

Chapter 8

Creating Summary Output Tables

Summary tables offer the advantage of presenting the computed results from HEC-2 multiple water surface profiles all together for each cross section. If a range of discharges were used, or if profiles were computed for before and after conditions in the reach, the summary tables provide a convenient display for comparing the computed results for all those profiles.

8.1 Purpose of SUMPO Program

Computer program SUMPO is a separate version of the summary printout routines from HEC-2. All the basic capability of the HEC-2 program summary output can be obtained from the binary HEC-2 output file TAPE95. The program is menu driven to provide convenient interactive access to TAPE95 results.

The two basic capabilities in SUMPO are: (1) selecting a standard HEC-2 defined summary table (as described in the J3 record description) and (2) creating summary tables by defining the variables to display in the table. The program also allows the user to store the created summary table variable lists for future use. With this capability, the user can create, store, and recall variable lists for frequently used summary tables.

8.2 Program Operation

To run program SUMPO you must first run HEC-2. HEC-2 produces the binary output file, TAPE95, which is the input data file for SUMPO. TAPE95 is the default filename from HEC-2, but a different filename can be provided when running HEC-2 (see Chapter 6).

In MENU2, call SUMPO by moving the cursor to "**3. Run HEC2**", and press the space bar until you see "**3. Run SUMPO**"; then press **<ENTER>**. The TAPE95 file name will be transferred to SUMPO. With the automatic extension feature in MENU2, the "given name" plus the extension "**.T95**" will be used.

If you have not assigned a filename to TAPE95, you can rename it before you run HEC-2 again because each HEC-2 execution will write over the information on TAPE95. To change the filename, use the DOS RENAME or COPY command (e.g., COPY [d:][path] TAPE95 [d:][path]MYJOB.T95).

To execute SUMPO as a separate program, from the DOS prompt enter:

SUMPO

The program will respond with the SUMPO menu. The menu, shown in Figure 8, allows you to: 1) Define files and printer width, 2) Select pre-defined summary tables, 3) Create Summary tables, 4) Display output to console/printer, and 5) Exit SUMPO. To make a selection, use the **<Up>** or **<Down Arrows>** to move the cursor and press **<ENTER>**, or enter the line number. (The instructions are printed at the bottom of the menu frame.)

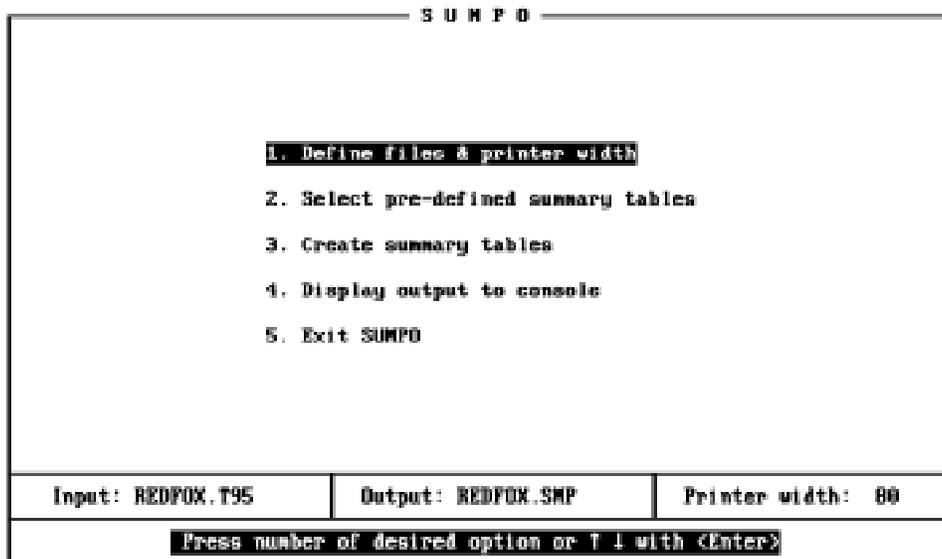


Figure 8
SUMPO Main Menu

The **background and text color can be changed by using the <F9> and <F10>** keys, respectively, to toggle through the color choices. The screen color will change as you go through the choices so you can see the choice. The defaults for files are: TAPE95 for the input file, CON (console) for the output file, and 80 for the printer width. The files and printer width setting are shown at the bottom of the menu. **If you are running SUMPO from MENU2, the screen colors and filenames will be transferred to SUMPO.**

To change the files or printer width, press **<ENTER>** while the cursor is on line "1. Define files & printer width", or enter **<1>**. A window will appear with **Input file, Output file, Printer width, and Return to menu** (see Figure 9). For **Input file** the default, TAPE95, can be changed by entering the desired file name or a **<?>** and **<ENTER>**. With the **<?>** entry, a window will appear showing the files in the default directory. Use the cursor key to move to the desired file name, and press **<ENTER>**; the selected file will be transferred opposite the **Input file**.

