

## CHAPTER 1

### INTRODUCTION

The Pembina River rises in south-western Manitoba and flows in a south easterly direction into the United States to its confluence with the Red River near Pembina, North Dakota, as shown in Figure 1. There is a long history of flood damage associated with the spring snowmelt in the Pembina River Basin. Damaging floods have occurred mainly on the broad, flat plain east of Walhalla, North Dakota, where overbank flows from the Pembina River escape south into the Tongue River Basin in North Dakota and north into the Plum and Aux Marais River Basins in Canada. In recent years major floods have occurred in 1966, 1969, 1970 and 1971. Although the Pembina flood peaks do not usually coincide with flood peaks on the Red River, they do contribute to the magnitude and duration of floods on the Red. Thus there are two areas in Manitoba affected by floods on the Pembina River: the Gretna-Altona area, affected by overland flows from the Pembina, and the Red River area, affected by overbank flows from the Red River. The limits of the area flooded by the 1950 floods on the Pembina and the Red Rivers are indicated in Figure 1.

In a 1972 report entitled "Review Survey of Flood Control and Related Purposes, Pembina River, North Dakota", the United States Corps of Engineers proposed the construction of the Pembillier Dam on the Pembina River southwest of Walhalla, North Dakota. This dam would provide for flood storage on the Pembina