

2240



Scientific Excellence • Resource Protection & Conservation • Benefits for Canadians
Excellence scientifique • Protection et conservation des ressources • Bénéfices aux Canadiens

DFO - Library / MPO - Bibliothèque



12022656

IBM-PC Salmon Escapement Data-Entry System

G. Serbic

Biological Sciences Branch
Department of Fisheries and Oceans
Pacific Biological Station
Nanaimo, British Columbia
V9R 5K6

1994

Canadian Manuscript Report of Fisheries and Aquatic Sciences 2240

SM
223
FSS
H2240
C-1



Fisheries
and Oceans

Pêches
et Océans

Canada

Canadian Manuscript Report of Fisheries and Aquatic Sciences

Manuscript reports contain scientific and technical information that contributes to existing knowledge but which deals with national or regional problems. Distribution is restricted to institutions or individuals located in particular regions of Canada. However, no restriction is placed on subject matter, and the series reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries and aquatic sciences.

Manuscript reports may be cited as full publications. The correct citation appears above the abstract of each report. Each report is abstracted in *Aquatic Sciences and Fisheries Abstracts* and indexed in the Department's annual index to scientific and technical publications.

Numbers 1-900 in this series were issued as Manuscript Reports (Biological Series) of the Biological Board of Canada, and subsequent to 1937 when the name of the Board was changed by Act of Parliament, as Manuscript Reports (Biological Series) of the Fisheries Research Board of Canada. Numbers 901-1425 were issued as Manuscript Reports of the Fisheries Research Board of Canada. Numbers 1426-1550 were issued as Department of Fisheries and the Environment, Fisheries and Marine Service Manuscript Reports. The current series name was changed with report number 1551.

Manuscript reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page. Out-of-stock reports will be supplied for a fee by commercial agents.

Rapport manuscrit canadien des sciences halieutiques et aquatiques

Les rapports manuscrits contiennent des renseignements scientifiques et techniques qui constituent une contribution aux connaissances actuelles, mais qui traitent de problèmes nationaux ou régionaux. La distribution en est limitée aux organismes et aux personnes de régions particulières du Canada. Il n'y a aucune restriction quant au sujet; de fait, la série reflète la vaste gamme des intérêts et des politiques du ministère des Pêches et des Océans, c'est-à-dire les sciences halieutiques et aquatiques.

Les rapports manuscrits peuvent être cités comme des publications complètes. Le titre exact paraît au-dessus du résumé de chaque rapport. Les rapports manuscrits sont résumés dans la revue *Résumés des sciences aquatiques et halieutiques*, et ils sont classés dans l'index annuel des publications scientifiques et techniques du Ministère.

Les numéros 1 à 900 de cette série ont été publiés à titre de manuscrits (série biologique) de l'Office de biologie du Canada, et après le changement de la désignation de cet organisme par décret du Parlement, en 1937, ont été classés comme manuscrits (série biologique) de l'Office des recherches sur les pêcheries du Canada. Les numéros 901 à 1425 ont été publiés à titre de rapports manuscrits de l'Office des recherches sur les pêcheries du Canada. Les numéros 1426 à 1550 sont parus à titre de rapports manuscrits du Service des pêches et de la mer, ministère des Pêches et de l'Environnement. Le nom actuel de la série a été établi lors de la parution du numéro 1551.

Les rapports manuscrits sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés seront fournis contre rétribution par des agents commerciaux.

493-835 →

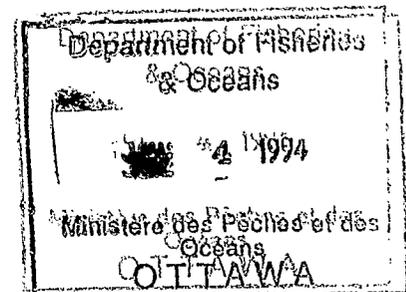
Canadian Manuscript Report of
Fisheries and Aquatic Sciences 2240

1994

IBM-PC SALMON ESCAPEMENT DATA-ENTRY SYSTEM

by

G. Serbic



Biological Sciences Branch
Department of Fisheries and Oceans
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6



(c) Minister of Supply and Services Canada 1994

Cat. No. Fs 97-4/2240E

ISSN 0706-6473

Correct citation for this publication:

Serbic, G. 1994. The IBM-PC Salmon Escapement Data-Entry System. Can. Manusc. Rep. Fish. Aquat. Sci. 2240: 21 p.

TABLE OF CONTENTS

	Page
LIST OF FIGURES	iv
LIST OF TABLES	v
ABSTRACT	vi
INTRODUCTION.	1
CHAPTER 1 Overview of the system	2
1.1 BC16 Salmon Escapement Data-Entry System main menu.	2
1.2 Adding streams to the stream master file.	2
1.3 Creating a blank BC16 year file	4
CHAPTER 2 BC16 Data-entry.	5
2.1 Entering Run-timing and Escapement information.	5
2.1.1 Entering Second Run data	8
2.2 Entering Physical Condition of Spawning Grounds information	9
2.3 Entering Biological Conditions information	10
2.4 Entering Additional Biological Conditions+Comments.	11
2.5 More than 3 lines of Additional Comments	11
2.6 Summary of Special key codes	12
CHAPTER 3 Report generation	13
3.1 Annual Escapement Report Generation	13
3.2 Printing the BC16 forms	14
3.2.1 Configuring laser printer for printing BC16 forms.	14
3.2.2 Creating the BC16s in Wordperfect.	15
Appendix A File Descriptions.	17
Appendix B Utility Programs	19
Appendix C Forwarding diskettes	20
REFERENCES	21

