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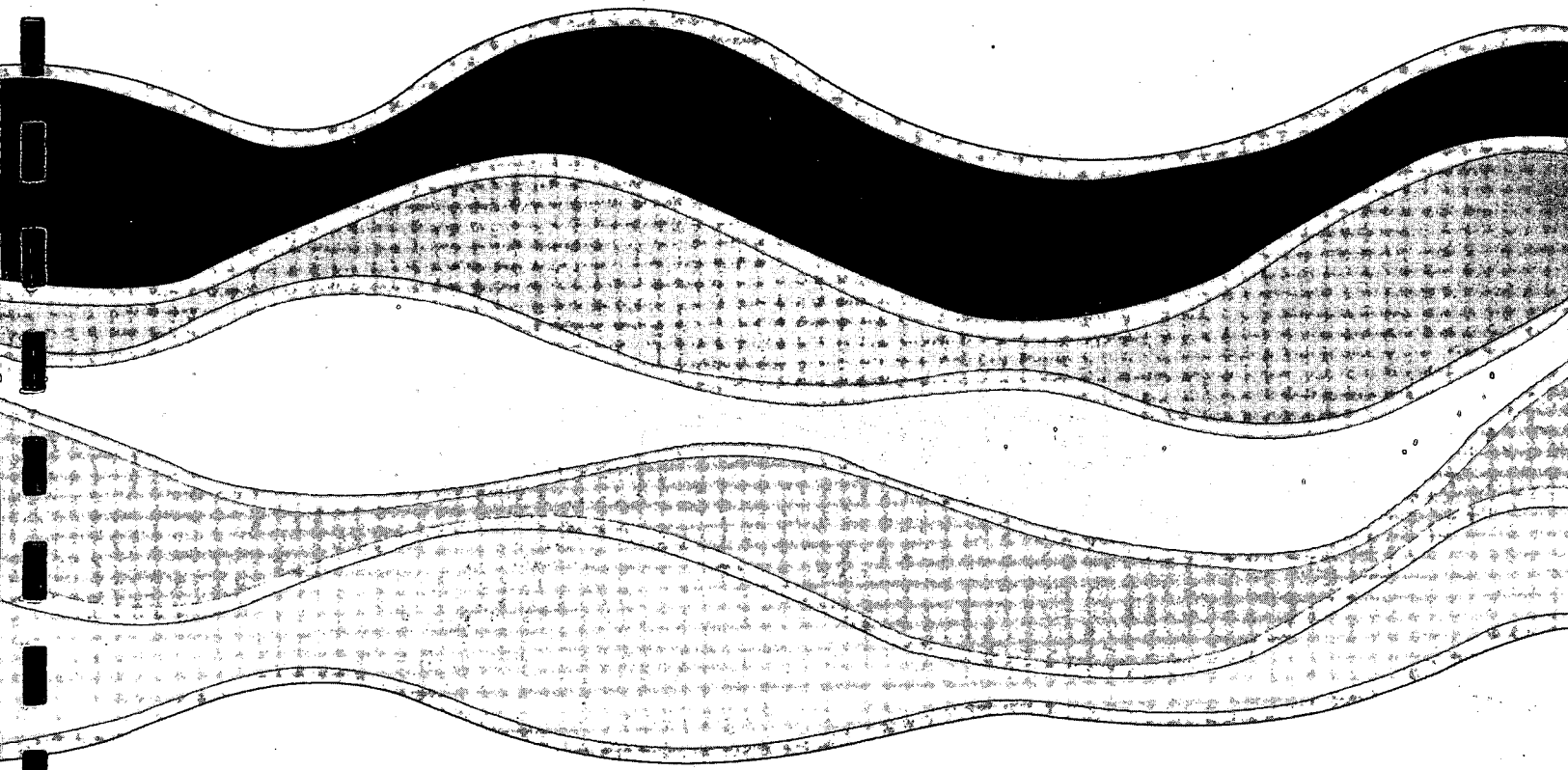

QUICK MICROCOMPUTER MAPS WITH LOTUS 123

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1.0 INTRODUCTION

This note describes the use of the Lotus 123 spreadsheet program or equivalent for producing plots of map outlines and data. The resultant maps are not of publication quality but should be useful as a test of the accuracy of fixes, as rough plots for data analysis or for drafting, and as posters or overhead slides for presentation. If better quality is required, the Lotus .PIC or NAMED files may be imported into Freelance or other graphics editors for enhancement.

