

## Section 2: Data collection

**Starting with ICT:** the data collected in the field needs to be transferred to the excel file. The file [Rivers Fieldwork Example](#) is already set up for you use. When opened there are a number of worksheets along the bottom- there is one for each site and the data needs to be inputted from the recording sheet

The screenshot shows an Excel spreadsheet with two main data tables. The first table, 'Westbury Average', is highlighted in yellow and contains summary statistics for velocity, depth, width, and pebble size. The second table, 'Westbury A Transect', is highlighted in green and contains detailed measurements for 10 different points along a transect, including velocity, depth, width, and pebble size. A third table, highlighted in pink, is partially visible on the right side of the spreadsheet.

The green table is for transect A and the pink table is for Transect B. The yellow table automatically provides averages of the two transect- it won't average the widths and depths as these will be an unknown number of measurements at each site. Advanced users will know how to get the computer to calculate the averages using the  $\Sigma$  function, but it can be done manually.

Once the yellow tables have been completed, the data can be inputted into the 'Master' spreadsheet- this is where the graphs will be drawn from, it is called 'Meon Master' in this example. **For advanced users of ICT:** this would have been done in the field.

The screenshot shows a 'Meon Master' spreadsheet with a table of site data. The table has columns for Sample Site, Site Number, Distance from Source (km), Mean Cross Section Area (m<sup>2</sup>), Mean Width (m), Mean Depth (m), Velocity (m/s), Mean Pebble Size (mm), Mean Pebble Roundness, Mean Pebble Long Axis (mm), and Slope Angle (°). The data is organized by site: East Meon, Westbury, Eton, Broadland, Suberton, Mellingford, Framley A (Silver Spin Station), Framley B (Canalised), and Bellfield. Below the table, there are two text boxes providing instructions for graphing the data.

You need to draw the following graphs:

- Discharge
- Mean Pebble Long Axis
- Mean Pebble Roundness
- Slope angle
- Velocity
- Mean Cross Section Areas

When drawing the graphs make sure you highlight the data set and then fit the graph button (our charts). When prompted choose an 'XY Scatter Graph' - make sure it is one that has the lines joining the data points up.

The key is changing the x axis. You want your graphs to plot the information where you sampled it, so you can see changes downstream. It is really easy - on step 2 of the graph drawing click on 'Series' and you choose the x values. Highlight C2:C10 and then return to the sheet. This will plot your points against how far they are downstream.

Don't worry - I will demonstrate this - it really is easy!

Once the data has been inputted into this sheet, the data display can take place. However, the cross section area and discharge column has data in them due to Excel sheet being told what to do.

E.g. to calculate the mean cross section area (column D):

- **Click on the square D2.**
- Click the **=** button on the keyboard (Excel will recognise you want to type a formula)
- Type **e2\*f2** and then press **enter**.
- Once you have done this **click** back on the **square d2**, press **'ctrl'** and **'c'** at the same time this will copy the formula.
- Then **press the shift button** (arrow below the **enter** or **caps lock** button) and **keep it pressed down**.
- With the shift button pressed **click the down cursor arrow** until all the necessary cells are highlighted black.
- Let go of the both button and then **press 'ctrl'** and **'v'** at the same time- this will paste the values for the whole column.

Repeat this process for discharge, but the calculation would be **=g2\*d2**

**N.B.** if you used an orange over a 10 metre stretch, you would need an extra column (would be L in the table above) for inputted raw seconds taken and then in the velocity column (G) type the following formula **=L2/10**. Repeat the steps as outlined above to copy and paste the formula for the whole column

If you used a hydroprop the Owens and Boyd calculation is  $=0.0277+(3.2805/\text{seconds})$  to find the calibrated velocity. Therefore, you would type the following in the velocity column **=0.0277+(3.2805/L2)**

One final thing for this worksheet- column C is the distance from source. You would calculate this on an OS map- more on this in the data display section.

This may appear a little complicated for those just starting out with ICT, but it really is just a case of practice.