For **output file**, the automatic extension option assigns **".SMP"** to the filename. This prevents writing summary tables over the HEC-2 printed output file, which has the extension of **.OUT**. SUMPO provides the MENU2 output display capability with LIST and PROUT. Therefore, it is better to write summary tables to an output file instead of "CON" and "LPT1" for a filename. To make a selection, use the cursor arrows to move the cursor to **output file** in the menu, and enter the new name or **<?>**. As described above, the **<?>** will cause the files in the directory to be displayed, and the desired file can be selected by moving the cursor to the filename and pressing **<ENTER>**. Remember to include the drive and path, if necessary.

Printer width can be defined as eighty or 132 columns. Move the cursor to that line, and use the space bar to toggle between the two choices. The choice depends on your printer size and setting. (Note: This does not change the printer; printer settings must be made directly with the printer.)

When the filenames and printer width are correct, move the cursor to **Return to Menu**, and press **<ENTER>**. The window will vanish, and the new settings will be shown at the bottom of the menu.

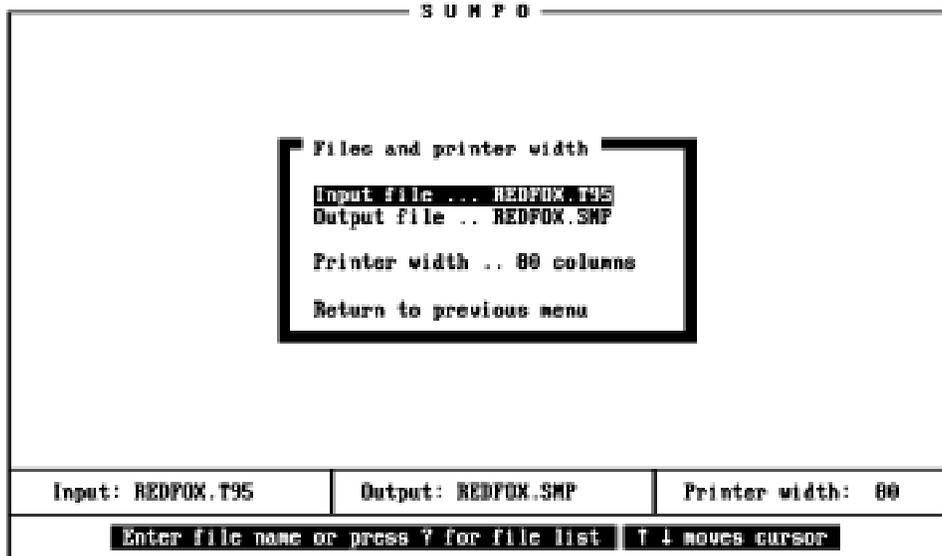


Figure 9
SUMPO Define Files and Printer Width Menu

From the main menu you can go to menus for "2. **Select pre-defined summary tables**" or "3. **Create summary tables**", which are the two options available in SUMPO. If you want one of the HEC-2 pre-defined tables, described in the HEC-2 User's Manual Input Description for the J3 record, move the cursor to "2. **Select pre-defined summary tables**", and press **<ENTER>**, or enter **<2>**. If you want to create a summary table by selecting the variables to be displayed in the table, move the cursor to "3. **Create summary tables**", and press **<ENTER>**, or enter **<3>**. To exit the program and return to DOS or MENU2, move the cursor to "5. **Exit SUMPO**", and press **<ENTER>**, or enter **<5>**.

8.3 Select Pre-Defined Summary Tables

The pre-defined summary tables menu provides the HEC-2 pre-defined summary tables. The HEC-2 User's Manual Input Description for the J3 record lists the available tables, which are the same as those provided in the Menu, shown in Figure 10. The tables are defined by a single code number that calls the variable list within HEC-2 and SUMPO.