The note assumes familiarity with Lotus and with the production of Lotus graphs. The version of Lotus described is 2.01 but the same directions (other than plotting) should apply to versions 2.2 and 3.0 and other Lotus-like programs.

2.0 DATA REQUIREMENTS

The map will generally consist of point data- a series of parameter values with labels- and line data- a map boundary, shoreline, or survey line. The location of each data point or line segment is determined by orthogonal x and y coordinates. In general these will be the UTM (Universal Transverse Mercator) grid coordinates (northings and eastings) that are present on most Canadian topographic maps. Geographic coordinates (latitudes and longitudes) will have to be converted to their UTM equivalents before they can be used. Digital data for the shorelines of the Great Lakes basins are available from the Computing Services Section. The author has digital shore data for Hamilton Harbour and lakes Saint-Louis and Saint-Pierre in the St. Lawrence River.

3.0 DATA ENTRY

Data may be keyed into Lotus directly or imported as an ASCII (.PRN) file and then parsed to produce a columnar spreadsheet format. In general each row of data will consist of a label, UTM or other orthogonal coordinates, and a parameter value or values.

4.0 SPREADSHEET STRUCTURE

The need to plot line and point data simultaneously requires that the spreadsheet be structured in a particular way. Table 1 is an example.

The X variable in Table 1 is the easting (column C); the Y variables A and B are northing (columns B and E) and data (column D) respectively. The placement of northings for point and line data in different columns is required to permit the separate selection of symbols and lines.

Table 1. Spreadsheet Structure

Point Data					
	A	B	C	D	E
1	Label	Northing	Easting	Data	Northing
2	1	4795871	596406	1.2	
3	2	4795019	596864	5.6	
4	3	4794092	597324	13.3	
5	4	4793187	597755	21.6	
6	5	4792496	597540	8.6	
7	6	4793421	597094	17.5	
.					
.					
.					
.					
.					
49	48	4839521	598333	11.1	
Line Data					
50			590321		4805432
51			592751		4793250
52			602145		4792579
53			602550		4793200
.					
.					
.					
.					
95			603123		478456

5.0 SETUP OF GRAPH

Use the following procedure based on the sample above to set up the graph:

1. Graph type is XY.
2. The X, A and B ranges are C2..C95, B2..B95, and E2..E95 respectively. All ranges extend from the top to bottom record.
3. The plot symbols used by Lotus depend upon the ranges used. Change them by selecting new ranges for the x and y data.
4. To plot labels or parameters next to the data points, select the Data Labels option and a range of A2..A95 or D2..D95.
5. Use Format in Options to select the symbols format for A and the lines format for B.

6. If the line data consist of discrete line segments, separate the segments with blank rows to produce line breaks.
7. Use the Titles option to label the map and the x and y axes. In the example above the x-axis label should be "UTM Eastings" and the y-axis label "UTM Northings".
8. View the graph on the screen. Lotus uses the maximum and minimum values of northing and easting to set the plot limits. In general the automatically-selected x and y scales will differ and some tinkering with manual limits will be necessary to make the two scales correspond.
9. Save the graph and spreadsheet.
10. Exit Lotus and plot the graph with PrintGraph.

6.0 SAMPLE SPREADSHEET

Figures 1 and 2 are sample plots produced on an Epson FX-85 dot-matrix printer and an HP DeskJet Plus printer respectively. The DeskJet plot should be comparable in quality to output from a laser printer. A copy of the spreadsheet file used to generate the plots is available from the author for use as a template.

7.0 ENHANCED PLOTS

Various enhancements to the Lotus maps including removal or addition of text or graphics data and scale and symbol changes are possible in Lotus' Freelance graphics program or other graphics editors. Figure 3 was prepared by importing the same Lotus .PIC file used for Figures 1 and 2 into Freelance, making changes in text, scale and graphics content and printing with the HP DeskJet Plus.

