALLINGALL ISLETS	122	6 BLACKFISH SOUND
230	24 BAMFIELD	508	4 BLAINE HARBOUR
51	15 BANKS ISLAND	71	53 BLAIR INLET
21	27 BARE ISLAND	250	4 BLIGH ISLAND-S.W. SHORE
160	14 BARGAIN BAY		

TABLE 2.01. MILLIONS OF FISH AT AGE IN AREA 21, 1950-51 TO 1969-70.

SPAWNER DATA FROM SO. YARDS OF SPAWN AND FECUNDITY

SEASON	0 +	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +	TOTAL
1950-51											
CATCH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SPAWNERS	0.000	0.004	0.856	3.093	0.910	0.674	0.239	0.032	0.005	0.000	5.813
TOTAL	0.000	0.004	0.856	3.093	0.910	0.674	0.239	0.032	0.005	0.000	5.813
1951-52											
CATCH	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SPAWNERS	0.000	0.935	1.921	3.291	1.949	0.346	0.089	0.008	0.000	0.000	9.539
TOTAL	0.000	0.935	1.921	3.291	1.949	0.346	0.089	0.008	0.000	0.000	8.539
1952-53											
CATCH	0.000	0.017	0.705	0.311	0.414	0.149	0.021	0.000	0.000	0.000	1.617
SPAWNERS	0.000	0.137	5.802	2.558	1.222	0.174	0.174	0.000	0.000	0.000	13.299
TOTAL	0.000	0.154	6.507	2.869	3.820	1.371	0.195	0.000	0.000	0.000	14.916
1953-54											
CATCH	0.164	7.687	85.535	66.373	110.650	33.853	7.146	2.256	0.790	0.198	314.652
SPAWNERS	0.000	0.288	3.210	2.491	4.154	1.271	0.268	0.085	0.030	0.007	11.804
TOTAL	0.164	7.975	88.745	68.864	114.804	35.124	7.414	2.341	0.820	0.205	326.456
1954-55											
CATCH	0.000	15.610	35.165	111.392	45.452	32.558	8.185	0.473	0.117	0.141	249.093
SPAWNERS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	15.610	35.165	111.392	45.452	32.558	8.185	0.473	0.117	0.141	249.093
1955-56											
CATCH	0.069	8.994	16.692	14.436	17.160	7.533	3.734	0.950	0.398	0.036	70.002
SPAWNERS	0.000	0.021	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.069	8.995	16.693	14.437	17.161	7.533	3.734	0.950	0.398	0.036	70.006
1956-57											
CATCH	0.000	0.547	3.162	2.740	2.642	0.624	0.624	0.325	0.066	0.000	12.124
SPAWNERS	0.000	0.012	0.069	0.060	0.048	0.058	0.014	0.007	0.044	0.000	0.265
TOTAL	0.000	0.559	3.231	2.800	2.692	0.682	0.638	0.332	0.067	0.000	12.389
1957-58											
CATCH	0.000	0.344	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.382
SPAWNERS	0.000	1.096	0.122	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.218
TOTAL	0.000	1.440	0.160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.600
1958-59											
CATCH	0.000	8.939	83.281	16.723	8.685	2.681	4.071	3.514	2.153	2.274	132.321
SPAWNERS	0.000	0.364	3.386	0.680	0.109	0.166	0.166	0.143	0.083	0.093	5.382
TOTAL	0.000	9.303	86.667	17.403	9.038	2.790	4.237	3.657	2.241	2.367	137.703
1959-60											
CATCH	0.000	11.358	19.264	16.476	1.452	0.360	0.137	0.141	0.041	0.000	49.219
SPAWNERS	0.000	1.038	1.811	1.549	0.136	0.034	0.012	0.013	0.008	0.000	4.627
TOTAL	0.000	12.426	21.075	18.025	1.588	0.394	0.139	0.154	0.049	0.000	53.846
1960-61											
CATCH	0.000	1.192	7.901	7.619	5.516	0.295	0.086	0.060	0.119	0.000	22.788
SPAWNERS	0.000	1.880	12.462	12.019	6.702	0.464	0.137	0.093	0.167	0.000	35.944
TOTAL	0.000	3.072	20.363	19.638	14.218	0.759	0.223	0.153	0.336	0.000	58.732

TABLE 6 1. PERCENT AGE COMPOSITION FOR AREA 21, 1950-51 TO 1969-70.