List of Figures

Page

Figure 1.	BC16 Salmon Escapement System Main Menu.	2
Figure 2.	New stream addition screen	2
Figure 3.	Blank BC16 year-file creation screen	4
Figure 4.	BC16 run-timing and escapement screen.	5
Figure 5.	Physical condition of spawning grounds screen.	9
Figure 6.	Biological Conditions screen	10
Figure 7.	Comments on other conditions screen	11
Figure 8.	Additional comments (continued) screen	12
Figure 9.	Summary of special-key codes	12
Figure 10.	Escapement report generation screen.	13
Figure 11.	Example escapement summary report.	13
Figure 12.	Legal size form definition screen.	14
Figure A.1.	Annual escapement file record format.	17
Figure A.2.	Subdistrict_ID file format.	18
Figure A.3.	Stream master file record format.	18

	List of Tables	Page
Table 1.	Enumeration methodology codes	6
Table 2.	Reliability codes	7
Table 3.	Negative escapement codes	7

ABSTRACT

Serbic, G. 1994. The IBM-PC Salmon Escapement Data-Entry System. Can. Manuscr. Rep. Fish. Aquat. Sci. 2240: 21 p.

This report serves as a user's manual for the IBM-PC Salmon Escapement Data-Entry system. Procedures for adding, modifying and deleting escapement data are documented, as well as instructions for creating and printing the Annual Reports of Salmon Streams and Spawning Populations (also called BC16s).

Each stream determines one record per spawning year and consists of escapement and run-timing information provided by subdistrict personnel. More precisely, a record includes information on stream inspection dates; start, peak, and end of spawning dates; enumeration methods; escapement estimates; reliabilities of escapement estimates; target escapements; and comments on physical and biological conditions. Two new data fields, namely jack count and brood stock, have also been added.

RÉSUMÉ

Serbic, G. 1994. The IBM-PC Salmon Escapement Data-Entry System. Can. Manuscr. Rep. Fish. Aquat. Sci. 2240: 21 p.

Ce rapport est le guide d'utilisation d'un logiciel tournant sur IBM-PC conçu pour la saisie des données sur l'échappée des saumons. On y décrit la marche à suivre pour ajouter, modifier ou supprimer des données et pour créer et imprimer des rapports annuels sur les cours d'eau à saumon et sur les populations reproductrices (BC16).

Pour chaque cours d'eau, on crée une fiche par année de fraye et l'on y verse l'information que le personnel des sous-unités de district a fournie sur l'échappée et sur l'époque de la remontée. Plus précisément, cette fiche contient les renseignements suivants : date des inspections du cours d'eau, date du début, du point culminant et de la fin de la fraye, méthodes de dénombrement employées, valeurs estimées de l'échappée, fiabilité des estimations, échappée visée, observations sur les conditions physiques et biologiques. On a également ajouté deux nouveaux champs d'information concernant le nombre de <<jacks>> recensés et les stocks de reproducteurs.

INTRODUCTION

Salmon escapement data have been reported historically as Annual Reports of Salmon Streams and Spawning Populations (also called BC16s). These reports, often handwritten, have been forwarded annually to the Pacific Biological Station (PBS), where a comprehensive collection continues to be maintained. In 1983, a computerized escapement database was developed at PBS. In order that the data on these reports could be incorporated into this Salmon Escapement Database System (SEDS), they needed to be stored electronically. This was accomplished via keypunching. Due to misinterpretation of handwritten numbers, however, keypunch errors occurred. Unless the keypunched numbers were reconciled with the physical reports these errors remained uncorrected. The data-entry system described here was developed in order to circumvent the need for keypunching and reduce these errors, while still providing the data electronically. The data captured by this system are uploaded to SEDS on the mainframe VAX at PBS. For a full description of SEDS and its data, see Serbic (1991).

This data-entry system addresses the need to standardize the manner in which Annual Reports of Salmon Streams and Spawning Populations are completed by subdistrict personnel. The system standardizes not only the codes used on these forms, but also the manner in which the estimated escapement field is completed. From a stock assessment perspective, this field is the most important on the BC16. It has often been left blank, allowing for such widely differing interpretations as zero, none observed, not inspected, and unknown. In some instances, jacks and/or brood stock have been included in the estimated escapement. In an attempt to minimize these ambiguities, two new fields namely jack count and brood stock, have been added to the BC16 form. Entries in the escapement field should represent an estimate of the number of adults that survived to spawn, excluding jacks and brood stock. In order to prevent random interpretations of this field, each species should have either an escapement estimate entered or one of the negative escapement codes described in Table 3.

In addition to data standardization, this new system provides two improvements over historical practices.

- 1) It eliminates the need to re-enter information that has not changed from the previous year (e.g. - distribution of spawning). Using the <Ctl-P> feature, documented on page 6, the previous year's BC16 for a stream can be recalled, edited, and saved to the current year-file.
- 2) It eliminates the annual cost of transforming BC16s into machine-readable form for uploading to SEDS. Each subdistrict forwards only a diskette containing the files described in Appendix C, rather than physical copies of BC16s. SEDS is updated using these files. Escapement data are made available to the DFO user-community as soon as they can be uploaded from the subdistrict diskettes.

CHAPTER 1 OVERVIEW OF THE SYSTEM

1.1 BC16 Salmon Escapement Data-Entry System main menu

Once all files from the BC16 system diskette have been copied into a new directory on the hard drive, the system is invoked by typing BC16 at the DOS prompt from within that directory. Figure 1 should appear on the screen.

BC16 Salmon Escapement Data System

1. Add streams to master file
2. Create a blank BC16 year file
3. Add/Modify BC16 data
4. Generate escapement summary report
5. Exit

Help--> Use up & down arrows to move & <Return> to select or type the number to the left of the option

Figure 1. BC16 Salmon Escapement System Main Menu

1.2 Adding streams to the stream master file

If any streams have been inspected for the first time, Option 1 'Add streams to master file' needs to be selected. Figure 2 should appear on the screen.

This routine allows streams that have been inspected for the first time to be added to the stream master file.