8.0 PRODUCT NAMES

The products discussed herein include Lotus 123 and Freelance of Lotus Development Corporation, the Epson FX-85 printer of Seiko Epson Corporation, and the HP DeskJet Plus printer of the Hewlett-Packard Company. Note that the reference to these products is not to be construed as an endorsement for their use by either the author or Environment Canada.

Fig. 1. Shipek Sample Sites

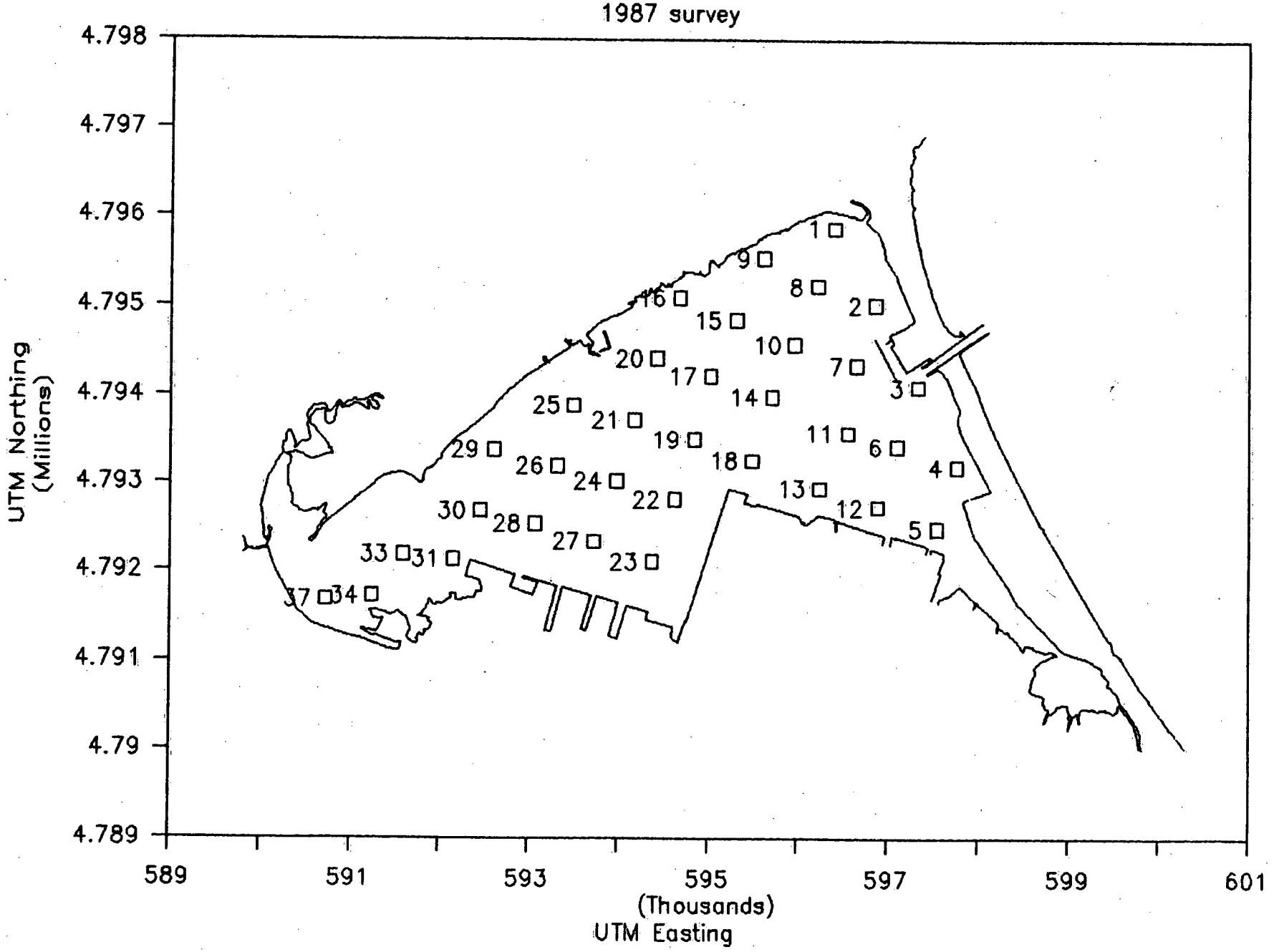
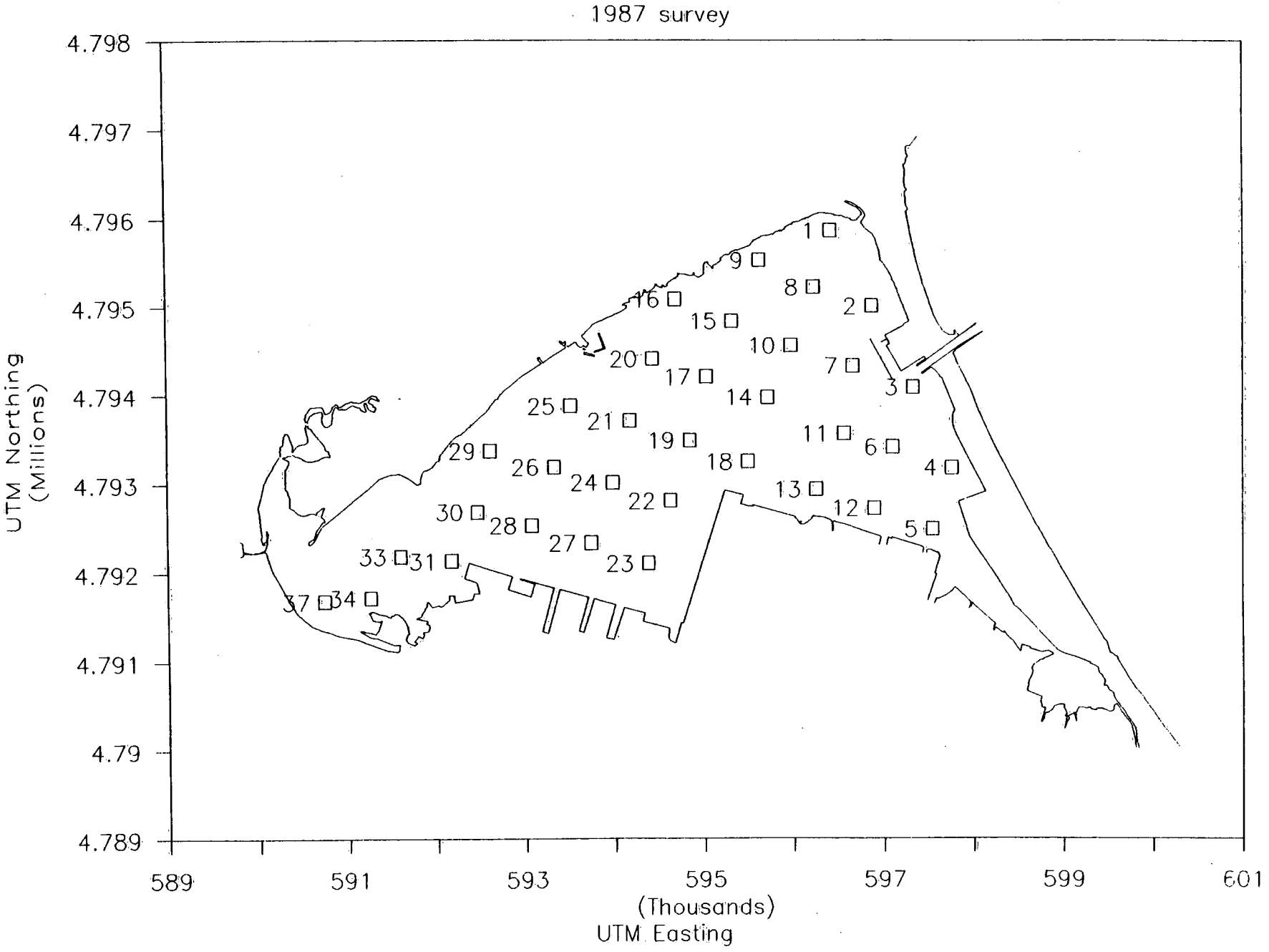


