

## SECTION C HYDROLOGY

### INTRODUCTION

This section provides the available river peak flow data for the South Fork Eel River near Leggett. This is the closest stream flow station to the Cottaneva Creek WAU. The peak flow data is used to show the magnitude of storm events and when they occurred. High river peak flow events are indicative of the largest storms, with large storms typically comes high erosion and sediment transport events.

The Cottaneva Creek WAU does not receive any significant snow accumulations that could contribute to rain-on-snow events. Current research shows possible cumulative effects from increased peak flows from forest harvest in rain-on-snow dominated areas (Harr, 1981). However, in rain dominated areas, increases in large stream peak flows (i.e. greater than a 20 year event) from forest harvesting are not found (Ziemer, 1981; Wright et. al., 1990). The Cottaneva Creek WAU is a rain-dominated area in the temperate coastal zone of Northern California, therefore analysis on peak flow hydrologic change was not considered necessary

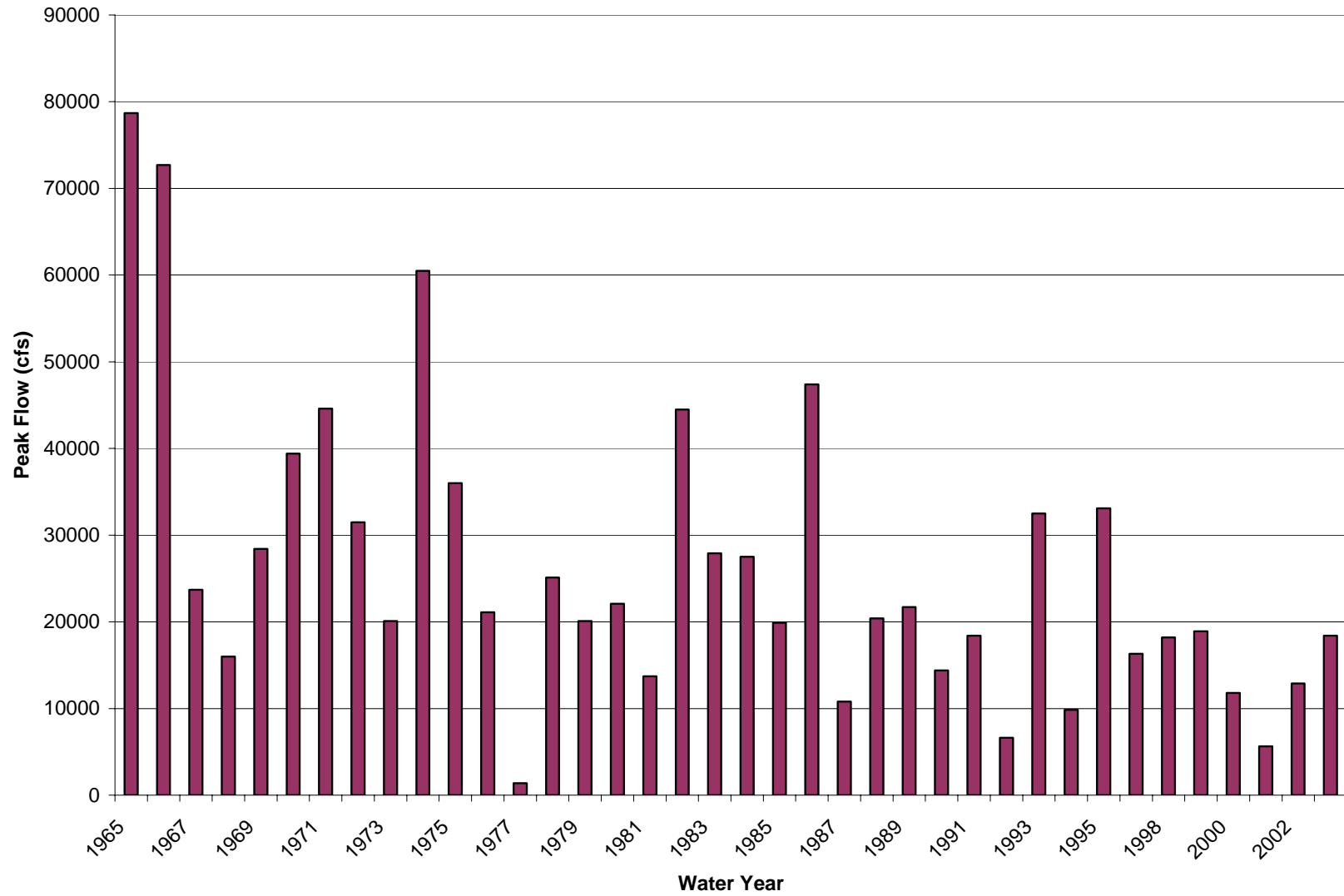
### Peak Flows

The peak flow information was taken from the United States Geological Survey (USGS) gage 11475800, South Fork Eel River near Leggett, from water years 1965-2003. The USGS annual peak flow series was used to estimate the recurrence interval of the flood events of the South Fork Eel River near Leggett. An extreme value type I distribution (Gumbel, 1958) was fitted to the data. Table C-1 shows the estimated recurrence interval for peak discharges in the basin.

Table C-1. Flood Recurrence for Peak Flows of the South Fork Eel River near Leggett, 1965-2003.

<u>Recurrence Interval (years)</u>	<u>Peak Discharge (cfs)</u>
1.1	6701
2	23294
5	38447
10	48479
25	61156
50	70560
100	79894

Figure C-1. Peak Flows for the South Fork Eel River near Leggett, 1965-2003.



Using the peak flow record from 1965-2003, the flood of record was in December 1964 (78,700 cfs) calculated to be almost a 100 year event for the South Fork Eel River near Leggett (see Table C-1). The second highest peak flow occurred in the 1966 water year. The third highest peak flow occurred in 1974. This is similar to most of the stream flow stations in the Mendocino and Sonoma County areas. This suggests that Cottaneva Creek has been subjected to similar storms and magnitude as other watersheds of the area. The recent time period, from the 1990's onward, has seen several large stream flow events though none of these events have been higher than a five year return interval.

### **LITERATURE CITED**

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