Gazetted Name:
Local Name:
Rabcode:
Flows Into:
Subarea:
Subdistrict Name:

Help-->

Hit F1 Key for additional help

Figure 2. New stream addition screen

The operator is prompted for Gazetted name, Local name, Rabcode, Flows Into, Subarea, and Subdistrict name. (Note: District and Subdistrict are retrieved from the **Subdist.dat** file and need not concern the operator). Following is a description of each of the fields and their constraints.

1) **Gazetted Name:** The official gazetted name as approved by the Canadian Permanent Committee on Geographical Names, as found in the Gazetteer of Canada: British Columbia. (Maximum of 30 characters). (Optional)

2) **Local Name:** Not an officially approved geographical name but an alias in common use. (Maximum of 30 characters). (Optional)

(!!! Note: Both the gazetted name and the local name cannot be blank !!!)

3) **Rabcode:** A hierarchical code that uniquely defines a stream and the watershed that it is in. Refer to the Habitat S.I.S.S. (Salmon Inventory Stream Summary) catalogs to assign rabcodes to streams that have been inspected for the first time. If the rabcode cannot be determined, enter an artificial rabcode starting with the 2 digits 29 and indicate in the Additional Comments section that this is a new stream. (Maximum of 27 characters) (Mandatory). (Note: The digits 29 represent the Peace River watershed, where no salmon spawning streams exist. As such, an artificial rabcode cannot be confused with a valid rabcode).

4) **Flows Into:** The body of water into which the stream flows. (Maximum of 30 characters) (Mandatory)

5) **Subarea:** Otherwise referred to as the statistical subarea. A division of the subdistrict for management purposes. (Maximum of 5 characters) (Optional)

6) **Subdistrict name:** The name given to the subdistrict. (Maximum of 21 characters) (Optional)

Once all the information has been entered for this stream, a message '**Esc key to display menu, <Ctl-B> to go back**' will appear in the help window. The operator has 2 options at this juncture.

Option 1: Hitting <Ctl-B> will reposition the cursor at the beginning of the "subdistrict name" field. A subsequent <Ctl-B> will position the cursor at the first character input position of the "subarea" field. This option is taken when a keypunching error is detected on the screen. Hit the **F1** key for additional help in moving the cursor, deleting field information, etc. on this screen.

Option 2: Hitting the **Esc** key will display the horizontal menu **Save Abort Exit** in the upper left hand corner of the screen. To save the information on the screen to the Stream Master file, hit <Return> with the **Save** option highlighted. A record containing this information will then be added to the end of the Stream Master file **Strxxx.dat**, where **xxx** denotes the subdistrict. To abort the current record (i.e.- erase all information on the screen), hit <Return> with the **Abort** option highlighted. All field information on the screen will be erased and the cursor repositioned at the first character input position of the Gazetted name prompt. To return to the main menu, hit <Return> with the cursor over the **Exit** option. (Note: All newly inspected streams must be added prior to the BC16 data-entry phase).

1.3 Creating a blank BC16 year file

Once all new streams have been added, main menu option 2 'Create a blank BC16 year file' needs to be selected. Figure 3 should appear on the screen.

```
Program that builds a file of blank BC16
stream records for a given spawning year.
All streams that have been inspected for the
first time must be added before this program
is run. Hit the Esc key to abort.
```

```
Enter spawning year:9_
```

Figure 3. Blank BC16 year-file creation screen

(!!! Note: This option should be selected once for each spawning year and only after all new streams have been added to the stream master. No BC16 data-entry for any streams should occur prior to this step !!!).

The operator is prompted for a 1-digit year *y*. An attempt is then made to open the file BC16xxx.9*y*, where *xxx*=subdistrict. If the file exists, a message requesting the user to 'Reenter year or abort' will be displayed. This prevents data that has already been entered for a spawning year from being erased. If the file BC16xxx.9*y* does not exist, it will be created and will consist of a file of blank records, one record for each stream in the stream master file. These blank records will subsequently be overwritten when information is entered using menu option 3, 'Add/Modify BC16 data'.

CHAPTER 2 BC16 DATA ENTRY

2.1 Entering Run-timing and Escapement information

To enter BC16 escapement information, select main menu option 3 'Add/Modify data'. Five data-entry screens constitute this option. The BC16 Run-timing and Escapement screen (Figure 4) should appear first.

BC16 SALMON ESCAPEMENT DATA-ENTRY SYSTEM										Enter year: 9_
Enter Stream Name: _____					District: _____	Subarea: _____				
Watershed code: _____					Subdist: _____					
Flows Into: _____					Subd. Name: _____					
Inspections: _____										
Arrival In Stream	Duration of spawning			Methods	R	Estimated Esc.	Brood Stock	Jacks	Target Esc.	
Start	Peak	End								
SK1 2	---	---	---	---	---	---	---	---	---	
CO1 2	---	---	---	---	---	---	---	---	---	
PK1 2	---	---	---	---	---	---	---	---	---	
CM1 2	---	---	---	---	---	---	---	---	---	
CN1 2	---	---	---	---	---	---	---	---	---	
Help----> <input type="text"/>										
F1 for additional help										

Figure 4. The BC16 run-timing and escapement screen.

This screen consists of all stream master, inspection date, run timing and escapement enumeration information. The information that is presented on this screen is consistent with the old Annual Report of Salmon Streams and Spawning Populations form, with the following exceptions:

- 1) The Gazetted name, First local name, and Second local name have been replaced with a single stream name prompt;
- 2) An additional field has been added adjacent to each stream inspection date, to document the method of inspection used;
- 3) The "No. of obser" column has been eliminated;
- 4) A field to record "adult brood stock" has been added to the right of the estimated escapement field;
- 5) A field to record the estimated number of jacks has been added to the left of the optimum/target escapement field.