Fig. 2. Shipek Sample Sites



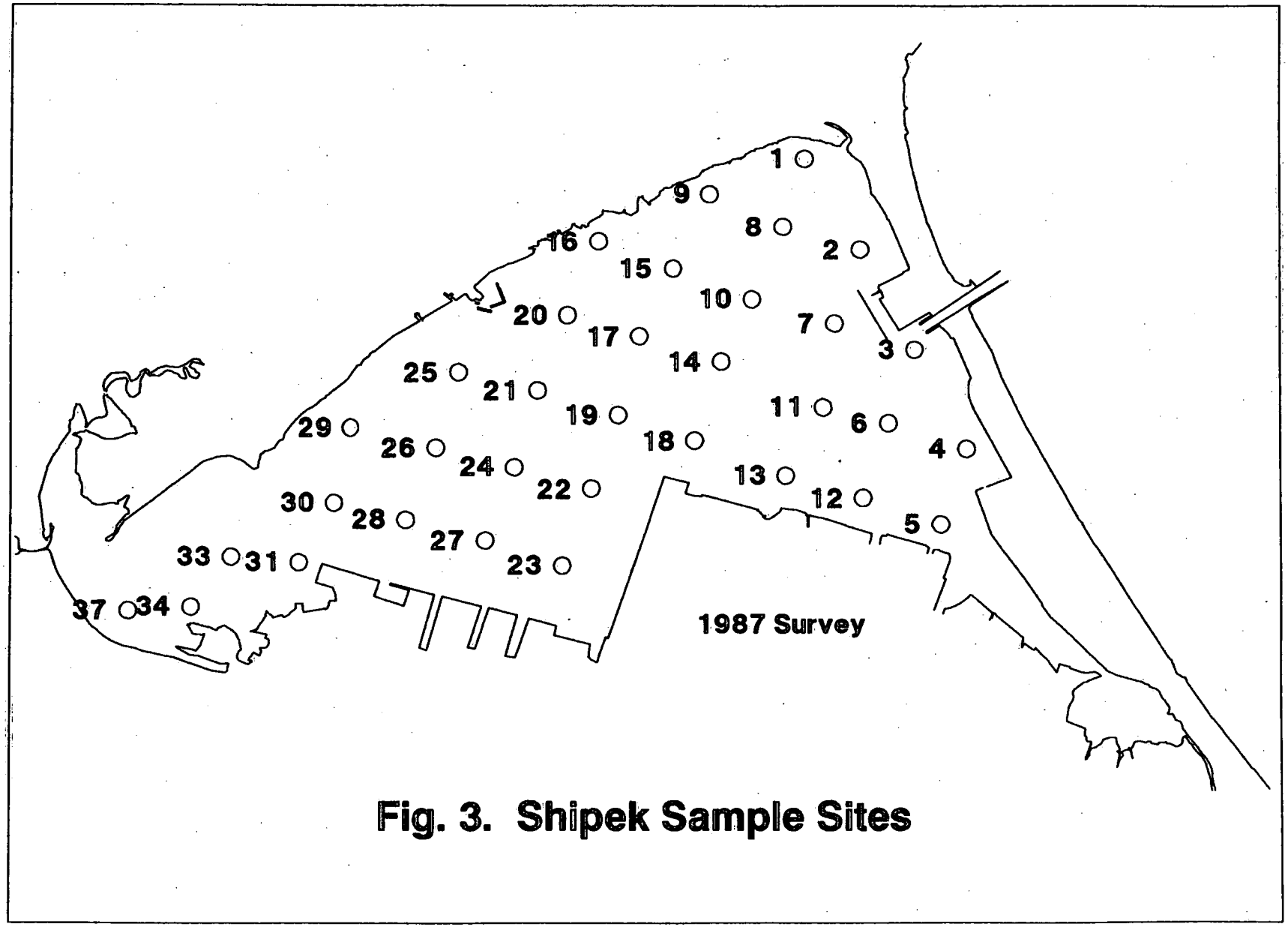


Fig. 3. Shipek Sample Sites