(ADJUSTED FOR SPANNERS ESTIMATED FROM 50 YARDS OF SPAWN AND FECUNDITY)

SEASON	0 +	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +
1950-51	0.000	0.069	1.726	53.268	15.655	11.595	4.111	0.550	0.086	0.000
1951-52	0.000	10.950	2.497	38.541	22.875	4.352	1.042	0.094	0.000	0.000
1952-53	0.000	1.332	4.624	17.234	25.610	9.191	1.307	0.000	0.000	0.000
1953-54	0.050	2.443	2.184	21.084	35.167	10.759	2.071	0.717	0.231	0.063
1954-55	0.000	6.267	1.117	44.719	18.247	13.071	3.286	0.190	0.347	0.057
1955-56	0.099	12.849	23.845	20.623	24.514	5.334	1.357	1.357	0.569	0.051
1956-57	0.000	4.812	21.080	22.601	16.644	21.794	5.150	2.680	0.541	0.000
1957-58	0.000	90.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1958-59	0.000	6.756	62.938	12.638	6.563	2.026	3.077	2.656	1.627	1.719
1959-60	0.000	23.077	35.139	33.475	2.949	0.732	0.258	0.286	0.084	0.000
1960-61	0.000	5.231	34.671	33.437	24.208	1.292	0.380	0.261	0.521	0.000
1961-62	0.000	24.723	10.262	38.875	13.684	10.218	1.246	0.077	0.239	0.745
1962-63	0.000	0.736	20.787	10.265	27.130	17.989	13.643	0.977	0.000	0.472
1963-64	0.000	5.088	24.657	26.538	13.583	13.706	9.779	5.247	1.400	0.150
1964-65	0.000	4.320	35.307	30.764	15.723	6.024	4.325	2.907	0.480	0.000
1965-66	0.879	43.178	21.727	14.618	11.903	3.894	1.588	1.357	0.320	0.536
1966-67	3.157	11.590	34.266	12.137	15.439	11.979	5.325	4.325	1.081	0.038
1967-68	0.316	39.852	31.938	18.508	3.058	0.527	0.000	0.000	0.000	0.000
1968-69	5.686	69.189	21.836	2.876	0.324	0.090	0.000	0.000	0.000	0.000
1969-70	0.000	0.000	35.940	24.532	22.021	13.312	2.073	2.073	0.000	0.000
AVERAGE	0.509	18.083	28.470	23.936	15.762	8.151	3.240	1.294	0.352	0.193

TABLE 3-01. MILLIONS OF FISH AT AGE IN AREA 21, 1950-51 TO 1969-70.