The operator is first prompted for a 1 digit year, y. An attempt is then made to open the file BC16xxx.9y, where xxx=subdistrict. If unsuccessful, the operator is reprompted for year. Otherwise, the operator is prompted for stream name. Since most stream names are uniquely identified by their first 4 letters, stream selection is reduced to typing these first 4 letters. The system scans the stream master file in an attempt to locate the stream record. If found, all current information is read from the BC16xxx.9y file and displayed. If not, the

message 'Stream not found' is displayed in the Help window. If the first 4 letters of a stream name are not unique within the subdistrict, hitting <Ctl-N> with the cursor at the start of the Flows Into field accesses the next stream in the stream file with the same first 4 letters.

(Note: Hitting <Ctl-P>, with the cursor at the start of the Flows Into field, displays the previous year's BC16 escapement information. This data can be edited and the record saved to the current BC16 year file, eliminating the need to re-enter information that is identical to the previous year).

Each field on the Run-timing and Escapement screen is set up to be an auto-tab field. Once filled, the cursor automatically moves to the next field. To move from field to field in a forward direction, hit <Return>. To move from field to field in a backward direction, type <Ctl-B>. If an error is encountered when entering data, a beep is sounded and the cursor is repositioned at the beginning of the field. The following field-specific rules also apply.

1) All month fields are 3 character fields (e.g.- Nov). Numeric specification of month (e.g.- 11) is not enabled. If a month field is typed incorrectly, the entire field is cleared and the cursor repositioned at the beginning of the field.

2) All day fields are either 2 digit numeric (e.g.-15) or one of 3 possible 1 character codes (A,B, or C). Entering the day as a character can be done either in upper or lower case and can be either left or right justified. The character will be converted to upper case and left-justified. If a day is entered as 1 digit, it will be displayed and stored with a leading 0.

3) It is permissible to have a month with the associated day field blank. However, accessing the day field if the month field is blank is denied. (Note: Use of the space bar to erase information in a date field is not permitted. To erase a month or day field, position the cursor over the field and type <Ctl-D>).

4) The methods field for a single stream inspection can be either blank or 1 digit (Table 1). The methods field for an estimated escapement consists of from 1 to 5 digits, representing all methodologies employed to estimate the annual escapement for a given species.

Table 1. Enumeration Methodolgy Codes

1	- Walk
2	- Float
3	- Fixed wing aircraft
4	- Helicopter
5	- Redd counts
6	- Spot check
7	- Strip counts
8	- Dead pitch
9	- Tag Recovery
10	- Other (e.g. Fence)

5) The reliability field can be either blank or 1 digit. For reliability codes, refer to Table 2.

Table 2. Reliability Codes	
1	Low
2	Low to medium
3	Medium
4	Medium to high
5	High

6) The estimated escapement field can range from 1 to 7 digits. For stock assessment purposes, this is the most important field on the BC16. In the past, this field has often been left blank. A blank can be interpreted as either 0, (-1) none observed, (-2) unknown, (-3) stream not inspected this year, or (-4) species does not spawn in this stream. To eliminate random interpretations of this field, each species should have either an escapement estimate entered or one of the negative escapement codes in Table 3.

Table 3. Negative escapement codes	
Escapement Code	Interpretation
-1	None observed
-2	Unknown
-3	Stream not inspected
-4	Species does not spawn in this stream
-5	Fry present
-6	Adults present

7) The adult brood stock field can be either blank or from 1 to 7 digits. If left blank, it will be interpreted as 0.

8) The jacks escapement field can be either blank or from 1 to 7 digits. If left blank, it will be interpreted as 0.

9) The target escapement field can be either blank or from 1 to 7 digits. If left blank, it will be interpreted as unknown (i.e. -2).

Hitting <Ctl-Z> at the beginning of a species line will position the cursor at the beginning of the next species line. (e.g. If the cursor is at the beginning of the Sockeye line, hitting <Ctl-Z> 4 times will place the cursor at the beginning of the Chinook line). This eliminates the need for multiple <Return>'s to get from one species line to another. (e.g.- 52 <Return>'s would be required to get from the Arrival month of sockeye field to the Arrival month of chinook field). Moving from species line to species line in a backward direction is not enabled as yet. However, the <Ctl-B> key can be used to move from field to field in a backward direction at any juncture of this screen.

Hitting **<Ctl-T>** at any juncture of the run-timing section of this screen will restore the cursor to the beginning of the run-timing section. Hitting **<Ctl-T>** at the beginning of the run-timing section will position the cursor at the beginning of the stream inspection section. Hitting **<Ctl-T>** at the beginning of the stream inspection section will position the cursor at the beginning of the **Flows Into** field.

The record can be saved at any juncture of any screen by first hitting the **Esc** key. A horizontal menu **Save Abort Exit** will appear in the upper left hand corner of the screen. Hitting **<Return>** with the cursor over the **Save** option saves the current contents of the five screens as 1 record in the **BC16xxx.9y** data file. A message **'Record saved.<Return> to continue,Insert to clear'** will be displayed in the **Help** window at the bottom of the current screen. To resume entering information for the current stream, hit **<Return>**. To begin entering information for a new stream, hit the **Insert** key. This clears all screens and positions the cursor at the beginning of the stream name prompt.

(Note: The **Save** option must be invoked after the information for a stream has been entered. No information will be written to the database if it is not.)

2.1.1 Entering Second Run data

To enter information for a second run of a species, use the following procedure. Place the cursor at the arrival month of Run 1 of the species of interest. Hold down the **Alt** key and hit **2**. The cursor will drop down one line. Run 2 information can now be entered along this line. When all Run 2 information has been entered, hold down the **Alt** key and hit **1**. The cursor will be restored to the Run 1 line.

Once all the data for the BC16 Run-timing and Escapement screen has been entered, hit the **Page Down** key to proceed to The Physical Condition of Spawning Grounds Screen.