To select a table, use the **<Up>** or **<Down Arrows>** to move the cursor to the code number desired, and press **<ENTER>**. **If the input data file is not properly defined, the program will respond:**

**File does not exist -- [filename]
press <ESC>**

With this response, press the <ESC> key and return to the main menu to redefine the input filename. The file may not have been located because the default drive is not the same as the drive where the input file is located. If that is the problem, redefine the input filename, making sure that the drive and path for the file has been correctly specified (e.g., [d:] [path] TAPE95). If you cannot see the problem, exit the program, and use the DOS DIRECTORY command to check the filenames (e.g., DIR [d:] [path]).



Figure 10
Pre-Defined Summary Tables Menu

After the data file has been read, for those tables that normally list all cross sections, the program will respond:

Output all cross sections (y/n) ?

If output for all cross sections is desired, press the <y> key. If limited output is desired, press the <n> key, and the Cross Section Selections Menu will appear, shown in Figure 11.

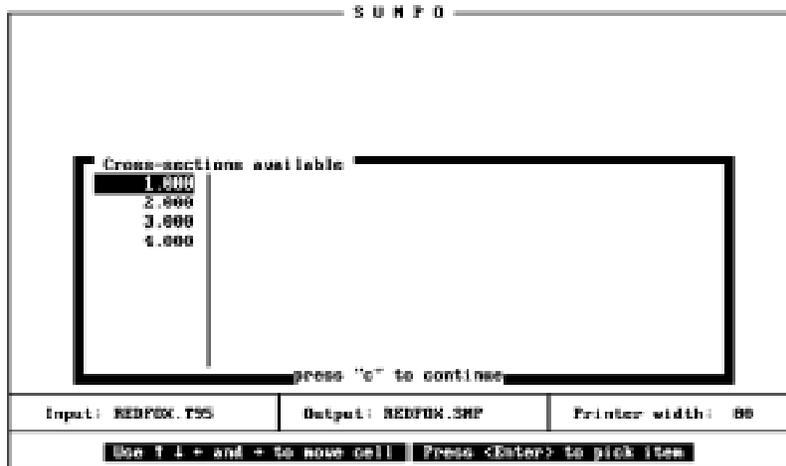


Figure 11
SUMPO Cross-Section Selection Menu

The cursor location is indicated by the highlighted section number. To select the cross sections to be used in the summary table, move the cursor to the desired section numbers, and press **<ENTER>**. The selected section numbers will have a pointer on them. When all the desired section numbers to be printed have been selected, press the letter **<C>** to continue. The program will respond:

Output all profiles (y/n) ?

If output for all profiles is desired, press the letter **<y>**. If only some of the profiles are desired, press the letter **<n>**. The program will display the Profile Selection Menu; see Figure 12.

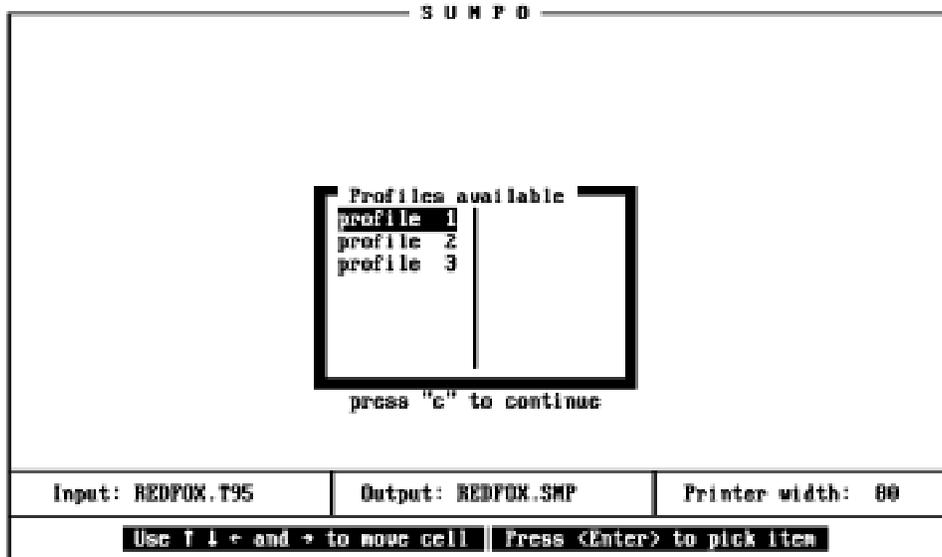


Figure 12
SUMPO Profile Selection Menu

As

with the cross-section selection, the cursor location is indicated by the blinking profile number. Move the cursor to the profile numbers desired, and press **<ENTER>**. The selected profile numbers will remain highlighted. When the desired selections have been made, press the letter **<C>** to continue. The program will respond:

Include summary errors in output (y/n)?

