



Prediction of Flow Duration Curves at Ungaged Stream Sites in Guam



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In order to properly manage a region's water resources, it is important for water managers to know the time variability of flow in the streams of that region. Not only what are the highest flows, such as what would be available from a flood frequency study, but also how the flows vary day to day, season to season, and year to year.

Guam is no different than other areas requiring water resources investigations. In order to properly carry out good water resources management, it is necessary to be able to define the variability of flow available in Guam's streams. This is normally done by direct analyses of streamflow data for the stream in question or by applying some sort of inferential techniques from a gaged to an ungaged stream or from a gaged location on a stream to an ungaged location on that same stream. Of course, the most reliable means is to use actual stream flow data measured at the point of interest. The problem in Guam, as in most locations, is that stream flow information is not available for all

possible sites where information is required. What is needed is a better means of predicting the variability of flow at ungaged locations that are likely to become candidate sites for water resources investigations.

The goal of this project will be the development of a means of predicting flow duration curves at ungaged sites in Guam. All of the major streams in Southern Guam will be divided into stream reaches, or homogenous sections of a stream, that have similar flow properties. These reaches will be identified on maps developed from the detailed Geographic Information System (GIS) map inventory of Guam available at WERI. Various statistical and analytical methods will be applied to the existing streamflow data along with the physical characteristics of the reaches in order to predict the streamflow variability in each stream reach.