2.2 Entering Physical Condition of Spawning Grounds information

The Physical Condition screen, Figure 5, is used to document the physical

PHYSICAL CONDITION OF SPAWNING GROUNDS	
(A) Evidence of erosion and silting. Give extent or percent of stream bed affected.	<hr/> <hr/>
(B) Particulars of scouring of spawning beds or change in course of stream.	<hr/> <hr/>
(C) Water levels flow, normal, high, abnormal. If abnormal, details should be given.	<hr/> <hr/>
HELP-->	Return> for next line, <Ctl-B> for previous
Hit the F1 key for additional help	
Figure 5. Physical condition of spawning grounds screen.	

condition of the spawning grounds. Each of the three categories of physical conditions has 130 characters reserved for text (i.e. - Two lines of 65 characters each). The <Return> key is used to move forward 1 line at a time on this screen. The cursor is positioned at the first character input position of the next line after a <Return> has been hit. To move backward 1 line, type <Ctl-B>. To erase a character that is inaccurate, either:

- 1) position the cursor on the character and type over it;
- 2) position the cursor to the right of the character and use the **Backspace** key to delete it;
- 3) type <Ctl-D> to erase the entire line of text.

Typing <Ctl-T> at any juncture of this screen will restore the cursor to the first character input position of the screen.

Once all Physical condition information has been entered, hit the **Page Down** key to move to the Biological Conditions screen. To return to the Physical Conditions screen, hit the **Page Up** key.

2.3 Entering Biological Conditions information

The Biological Conditions screen, Figure 6, is used to document the

BIOLOGICAL CONDITIONS
<p>(D) Particulars of distribution of spawning salmon over the stream bed.</p> <hr/> <hr/>
<p>(E) Comments on predators.</p> <hr/> <hr/>
<p>(F) Evidence of digging up eggs by later spawning fish.</p> <hr/> <hr/>
<p>(G) New obstructions (nature and recommendations)</p> <hr/> <hr/>
<p>HELP--> <Return> for next line, <Ctl-B> for previous</p>
<p>Hit the F1 Key for additional help</p>
<p>Figure 6. Biological Conditions screen.</p>

biological conditions of the spawning grounds. Two additional categories (H) and (I) have been added to compensate for any information lost from eliminating the Unusual Conditions section from the old BC16 form. Each of the six categories of biological conditions has 130 characters reserved for text (i.e. - two lines of 65 characters each). The <Return> key is used to move down 1 line at a time on this screen. The cursor is positioned at the first character input position of the next line after <Return> has been hit. To move up 1 line, type <Ctl-B>. To erase a character that is inaccurate, either:

- 1) position the cursor over top of the character and correct it;
- 2) position the cursor to the right of the character and use the **Backspace** key to delete it;
- 3) type <Ctl-D> to erase the entire line of text.

Typing <Ctl-T> at any juncture of this screen will restore the cursor to the first character input position of the screen. Typing <Ctl-C> will place the cursor in the middle of the screen. Typing <Ctl-E> will place the cursor at the last input position of the screen.

Once all Biological condition information for this screen has been entered, hit the **Page Down** key to move to the Additional Biological Conditions + Comments screen. To return to the Physical Conditions screen, hit the **Page Up** key.

2.4 Entering Additional Biological Conditions + Comments information.

The Additional Biological Conditions + Comments screen, Figure 7, consists

BIOLOGICAL CONDITIONS (CONTINUED)

(H) Present or recommended enhancement or intense biological activities.

(I) Changes in habitat with recommendations.

ADDITIONAL COMMENTS CONCERNING THIS STREAM

(K) _____

Fishery Officer/Person Preparing Report

HELP--> <Return> for next line, <Ctl-B> for previous

Hit the F1 key for additional help

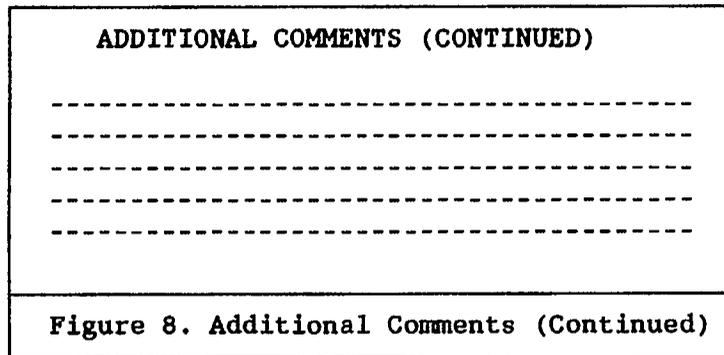
Figure 7. Comments on other conditions screen.

of the 2 new categories of biological conditions plus any additional comments on conditions affecting this stream. Three lines of 65 characters each are reserved for additional comments on this screen. Refer to sections 2.2 and 2.3 for a description of valid cursor movement keys.

Once all additional biological conditions and comments information has been entered, the operator types <Ctl-Z>. The cursor is then positioned at the bottom of the screen, to receive the name of the person preparing the report. To return to the Biological Conditions screen, hit the Page Up key.

