SECTION C
HYDROLOGY

INTRODUCTION

This section provides the available river peak flow data for the Russian River near Hopland. This is the the closest stream flow station to the Northern Russian River 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 Northern Russian River 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, 198l). 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 Northern Russian River 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

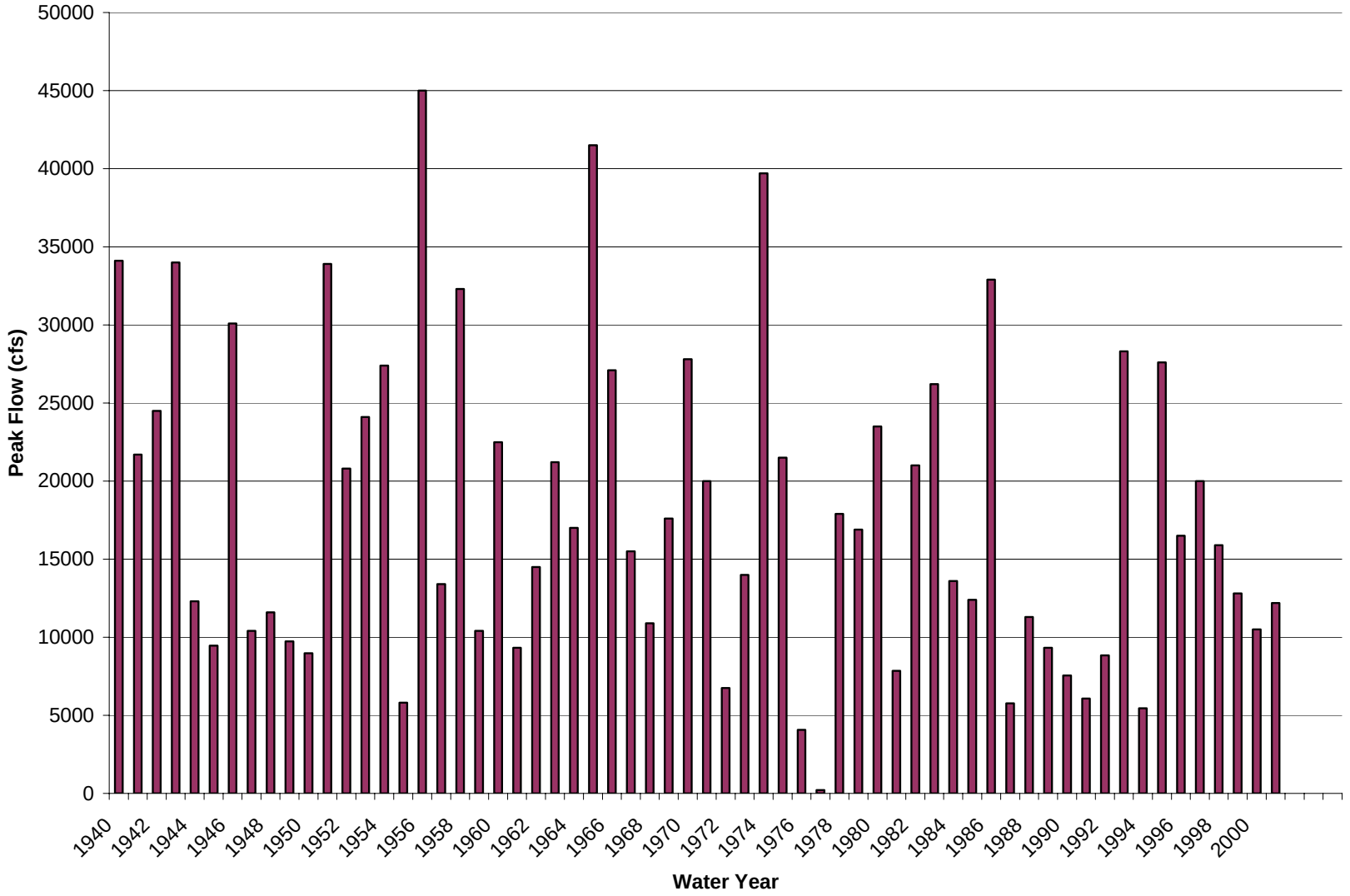
Peak Flows

The peak flow information was taken from the United States Geological Survey (USGS) gage 11462500, Russian River near Hopland, from water years 1940-2001. The USGS annual peak flow series was used to estimate the recurrence interval of the flood events of the Russian River near Hopland. 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 Russian River near Hopland, 1940-2001.

Recurrence Interval (years)	Peak Discharge (cfs)
1.1	6644
2	16429
5	25364
10	31280
25	38754
50	44299
100	49804

Figure C-1. Peak Flows for the Russian River near Hopland, 1940-2001.



Using the peak flow record from 1940-2001, the flood of record is 1955 (45,000 cfs) calculated to be over a 50 year event for the Russian River near Hopland (see Table C-1). The second highest peak flow occurred in the 1965 water year, specifically December 1964. 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 the Russian River 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 lower than a ten year return interval.

LITERATURE CITED

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