The summary of errors provides error messages for those cross sections that had some computation problem. Enter **<y>** for the messages (the recommended choice), or **<n>** for no messages. The program will respond:

Append output to output file (y/n)?

A **<y>** entry will add the current summary table to the end of the existing output file. A **<n>** entry will write the current summary table over the existing output in the file. This choice allows you to add to or delete the previous summary information in the file. The program will then respond:

```
----- SUMPO ready to output ---
* press <ENTER> to continue
* press <ESC> to abandon output
```

This gives you the option to stop the process, <ESC> and make another choice. Press <ENTER> and the summary table will be written to the designated output file. When complete, the main menu is displayed, and the cursor is located on "4. Display output to console". This provides for a review of the summary table with program LIST, or press the space bar to toggle the choice to "4. Display output to printer".

The pre-defined summary tables menu (shown in Figure 10) also has an option; "Recall saved variables". This option provides a user-defined, variable list file created and saved with the create summary tables option. Section 8.4, below, provides a description of the SUMPO create table menu and instructions for the available options.

8.4 Create Summary Tables

The SUMPO create table menu provides the output variables available for you to create a summary table. See Figure 13 for an example of the menu. User defined tables are created in two steps. First, the variables desired are selected. The selected variables are shown at the top of the Menu, in the section labeled "Selected Variables". There will be indicator bars for the undefined variables and positions for up to eight or thirteen possible variables in a table, depending on the page width defined in the main menu. The second step is the actual writing of the summary table to the designated output filename.

SUMPO									
Selected variables		Available variables							
SECNO	CWSEL								
SECNO	DEPTH	CWSEL	CRIMS	WSELX	EG	HU	HL	QLOSS	CLASS
Q	QLOB	QCH	QROB	TOPWID	AREA	TWA	VOL	XLBEL	RBEL
TIME	ULOB	ULCH	UROB	K-XNL	K-XMCH	K-XNR	K-WTH	STCHL	STCHR
10+KS	K-CHSL	XLCH	PERENC	STENCL	ELENCL	STENCR	ELENCR	SSTA	ENDST
ALPHA	QLOBP	QCHP	QROBP	BM	CLSTA	VEKR	VEKT	ELMTH	TELMX
0.0LK	KRATIO	DIFWSX	DIFWSF	DIFWMS	DIFEG	CASE	INLEQ	CUMDS	SHEAR
H3	EGLMC	EGPRS	QFR	QWEIR	ELLC	ELTRD	FRCH	POWER	
TH1	NICE1	XSTAB1	XFCH1	ZINCH	TVOLI	VOLTR	VOLTR	VOLTR	NICE
ZITL	ZITR	ZITC							
a	O - Output summary data								
e	S - Save selected variables								
n	R - Recall saved variables								
u	X - exit to previous menu								
Input: REDFOX.T95			Output: REDFOX.SMP			Printer width: 80			
<Enter> to select variable <Ctrl> ++ to change field Tl=> moves cell									

Figure 13
SUMPO Create Table Menu

To select a variable for the summary table, use the cursor keys to move among the "Available variables", and press <ENTER> when the desired variable is highlighted. For example, to select SECNO, press <ENTER> when it is highlighted, and SECNO will appear in the "Selected variables" list. The highlighted location marker in the "Selected variables" will automatically advance to the next position in the list. Continue to use the cursor arrow keys to move the cursor through the array of variables, and press <ENTER> when the cursor is on the desired variable. Each selected variable will appear in the "Selected variables" list, and the highlighted location marker will continue to advance to the next position in the list.

If you make a mistake and want to change a variable in the "**Selected variables**" list, hold the **<CTRL>** (control key) , and use the **<Left>** or **<Right Arrow>** keys to move the highlighted position marker in the "**Selected variables**" list. (The program will not allow you to move the cursor beyond locations of defined variables, which could leave blanks in the summary table.) When the position marker is over the variable you want to change, release the **<CTRL>**, and use the arrow keys to move the cursor to the desired variable in the "**Available variables**" array and press **<ENTER>**. The selected variable will replace the highlighted variable in the "**Selected variables**" list.