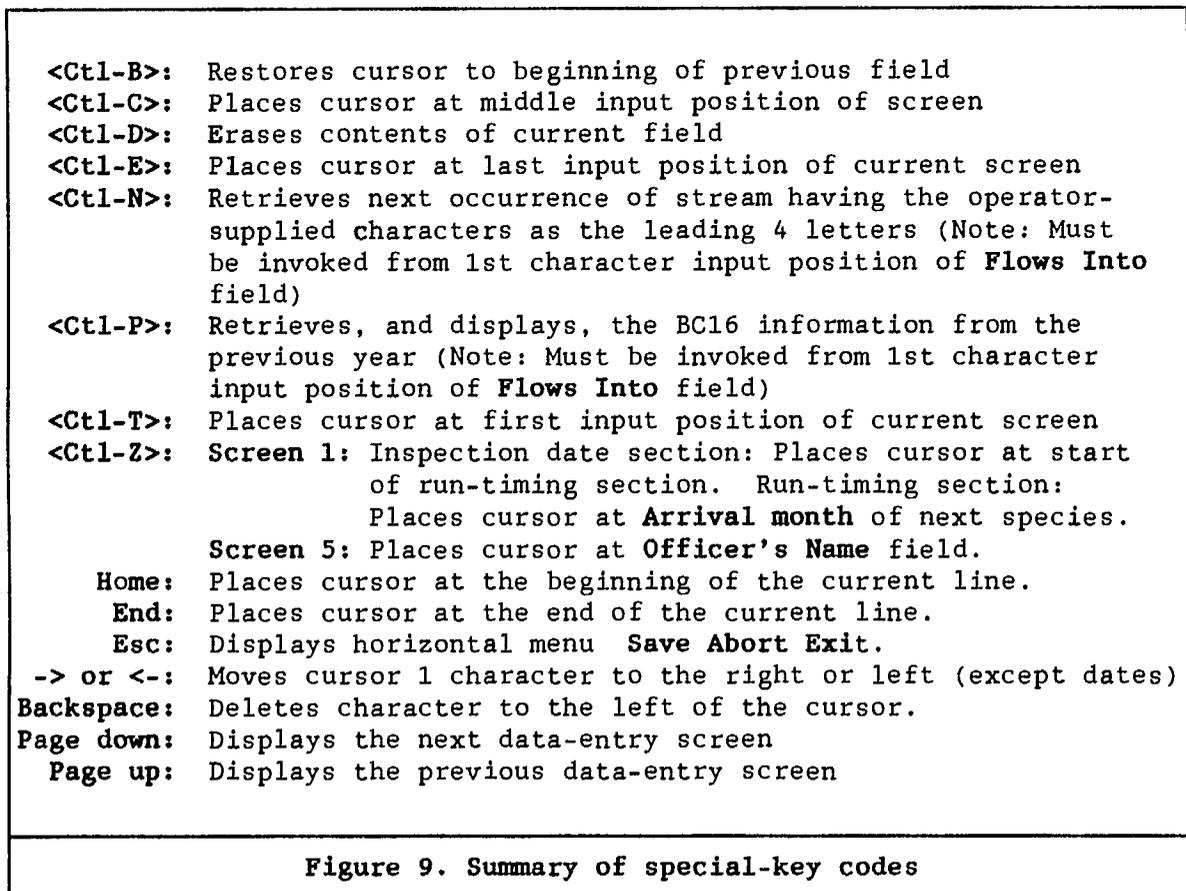
2.5 More than 3 lines of Additional Comments

If more than 3 lines of additional comments are required, hit the Page Down key to display the **Additional Comments (Continued)** screen (Figure 8). Nineteen additional lines of comments can be entered using this screen. If still more comment information needs to be entered, hit the Page Down key again. This screen will reappear and nineteen more lines of text can be input. This procedure can be repeated 8 times, allowing a quantity of text large enough to fill two 8.5"*14" sheets to be entered.



2.6 Summary of Special Key Codes

Hitting F1 at any juncture of BC16 data-entry will display the Help Menu on the screen (see Figure 9).

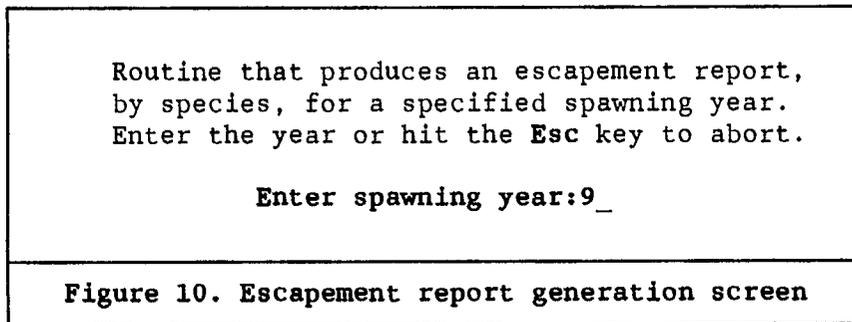


To exit from the Help Menu, hit the Esc key. The cursor will be restored to the data-entry position from which the menu was invoked.

Chapter 3 Report Generation

3.1 Annual Escapement Report Generation

To generate an escapement summary report for a particular spawning year, main menu option 4 'Generate escapement summary report' needs to be selected. Figure 11 should appear on the screen.



The operator hits either the Esc key to return to the Main Menu or enters 1 digit y for the year desired. A columnar report, species forming the columns, is produced for all streams in the subdistrict. For an example, see Figure 12.

1992 Salmon Escapements to Subdistrict 01					
<u>Stream Name</u>	<u>Sockeye</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u>	<u>Chinook</u>
BILL CREEK	0	0	0	0	0
BUCKLEY COVE CREEK	0	0	0	0	0
MCCLINTON CREEK	0	0	400	0	0
STILIQUE CREEK	0	0	0	0	0
AIN RIVER	0	0	6500	3000	0
AWUN RIVER	4500	0	8400	2500	0
DATLAMEN CREEK	0	800	40000	0	0
DAVIDSON CREEK	0	500	45000	0	0
DINAN CREEK	0	0	200	0	0
FLORENCE CREEK	0	0	0	0	0
HIELLEN RIVER	0	100	500	0	0
JALUN RIVER	200	0	12000	0	0
KUMDIS CREEK	0	0	0	0	0
LIGNITE CREEK	0	0	20000	0	0
MAMIN RIVER	0	0	55000	0	0
NADEN RIVER	3000	200	80000	500	0
OTUN RIVER	0	0	0	0	0
SANGAN RIVER	0	600	200	0	0
STANLEY CREEK	0	0	100	300	0
WILSON CREEK	0	0	0	0	0
YAKOUN RIVER	4400	6000	726500	0	2000
Totals:	12100	8200	994800	6300	2000

Figure 11. Example escapement summary report

3.2 Printing the BC16 forms.

One of the files on the system diskette is called **BC16FORM**. This is a Wordperfect 5.1 version of the current BC16 form, with the alterations documented herein included. This file, or form, is used as the primary file (i.e. - the file that directs merging) in a merge with a secondary file (e.g. - BC1629I.91). Each record in the secondary file (i.e. - each stream) is merged to the form separately. For example, if there are 82 stream records in the secondary file, the result of the merge will be 82 BC16 forms.

