

## SECTION 1

### SUMMARY

#### 1.1 INTRODUCTION

Wet and dry deposition of acidic substances and other pollutants are currently being observed over most of eastern North America. The Impact Assessment Work Group was charged with identifying and making an assessment of the key physical and biological consequences possibly related to these transboundary air pollutants.

During the Work Group's assessment of these effects it has been necessary to conduct the work along strictly disciplinary lines. Thus the presentation of our findings follows a sectoral approach (i.e., aquatic, terrestrial). While this approach has been useful for organizing and presenting our findings, it has also limited our consideration of the interactions which exist among these sectors. These effects do not occur in isolation.

The following sections summarize findings of the Work Group with respect to impacts on aquatic and terrestrial sectors of the biosphere, health and visibility, and man-made structures. There are also summary statements with regard to methodologies for estimates of economic benefits of controls, natural and material resource inventory, and liming.

#### 1.2 AQUATIC ECOSYSTEM EFFECTS - CANADA

*The potential effects from the deposition of acid and associated ions and compounds (sulphur dioxide, sulphate, nitrate, ammonia, and others) on water quality, and on the aquatic ecosystem, appear to be more fully quantified and understood than for terrestrial ecosystems. Data have been drawn from a number of study areas in eastern North America including Labrador, Newfoundland, Nova Scotia, New Brunswick, the southern part of the Canadian Shield in Quebec, and Ontario. Primary study areas in the U.S. are found in New Hampshire and southern Maine, Adirondack Park in New York, the Boundary Waters Canoe Area of Minnesota, and numerous lakes in north-central Wisconsin.*

*The findings and conclusions of the Work Group with respect to acidification effects are contained in the following statements:*

*Sulphuric acid has been identified as the dominant compound contributing to the long-term surface water acidification process. Nitric acid contributes to the acidity of precipitation, but is less important in eastern North America than sulphuric acid in long-term acidification of surface waters. Nitric acid contributes to pH depression of surface waters during periods of snowmelt and heavy rain runoff in some areas.*