Below the "**Available variables**" array there is a selection menu that provides options to: Output summary data, enter **<O>**; Save selected variables, enter **<S>**; Recall saved variables, enter **<R>**; make Ice variable table available, enter **<I>**; and eXit to previous menu, enter **<X>**. All these options are called by pressing the letter associated with the option. Each option is described in the following paragraphs.

Once you have selected the variables you want for your summary table, simply press the letter **<O>**. The program will respond with the same series of questions:

Output all cross sections (y/n)?
Output all profiles (y/n)?
Include summary errors in output (y/n)?
Append output to output file (y/n)?

After you have entered the desired response to the questions, the program will respond:

----- **SUMPO ready to output ---**
* **press <ENTER> to continue**
* **press <ESC> to abandon output**

This gives you the option to stop the process, **<ESC>** and make another choice. If you press **<ENTER>**, the summary table will be written to the location defined as the "Output File" in the main menu. Then the main menu will appear, and the cursor will be on "**4. Display output to the console**". Press **<ENTER>**, and the output file will be displayed with program LIST.

If you want to save a variable list for future use in generating summary tables, press the letter **<S>**. The menu will prompt you:

File to Save to -

Enter the filename desired; the program will add the extension ".**VAR**". On a hard disk system, it is best to save the file in the default directory; otherwise, include the appropriate drive and path, if you do not want the default drive (e.g., A:TABLE1). The saved file will contain the code number and the variable name for the variables selected. The file can be displayed on the screen from the DOS prompt, as any text file, using the DOS TYPE command, or the program LIST.

To recall a saved file of variables in SUMPO, press the letter **<R>**. The program will respond:

File to Read from -

Enter the filename (e.g., A:TABLE1) or a question mark **<?>**. With the **<?>** entry, a window will appear showing the files in the default directory with the **.VAR** extension, as shown in Figure 14. Move the cursor to the desired filename, and press **<ENTER>** to select the file. Once entered, the variables from the file will be displayed in the "**Selected variables**" section of the menu. If there are more variables than positions (e.g., thirteen variables and only eighty columns for output), only the first variables of the list will be included.

```

SUMPO
Name of file to read from: =.VAR
Selected variables
-----
SECNO  CUSEL  VCH
-----
Available variables
-----
SECNO  DEPTH  CUSEL  CRWS  WSELX  EG  HV  HL  QLOSS
Q      QLOB  QCH    QROB  TOPWID AREA  TWA  VOL  XLBEL  ABEL
TIME   ULOB  UCH    UROB  N-XNL  N-XMCH N-XNR  N-WTH  STCHL  STCHR
10=KS  N=CHSL XLCH  PERENC STENCL  ELENC1 STENCR  ELENCR  BSTA  ENDST
A C:\HEC2
R REDFOX.VAR
H
P
C
E
S
A
Input: REDFOX.T95      Output: REDFOX.SMP      Printer width: 80
Use ↑ ↓ ← → to move cell | Press <Enter> to pick item

```

Figure 14
SUMPO Saved Variables Menu

The variables listed in the **"Selected variables"** list can be edited by moving the cursor (using the **<CTRL>** key and arrows) to the variable to be changed. Then move the cursor to the variable desired, and press **<ENTER>**. Changing the variables in the **"Selected variables"** list will alter the variables written to summary output, but it will not change the variables list saved on the disk. To transfer the new variables list to the saved file, the variables must be written to a file again (i.e., enter **<R>** and then enter the same file name to write over the old file, or enter a new file name to save the modified list of selected variables separate from the original).

Ice variables are not frequently used, so they were not included with the variables array. By pressing the letter **<I>**, the ice variables are displayed in the empty box area, in the lower right of the create table menu; see Figure 13. When the **"Ice variables"** are displayed, the cursor will only operate within the lower box. The variables selection process, described above, is the same except now the ice variables are selected. To return to the variables array again, simply press the letter **<I>** again. The ice option operates as an on/off switch.

To return to the main menu, enter the letter **<X>**. The Escape Key **<ESC>** can also be used.

To exit the SUMPO program and return to DOS, or MENU2, move the cursor to **"5. Exit SUMPO"** in the main menu, and press **<ENTER>**.