3.2.1 Configuring laser printer for printing BC16 forms.

Prior to printing the BC16 forms, Wordperfect must be configured for legal size paper. This is accomplished in 2 steps.

Step 1: A legal size form must be added to the printer definition, if one does not already exist. (Note: If a Standard 8.5" x 14" form already exists, Step 1 can be omitted). To add a legal size form, get into Wordperfect and then perform the following actions.

Type <Shift-F8>	{Format}
Type 2	{Page}
Type 7	{Paper Size}
Type 2	{Add}
Type 1	{Standard}
Type 1	{Paper Size}
Type 3	{Legal}

The Edit Paper Definition screen should now look as follows:

1 - Paper Size	8.5" x 14"
2 - Paper Type	Standard
3 - Font Type	Portrait
4 - Prompt to Load	No
5 - Location	Continuous
6 - Double-sided Printing	No
7 - Binding Edge	Left
8 - Labels	No
9 - Text Adjustment	Top 0"
	Side 0"

Figure 12. Legal size form definition screen

If the screen is as above, a legal size form has been added to your print definition. Hit <Return> 4 times to return to the document.

Step 2: Establish left and right margins. To accomplish these, perform the following actions:

```
Type <Shift-F8>      {Format}
Type 1                {Line}
Type 7                {Margins}
Type 0.20 <Return>   {Modifies left margin}
Type 0.20 <Return>   {Modifies right margin}
<Return>
<Return>
```

Step 3: Establish top and bottom margins and select paper size. To accomplish these, perform the following actions:

```
Type <Shift-F8>      {Format}
Type 2                {Page}
Type 5                {Margins}
Type 0.20 <Return>   {Modifies top margin}
Type 0.20 <Return>   {Modifies bottom margin}
Type 7                {Paper Size}
Move cursor to the 8.5" x 14" form and
Type 1                {Select}
<Return>
<Return>
```

The printer is now configured for printing the BC16 forms.

3.2.2 Creating the BC16s in Wordperfect

To create the BC16s in Wordperfect, the operator needs to do the following. Go into Wordperfect and then into the directory where the BC16 database files are. Once there, perform the following actions:

```
{ Hold the Ctrl key down and hit the F9 key }
{ Type the number 1 }
{ Type the word BC16form and hit the Enter key}
{ Hold the Ctrl key down and hit the F5 key }
{ Type the filename (e.g. - BC1629I.92) of the database year file desired
  and hit the Enter key}
{ Type the number 1 }
{ Hit the Down arrow key }
{ Hold the Shift key down and type the number 6 }
{ Hit the Down arrow key }
{ Type the number 2 }
{ Hit the Down arrow key }
{ Hold the Shift key down and type the number 1 }
{ Hit the Down arrow key }
{ Hit the Down arrow key }
```

The message *** Merging *** should appear in the bottom left-hand corner of the screen. The secondary file is now merging with the primary file. To cancel the merge, hit the F1 key. When the merge is complete, the cursor will be positioned

at the end of the last form generated. For example, if there are 82 streams in the secondary file, the cursor will be at the end of the 82nd form. To print all 82 BC16s, hold down the **Shift** key and hit the **F7** key. Then, hit 1 for Full Document. (Note: The user will be prevented from exiting Wordperfect while the forms are being submitted to the printer, so this should only be done when the computer can be idle for up to 3/4 hour). To print only certain pages of the file, position the cursor on the page desired using the Page Up and Page Down keys, then hold down the **Shift** key and hit the **F7** key. Then, hit 2 for Page. This page will then be submitted to the printer for printing. Repeat for all pages desired.

If more than 3 lines of additional comment information has been entered for a stream, this information is stored in a file separate from the database file. For example, if **ANKWILL CREEK** in the year 91 has 53 lines of additional comment information, 50 of these lines will be stored in a file called **Ankw91.add**. In order to print this file, the following keystrokes should be issued:

```
{ Hold the Ctrl key down and hit the F9 key }
{ Type the number 1 }
{ Type the word Addform and hit the Enter key}
{ Hold the Ctrl key down and hit the F5 key }
{ Type the filename (e.g. - ANKW91.Add) of the database year file desired
  and hit the Enter key}
{ Type the number 1 }
{ Hit the Down arrow key }
{ Hold the Shift key down and type the number 6 }
{ Hit the Down arrow key }
{ Type the number 2 }
{ Hit the Down arrow key }
{ Hold the Shift key down and type the number 1 }
{ Hit the Down arrow key }
{ Hit the Down arrow key }
```

Once the merge is complete, hold down the **Shift** key and hit **F7**. Then hit 1 for full document. (Note: The paper size is 8.5"*14").

Appendix A File Descriptions

Following is a brief description of the programs and files used in the operation of the BC16 data-entry system.

- 1) **BC16.EXE** - The main program. This program is used to add new streams to the stream master file, add/modify BC16 information, and generate escapement summary reports.
- 2) **FIXFILE.EXE** - Program used to rewrite an annual escapement file in the event that a newly inspected stream is added to the stream master file after data-entry has commenced for that year.
- 3) **UPDATE.EXE** - Program used to select up to 10 stream records from an annual escapement file. for printing purposes.
- 4) **BC16xxx.yy** - The annual escapement file that contains all BC16 information for all streams in subdistrict **xxx** for the year **yy**. Each stream contributes 1 record. Figure A.1 describes the fields that constitute a record in this file.