SPAWNER DATA FROM SQ. YARDS OF SPAWN AND FECUNDITY

SEASON	0 +	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +	TOTAL
1960-61	0.000	0.004	0.856	3.093	0.910	0.674	0.239	0.632	0.005	0.000	5.813
1961-62	0.000	0.935	1.921	2.921	1.949	0.946	0.589	0.008	0.000	0.000	8.339
1962-63	0.000	0.184	6.557	2.869	3.820	1.371	0.195	0.000	0.000	0.000	14.216
1963-64	0.000	7.375	88.745	66.869	114.804	3.124	7.414	2.341	0.020	0.203	326.556
1964-65	0.000	15.610	35.165	111.392	45.452	3.258	8.185	0.473	0.117	0.141	249.093
1965-66	0.069	8.995	16.593	14.837	17.161	7.533	3.734	0.950	0.894	0.036	70.006
1966-67	0.000	0.359	3.231	2.800	2.062	0.700	0.636	0.332	0.067	0.000	12.389
1967-68	0.000	1.440	0.150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.600
1968-69	0.000	7.303	86.667	17.403	9.038	2.790	4.237	3.657	2.241	2.367	137.703
1969-70	0.000	12.426	21.075	18.025	1.588	0.394	0.139	0.194	0.045	0.000	53.946
AVERAGE	0.000	3.072	20.363	19.638	14.218	0.759	0.223	0.153	0.306	0.000	34.732
1961-62	0.000	26.997	10.968	4.552	14.943	11.158	1.361	0.226	0.261	0.814	104.200
1962-63	0.000	0.184	7.193	2.565	4.995	3.401	0.784	0.261	0.000	0.118	24.987
1963-64	0.000	2.275	11.024	11.895	6.073	6.128	4.372	2.346	0.626	0.000	44.709
1964-65	0.000	2.736	22.354	19.482	9.957	3.815	2.739	1.841	0.304	0.000	63.228
1965-66	0.495	24.315	12.235	8.232	6.703	2.193	0.894	0.764	0.180	0.302	56.313
1966-67	0.219	3.604	2.377	0.844	1.071	0.831	0.412	0.300	0.075	0.064	6.937
1967-68	0.012	1.504	1.439	0.702	3.116	0.020	6.000	0.000	0.000	0.000	3.793
1968-69	1.649	20.667	6.333	0.834	0.094	0.026	0.300	0.000	0.000	0.000	29.003
1969-70	0.000	0.000	3.612	2.462	2.210	1.336	0.208	0.268	0.000	0.000	10.036
AVERAGE	0.130	6.968	17.947	17.563	12.947	5.713	1.924	0.701	0.272	0.204	64.370

TABLE 3. THOUSANDS OF FISH PER TON BY SAMPLE, 1967-68. PAGE 13

AREA	WEEK	SAMPLE NUMBER - THOUSANDS OF FISH PER TON
10	28	45 - 20.14
29	47	20 - 20.92
31	49	1 - 9.87
32	43	3 - 17.33
41	44	5 - 12.67
45	14	6 - 12.19
46	13	7 - 13.42
47	15	8 - 11.15
48	16	9 - 13.91
49	17	10 - 14.40
50	18	11 - 12.77
51	19	12 - 14.86
52	20	13 - 12.62
53	21	14 - 17.52
54	22	15 - 11.95
55	23	16 - 14.00
56	24	17 - 18.00
57	25	18 - 9.00
58	26	19 - 14.00
59	27	20 - 10.92
60	28	21 - 17.07
61	29	22 - 19.83
62	29	23 - 21.80
63	29	24 - 22.83
64	29	25 - 20.46
65	29	26 - 19.50
66	31	27 - 18.00
67	31	28 - 16.33
68	31	29 - 19.49
69	31	30 - 9.78
70	31	31 - 11.00
71	42	32 - 5.78
72	35	33 - 10.00
73	35	34 - 10.73
74	35	35 - 14.40
75	35	36 - 14.40
76	35	37 - 21.82
77	44	38 - 17.00
78	46	39 - 17.35
79	48	40 - 7.59
80	29	41 - 13.11
81	29	42 - 20.63
82	29	43 - 9.16
83	28	44 - 13.49
84	29	45 - 11.41
85	29	46 - 12.67
86	36	47 - 9.33
87	55	48 - 9.85
88	55	49 - 9.36
89	55	50 - 9.16
90	55	51 - 9.28
91	28	52 - 36.00
92	36	53 - 39.83
93	63	54 - 29.83
94	37	55 - 28.08
95	62	56 - 21.78
96	28	57 - 9.93
97	29	58 - 15.38
98	35	59 - 15.38
99	68	60 - 38.90
100	36	61 - 45.25
101	11	62 - 45.92
102	72	63 - 14.77
103	23	64 - 13.79
104	27	65 - 13.79
105	28	66 - 11.18
106	28	67 - 11.57
107	230	68 - 7.56
108	47	69 - 7.56
109	87	70 - 9.67
110	95	71 - 8.00
111	85	72 - 9.24
112	90	73 - 9.41
113	91	74 - 8.63
114	92	75 - 9.36
115	85	76 - 11.69
116	85	77 - 11.56
117	93	78 - 8.58
118	94	79 - 8.67
119	94	80 - 8.67
120	94	81 - 8.67
121	94	82 - 8.67
122	94	83 - 8.67
123	94	84 - 8.67
124	94	85 - 8.67
125	94	86 - 8.67
126	94	87 - 8.67
127	94	88 - 8.67
128	94	89 - 8.67
129	94	90 - 8.67
130	94	91 - 8.67
131	94	92 - 8.67
132	94	93 - 8.67
133	94	94 - 8.67
134	94	95 - 8.67
135	94	96 - 8.67
136	94	97 - 8.67
137	94	98 - 8.67
138	94	99 - 8.67
139	94	100 - 8.67





