

Approximately 25% of the U.S. surface water area is located in areas with limited (low and moderate) potential to reduce acidity and of deposition greater than 20 kg SO_4^{2-} /ha.yr (Table 8-1). Only 10% are located in areas with the most limited (low only) potential to reduce acidity and of deposition greater than 20 kg SO_4^{2-} /ha.yr. The actual surface water area would be more limited if data were available on surface water chemistry (i.e., alkalinity). Additional refinements of the inventory should include data on this variable as well as more accurate measurements of surface water area.

Although the aggregate 38-state data show that approximately 25% of the U.S. surface water area is potentially at risk, data disaggregated at the state level show a much higher percentage in some states (Table 8-2). All of the New England states have at least 70% or more of the surface waters potentially at risk. Three mid-Atlantic states (Maryland, New Jersey, and New York) and three southern states (Georgia, North Carolina, and Virginia) have at least 50% or more of their surface water potentially at risk. Most of the states in the mid-west, west and southwest have very limited, if any, surface water potentially at risk except for Michigan and Arkansas. In some states with low potential to reduce acidity and numerous lakes, such as Wisconsin and Minnesota, the annual sulphate deposition loading is less than 20 kg/ha.yr, so the surface water area is not considered at risk. In all cases, these estimates of surface water potentially at risk will be reduced to some degree when data on stream chemistry are available.

8.2.2 Canadian Aquatic Resources

The basis for the inventory was provided by the map indicating the potential of soils and bedrock to reduce the acidity of atmospheric deposition (Figure 3-9; Lucas and Cowell 1982). This was overlaid with the map of sulphate deposition (Figure 8-1b). Finally, data on the proportion of surface water area for each province was combined with the deposition/acidity reduction capability information to derive estimates of the total area of surface waters at risk.

The data on surface waters were drawn from two main sources. In Ontario, detailed lake counts and measurements (Cox 1978) provided data on a watershed basis. For Quebec and the Maritimes, the Ecodistrict Data Base developed by Environment Canada (1981a,b) was utilized. The data presented here provide an estimated ratio of water to land for each Ecodistrict. No data were available for Newfoundland and Labrador. Two other serious omissions of this inventory are a lack of information on lake alkalinity and data on specific aquatic biota associated with the various deposition regimes on a provincial basis.

Table 8-3 provides a provincial summary of the aquatic resources at risk based on surface water sensitivity (as estimated by the