

# HIGH-LATITUDE RESEARCH BASINS AS SETTINGS FOR CIRCUMPOLAR ENVIRONMENTAL STUDIES

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## ABSTRACT

Much "environmental" research (both small scale and large) may logically be conducted within the larger context of entire drainage basins--Research Watersheds. These are catchments which represent major environmental settings (e.g., Arctic tundra, subarctic taiga) and are specifically dedicated to research. The "hydrologic cycle" of a complete catchment considered from precipitation through basin yield provides a functional and conceptual base for considering mass, nutrient, and energy transfer questions relevant to ecosystem functioning. With proper planning and execution, advantages to be gained may include: economy of effort, better cooperation between disciplines, improved application of results to real-world problems, and enhanced potential for comparative studies among circumpolar settings. In high latitudes, where climate, transportation and logistics, available scientific manpower, and lack of good background data often combine to render research both difficult and expensive, increased efficiency through integration of complementary biological and physical studies is especially attractive.

In 1974-75 a start was made toward such a circumpolar program. Through the International Hydrological Decade (IHD), initial meetings of Swedish, Canadian, and U.S. scientists have considered objectives of facilitating communication and data exchange, and ultimately improving understanding of hydrologic functioning in high-latitude environments. In Alaska the 104-km<sup>2</sup> Caribou-Poker Creeks Research Watershed (65° 10' N) provides one example of multi-disciplinary, multi-agency research into environmental and hydrological behaviour of subarctic uplands, with provision for physical and biological investigations and experimentation. Similar circumpolar efforts should prove useful in a wide variety of discipline specific and integrated scientific efforts.