PAGE I

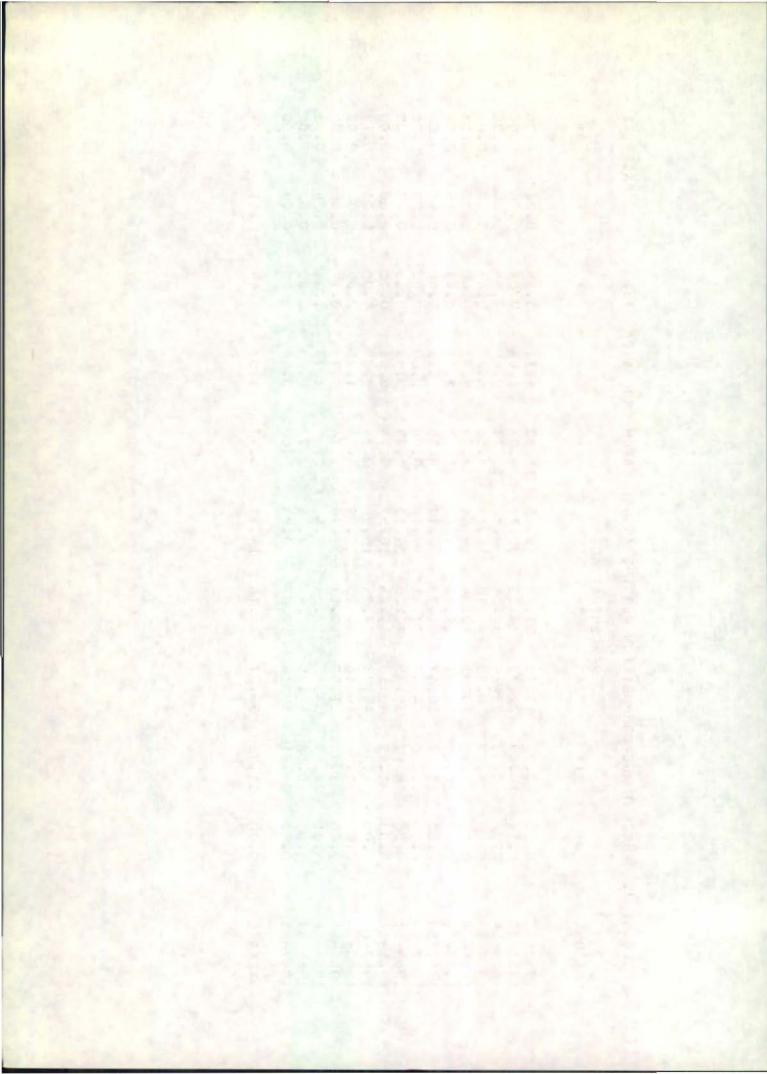
TABLE 5. 1. MILLIONS OF FISH AT AGE IN THE ANNUAL CATCH FROM AREA 23.