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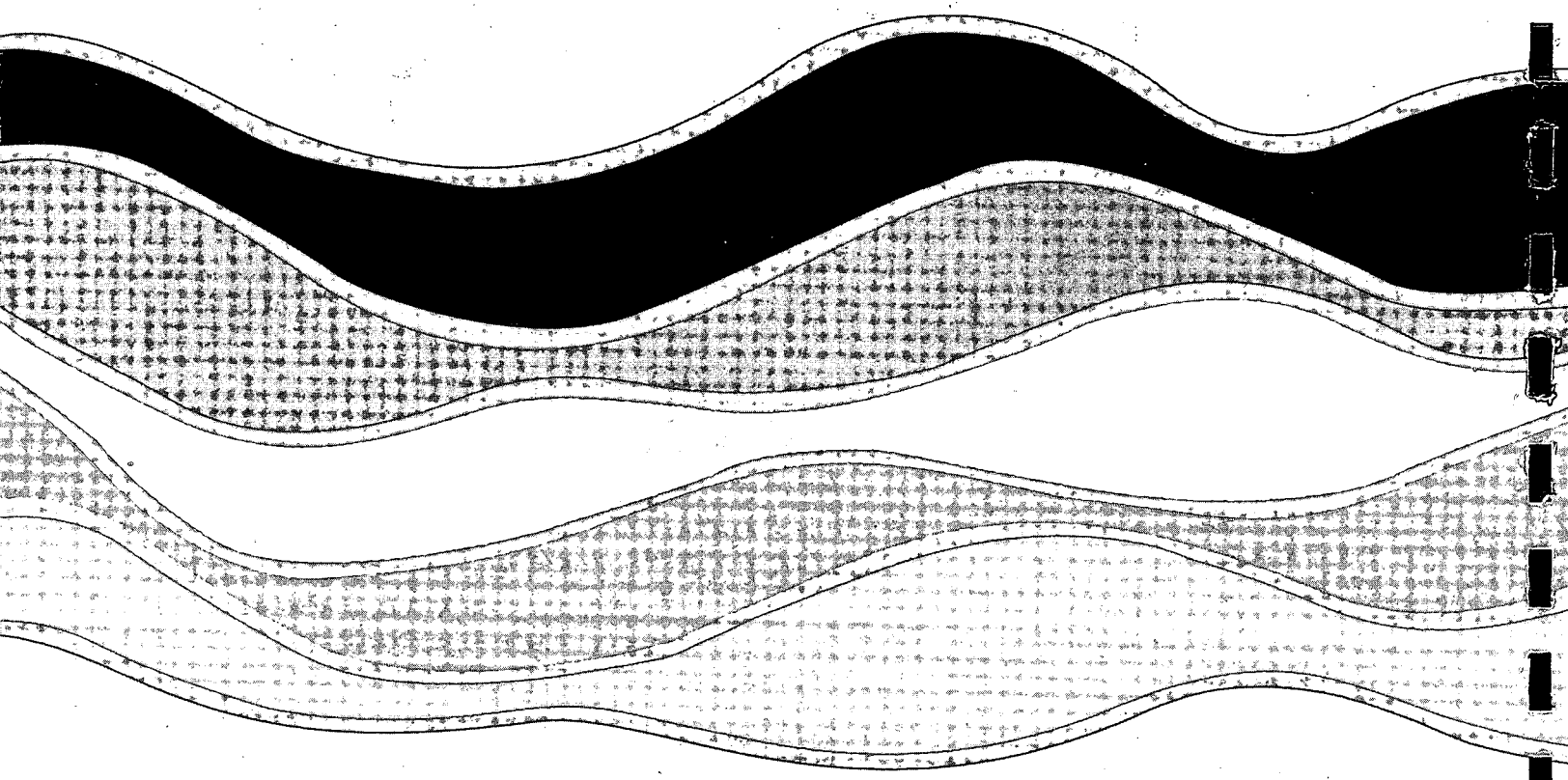

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