

Appendix C. Plotting Position

For this study, plotting positions for the observed peak discharges were determined following the recommendations of Cunnane (1978). Many plotting position formulae are special cases of the general formula:

$$F_i = \frac{i - \alpha}{N + 1 - 2\alpha} \quad (\text{C-1})$$

where

- i = the rank of the peak discharge, the largest peak being number 1,
- F_i = the probability associated with peak i ,
- N = the number of peak discharges, and
- α = a constant greater than 0 and less than 1.

The value of α determines how well the calculated plotting positions fit a given theoretical distribution. For example, the Hazen formula, α equal to 0.5, gives a good approximation of the extreme value distribution. Plotting positions for the Weibull distribution, recommended by Bulletin 17B, are obtained from Equation C-1 setting α equal to 0.0.

Cunnane (1978) gives recommendations for unbiased plotting positions for a variety of theoretical probability distributions. For the Pearson Type-III distribution Cunnane recommends α be between 0.44 and 0.375. For this analysis, α has been given a value of 0.4075, the average of 0.44 and 0.375.

Reference

Cunnane, C., 1978, Unbiased plotting positions—A review: *Journal of Hydrology*, v. 37, p. 205–222.