SEASON	0+	1+	2+	3+	4+	MILLIONS OF FISH AT AGE					TOTAL	
						4+	5+	6+	7+	8+	9+	
1950-51	0.000	0.023	4.669	16.858	4.960	3.676	1.303	0.175	0.025	0.000	0.000	31.688
1951-52	0.598	12.075	24.809	42.512	25.172	4.473	1.156	0.101	0.000	0.000	0.000	110.895
1953-54	0.000	0.000	7.295	7.295	1.684	2.245	0.000	0.561	0.000	0.000	0.000	19.075
1954-55	0.000	0.270	0.534	2.751	1.027	1.232	0.430	0.040	0.000	0.000	0.000	6.233
1955-56	0.000	0.690	133.127	67.102	391.906	53.018	19.480	2.694	0.000	0.183	0.000	668.153
1956-57	0.410	49.316	54.875	37.719	24.307	70.995	6.901	1.052	0.000	0.366	0.000	205.950
1957-58	0.000	178.458	35.952	2.832	0.370	0.324	0.321	0.000	0.000	0.000	0.000	213.250
1958-59	0.000	0.735	47.407	20.160	5.236	0.000	0.000	0.000	0.000	0.000	0.000	53.233
1960-61	0.000	0.830	4.461	3.821	2.999	0.168	0.041	0.041	0.083	0.000	0.000	12.243
1961-62	0.000	1.261	30.801	22.687	7.221	5.832	0.278	0.139	0.000	0.000	0.000	68.243
1962-63	0.000	0.509	65.398	36.697	25.312	3.158	2.798	0.000	0.169	0.000	0.169	128.209
1963-64	0.000	2.640	35.319	150.062	44.888	13.376	3.135	0.000	0.000	0.000	0.000	589.819
1964-65	0.000	6.876	287.749	35.781	13.056	6.231	2.757	0.606	0.000	0.000	0.000	393.055
1965-66	0.000	8.114	11.617	5.363	1.934	0.720	0.532	0.401	0.220	0.000	0.000	30.057
1966-67	0.000	0.018	1.366	0.530	0.053	0.054	0.000	0.000	0.000	0.523	0.000	2.000
1967-68	0.012	0.428	0.722	0.246	0.032	0.000	0.000	0.000	0.000	0.000	0.000	1.439
AVERAGE	0.125	16.390	46.650	28.275	34.384	10.343	2.445	0.360	0.054	0.032	0.032	139.043

TABLE 3. 3. PERCENT AGE COMPOSITION FOR THE ANNUAL CATCH FROM AREA 23.

PAGE 1

SEASON	PERCENT AT AGE									
	0+	1+	2+	3+	4+	5+	6+	7+	8+	9+
1950-51	0.00	0.07	14.73	53.20	15.65	11.60	4.11	0.55	0.08	0.00
1951-52	0.54	10.89	22.37	38.33	22.70	4.03	1.04	0.09	0.00	0.00
1953-54	0.00	0.00	38.24	38.24	8.82	11.77	0.00	2.94	0.00	0.00
1954-55	0.00	4.29	8.50	43.78	16.34	19.60	6.85	0.64	0.00	0.00
1955-56	0.00	0.10	19.92	10.04	58.65	7.93	2.92	0.40	0.00	0.03
1956-57	0.17	20.05	22.31	15.34	9.88	28.87	2.81	0.43	0.15	0.00
1957-58	0.00	81.77	16.47	1.30	0.17	0.15	0.15	0.00	0.00	0.00
1958-59	0.00	1.00	64.47	27.41	7.12	0.00	0.00	0.00	0.00	0.00
1960-61	0.00	6.67	35.85	30.70	24.10	1.35	0.33	0.33	0.67	0.00
1961-62	0.00	1.85	45.15	33.26	10.59	3.55	0.41	0.20	0.00	0.00
1962-63	0.00	0.38	48.73	27.34	18.86	2.35	2.08	0.00	0.13	0.13
1963-64	0.00	1.06	14.16	60.16	18.00	5.36	1.26	0.00	0.00	0.00
1964-65	0.00	1.95	81.50	10.13	3.70	1.76	0.78	0.17	0.00	0.00
1965-66	3.31	26.99	38.65	17.84	6.43	2.39	1.77	1.34	0.74	0.53
1966-67	0.00	0.88	67.25	26.49	2.65	2.72	0.00	0.00	0.00	0.00
1967-68	0.82	29.71	50.16	17.09	2.23	0.00	0.00	0.00	0.00	0.00
AVERAGE	0.30	11.72	36.77	28.16	14.11	6.77	1.53	0.44	0.11	0.04



#### F. CORE AND SECTOR REQUIREMENTS

The approximate amount of core (words) required by each program and associated subprograms is given in Table F1. Routines used from the resident IBM subroutine library are not included.

