Boreal - Arctic

• There are data rich areas within and outside (e.g., alpine) this hydroclimatic zone from which information can be gleaned using physically based models to develop indices, parameters or indicators that can be transferred to less well gauged areas. These data rich areas tend to be representative research basins.

• Much work remains in this hydroclimatic zone to identify and develop the best or most useful indices, parameters or indicators that would provide information in the most effective way. Identifying the key parameters and variables is important to guide monitoring and broader data collection efforts in this zone where data availability is at a premium. Parsimony must remain a key consideration.

• Even in this relatively data sparse zone, where forcing data can be rare, there can be basic physiographic data derived with remote sensing methods do exist and can be widespread. Some data useful for parameterizing models are harder to come by.

Boreal - Arctic

- Implementation of predictive tools requires planning and depends on:
 - 1. What is the question?
 - 2. Why are you asking the question?
 - 3. How is the answer to be used?
 - 4. What range of uncertainty is required?
- A classification system would be helpful to discern which of the following groups of indices, parameters or indicators would be of most:
 - 1. Topography (e.g., aspect)
 - 2. Hydraulic geometry (e.g., channel morphology)
 - 3. Vegetation (e.g., NDVI)
 - 4. Response units (e.g. hydrological function and distribution there of)
- Testing of indices, parameters and indicators is required across a range of space and time scales.

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• The rampant uncertainty in prediction in this hydroclimatic zone requires good access to data and the application of multiple independent methods including traditional knowledge, the spectrum of published literature, expert opinion, and paleo records.