<u>Field Description</u>	<u>Length</u>	<u>Record Position</u>
Spawning year	2	1:2
Watershed-code (Rabcode)	27	4:30
Gazetted name of stream	27	32:58
Local name of stream	27	60:86
Second local name of stream	27	88:114
District	2	116:117
Subdistrict	3	119:121
Receiving waters	30	123:152
Subarea	5	154:158
Subdistrict name	21	160:180
Month of inspection	3	182:184
Day of inspection	2 *12	186:187
Method of inspection	1	189:189
Month(Arrival,Start,Peak & end of spawn)	3 *20	290:292
Day (Arrival,start,peak & end of spawn)	2 *20	294:295
Methods of enumeration	5	430:434
Reliability of estimate	1	436:436
Estimated escapement	7 *5	438:444
Brood stock taken	7	446:452
Estimated # of jacks	7	454:460
Target escapement	7	462:468
Comments on Physical Conditions	65 *6	630:1020
Comments on Biological Conditions	65 *8	1026:1554
Biological Conditions+Additional Comments	65 *7	1555:2017
Fishery Officer's name	30	2019:2048
Number of Additional Comments lines >3	3	2050:2052

Figure A.1. Annual escapement file record format

5) **SUBDIST.DAT** - The subdistrict identification file. This file consists of 1 record. Figure A.2 describes the fields that constitute this record.

<u>Field Description</u>	<u>Length</u>	<u>Record Position</u>
District	2	2:3
Subdistrict	3	5:7
Number of streams	3	9:11

Figure A.2. Subdistrict_ID file format

6) **STRxxx.DAT** - The stream master file for Subdistrict **xxx**. Figure A.3 describes the fields that constitute a record in this file.

<u>Field Description</u>	<u>Length</u>	<u>Record Position</u>
Watershed Code	27	2:28
Gazetted Name	30	30:59
Local Name	30	61:90
Flows Into	30	92:119
Subarea	5	
Subdistrict	3	
District	2	

Figure A.3. Stream master file record format

7) **BC16FORM** - The Wordperfect version of the BC16. This is the file that is used to merge with an annual escapement file to produce the **Annual Reports of Salmon Streams and Spawning Populations**.

8) **ADDFORM** - The Wordperfect file that is used to merge with a file having the .add extension to produce the Additional Comments (Con't) report.

9) **CDEFyy.add** - A file that contains Additional Comments information, beyond the 3 lines of Additional Comments allowed on the BC16. The information is for the year **yy** and for the stream whose name begins **CDEF**.

Appendix B Utility Programs

Two utility programs are included with the data-entry system. A brief description of what they do and why they were developed follows.

1) **Update** - In order to circumvent the need for merging an entire subdistrict stream file each time a BC16 hardcopy is required, a utility program called **Update** was developed. To run this program, simply type **Update** at the DOS prompt. This program allows the operator to select up to a maximum of 10 stream records from a BC16 file. These records are written to a file called **Temp.dat**. To generate the BC16s for the streams selected using this program, repeat the procedure as per section 3.2.2, replacing the name **BC16xxx.9y** with **Temp.dat**. (Note: Prior to running this program, delete any previous **Temp.dat** file).

2) **Fixfile** - In the event that data has been entered for a number of streams and first-time inspected streams have **inadvertently** not been added to the stream master, perform the following procedure. Add the new stream(s) to the stream master using option 1 of the Main Menu. Then, run the utility program **Fixfile**. To run this program, simply type **Fixfile** at the DOS prompt. This program will read the current database file and rewrite it adding 1 blank record for each new stream just added. These stream records can then be accessed using option 3 of the Main Menu, the Add/Modify option.

Appendix C Forwarding diskettes

Once data-entry is complete for a given year, copy the following files onto a diskette:

- 1) **BC16xxx.yy** This is the data file for subdistrict **xxx** in the year **yy**.
- 2) **Strxxx.dat** This is the stream master file for subdistrict **xxx**.
- 3) **Subdist.dat** This file has 1 record consisting of the subdistrict, district, and the number of streams in the subdistrict stream master file.
- 4) ***.add** Any files with the **.add** extension. A file with the **.add** extension contains Additional Comments for one stream, beyond the 3 lines allowed on the BC16 form.

All non-Fraser subdistricts (i.e. - subdistricts 01 thru 27) should forward their diskette to the Department of Fisheries and Oceans, Pacific Biological Station, Hammond Bay Road, Nanaimo, V9R 5K6 c/o Greg Serbic.

All Fraser subdistricts (i.e. - subdistricts 28A thru 29K) should forward their diskette to Tracy Cone, Management Biology Unit, 610 Derwent Way, Annacis Island, New Westminster, B.C. V3M 5P8. Data-entry for the Fraser subdistricts will be finalized there. Once data-entry for a Fraser subdistrict is complete, a diskette with the above files should be forwarded to the Pacific Biological Station.

The Fraser and non-Fraser diskettes will be used to update the Salmon Escapement Data System (SEDS) on the mainframe VAX at the Pacific Biological Station. The need for keypunching BC16s is thus eliminated and escapement data is made available to the user-community as soon as it arrives from the subdistrict.

(Note: The BC16 forms were designed to print on a laser printer. If a laser printer is not available and hard copies are required, please forward a diskette with the above files to PBS c/o Greg Serbic. Indicate how many copies of the BC16s are needed. The BC16s will be printed at PBS and sent to the appropriate office).

REFERENCES

- Serbic, G. 1991. The Salmon Escapement Database and Reporting System. Can. Tech. Rep. Fish. Aquat. Sci. 1791: 104 p.