Table F1 also lists any disk files required by a program. The "file number" refers to the number of the file as defined by the program. The "file type" code WS indicates the file to be of a scratch or temporary nature, whereas the letters UA indicate an external or permanent file which is also referred to by a "file name." The sector count (the number of 320 word divisions of a disk) is given for all temporary (WS) files, and beside the program which created an external (UA) file.

Table Fl. Core and sector requirements for B.C. herring computer programs.

Program	Approximate core required	File number	File type	File name	Number of sectors
ASH31	11,102	5	UA	WEEKF	
RV02	50	4	UA	LISCF	
RV03	36				
RV05	164				
RV06	40				
RV07	54				
RV08	214				
RV12	188				
RV13	154				
RV17	104				
RV20	34				
NEWAL	66				
BOATN	92				
WKNO	<u>256</u>				
	12,554				
ASH32	5,320	5	UA	REFX	
		1	WS		62
		10 to			
		290	WS		<u>2</u> each
					192
ASH33	5,936	5	UA	REFX	
		3	WS		54
		4	WS		<u>14</u>
					68
ASH34	5,590	1	UA	REFX	13
		3	UA	PNAME	3
		5	UA	WEEKF	1
ASH35	11,166	4	UA	LISCF	77
		10	WS		143
ASH36	5,512				
ASH37	5,894	5	UA	WEEKF	
WKNO	256	10	UA	R37	1,220
		12	UA	R37	
		1	WS		88
		3	WS		<u>21</u>
	<u>6,150</u>				109



Table Fl (cont'd)

Program	Approximate core required	File number	File type	File name	Number of sectors
RD37	292	1	UA	R37	
PCH37	192	1	UA	R37	
ASH38	242	1	UA	R38	
RD38	1,240	1	UA	R38	1,296
PAC38	1,978	1	UA	R38	
FAL38	1,736	1	UA	R38	
PUTI	<u>78</u>				
	1,814				
PLD38	3,552	1	UA	R38	
AGE38	2,578	1	UA	R38	
AGE	<u>3,542</u>				
	6,120				
PRB38	850	1	UA	R38	
ACS38	1,392	1	UA	R38	
ACW38	652	1	UA	R38	
ASH39	7,624	1	WS		68
		3	WS		<u>67</u>
					135
ASH40	884	4	UA	LISCF	
ASH41	9,528	50	UA	REFX	
GIT	62	1	WS		7
RLGET	<u>90</u>	101-	WS		<u>7</u> each
	9,680	124			175
ASH42	1,148	5	UA	WEEKF	
ASH43	8,936	1-30	UA	PAC01-	
		100	UA	PAC30	
		105	UA	REFX	
		200	WS	WEEKF	
					7

Table F1 (cont'd)

Program	Approximate core required	File number	File type	File name	Number of sectors
PACLD	2,410	1-30	UA	PAC01-	7 each
		100	UA	PAC30 REFX	
ASH44	7,960	100	UA	REFX	
ASH45	5,648	1	UA	PFILE	241
		100	UA	REFX	
ASH46	5,360	1	UA	PFILE	
GRID	420	2	UA	AFILE	
FEET	104	3	UA	TPOP	
PUTI	78	4	UA	PNAME	
	5,962	100	UA	REFX	
ASH47	5,534	1	UA	PFILE	
		100	UA	REFX	
ASH48	9,898	1	UA	PFILE	321
		4	UA	TPOP	
		100	UA	REFX	
ASH50	1,684	1	WS		6
LTRAN	226				
	1,910				
ASH53	5,228	1	UA	AFILE	621
		100	UA	REFX	
ASH54	2,848	5	UA	WEEKF	54
WKNO	256	1	WS		
	3,104				
ASH55	2,730				

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(Numbers refer to those listed in Table 1)

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14. Isaacson, R. S. K., and A. S. Hourston. MS 1972. Area and locality codings for British Columbia herring biological data. Fish. Res. Board Can. MS Rep. 1174: 53 p.