The result for distance downstream and hydraulic radius is +0.77. This is above the value needed to reject the null hypothesis for a sample size of 8 and the 95% confidence level on the table. But not above the 99% confidence level. Therefore the null hypothesis can be rejected and it is proven that the hydraulic radius of Waithe Beck increases in a downstream direction.

SAMPLE SIZE	95%	99%
8	0.64	0.88

The result 0.77 is > 0.64 but < 0.88
∴ Significant at 95% confidence level

The Scattergraph showed no obvious anomalies, although the value at site 7 is larger than would be expected. Here the river was significantly deeper than average and the cross section area larger and this produced a higher hydraulic radius figures than expected. This may have been a deep pool in a riffle and pool sequence.

The correlation coefficient results for the other river and channel variables are shown below, and using the significance table above we can calculate if the hypotheses are proven at the 95% confidence level, or the 99% confidence level or, in fact, not proven.

Distance downstream and discharge	**0.98**	**99% Highly significant**
Distance downstream and average velocity	**0.87**	**99% Highly significant**
Distance downstream and cross section area	**0.95**	**99% Highly significant**
Distance downstream and average bedload size	**- 0.5**	**Not proven No relationship**
Distance downstream and interquartile range (sorting)	**- 0.42**	**Not proven No relationship**
Distance downstream and Powers score (roundness)	**0.64**	**95% Significant**

Spearmans Rank Correlation Coefficient is a powerful method of relating two sets of data and calculating whether there is a proven relationship / correlation. It is fairly easy to calculate due to the ease of ranking, although care must be taken with paired ranks (eg, if rank 5 and 6 the same, both are 5.5, the next rank is 7). Also because of the ranking method it does not take account of actual values, just ranked values.