The map summarizes regional differences in river characteristics and sensitivity to climate change. The regions are delineated on the basis of broad physiographic, climatic, and hydrological differences. Details are given in the accompanying report. Within any one region, fluvial characteristics and the response to climate change are distinctive. The sensitivity legend and notes highlight the particular concerns in each region. The inset maps provide additional background and interpretative information.

The effects of climatic change in many regions will occur in addition to existing and future human impact on fluvial processes. In some cases, the human impact will be, or is already, greater than any probable climatic impact. In other cases, climatic change may compound the existing impact. The legend and notes point out areas of the country in which human impact on streams and landuse are already, and will continue to be, an important influence.

Interpretation of sensitivity at the regional scale downplays the real importance of local conditions in the actual response and ignores the presence of factors which cross regional boundaries. Human activity is one of these and the other significant influence of this type is surficial geology. Glaciation in Canada has produced complicated spatial patterns of surficial materials which do not correspond well with the regional geological and physiographic boundaries. Certain types of material are found in all regions of the country. The presence of, for example, fine-grained silt and sand, may be a more dominant influence on river channel type and sensitivity than any regional terrain or hydrological characteristic. For this reason the regional patterns depicted on the map must be interpreted cautiously, and should not be applied to any particular location without additional local information.

The actual response will, within each region, also depend on the size of the drainage basin. Smaller basins (<1000 km²) are affected by convectional rainstorms as well as frontal precipitation, whereas streams with larger basins (with areas of the order of approximately 100 to 10 000 km²) are affected primarily by larger cyclonic storms. Streams with very large drainage basins (drainage areas greater than 100 000 or 1 000 000 km²) are sufficiently large not to have the entire drainage basin affected by a single synoptic event, and these respond primarily to seasonal-scale runoff events such as spring nival floods, or successions of large storms. The sensitivity of streamflow to climatic change will depend on changes to the types of runoff-generating events prevalent in a particular scale of drainage basin. The sensitivity assessment is most relevant to synoptic-scale events (convectional and cyclonic), but the effect of basin size is not depicted on the map.

Local hydrological conditions also affect streamflow regimes and will modify the response of some streams to climate change. The most important influences of this type are glaciers, lakes, and wetlands. These effects are more significant in some regions than others, but local conditions of this type must be considered in any particular river system. Glacier influence is significant in the 'Exposed Coast', Coast Mountains, and 'Interior Mountains' regions of the southern Cordillera, and in southern and northern Inuitia. Wetland extent is greatest in the 'Southern Shield', 'Boreal Plains', 'Hudson Plain Peatlands', and parts of Appalachia. Lake effects are most significant and widespread throughout the shield, but may also be relatively important in the 'Boreal Plains', and in parts of Appalachia and the southern Cordillera.