

## GLACIER EXTENT



### *What does this measure and why is it important?*

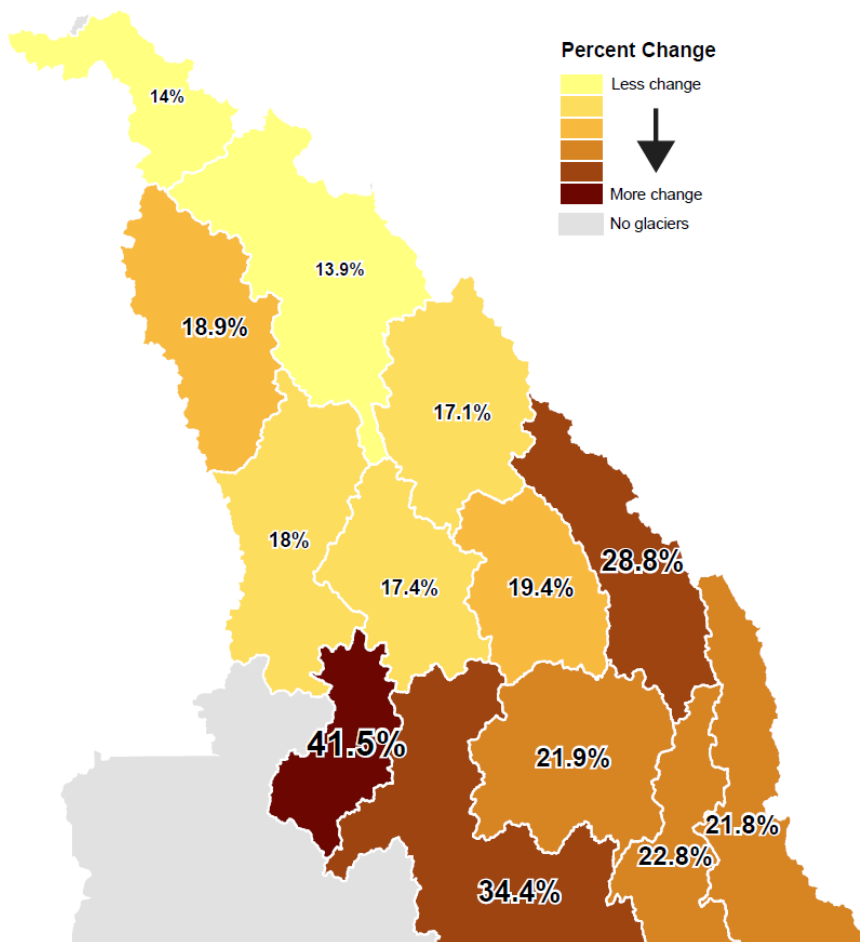
This indicator measures the 20-year change (1985-2005) in the extent of all glaciers in the Basin Boundary region. 'Extent' refers to the amount of land that is covered by glacial ice. Some analyses of glacial change use 'mass balance' as an indicator. These two measures should not be compared to one another. Data for this indicator were provided by researchers at the University of Northern British Columbia, who have completed a remote-sensing based inventory of all glaciers in Western Canada (see Bolch, Menounos, & Wheate, 2010). Additional analysis by the Selkirk Geospatial Research Centre provides supplementary information.

Glaciers provide essential flow and storage services in Basin Boundary watersheds. As glaciers recede, so does the resilience of our aquatic ecosystems in the face of the shifting precipitation patterns that are anticipated with climate change (Murdock & Werner, 2011). The contribution of glaciers to regional streamflow patterns is also an important local economic driver; hydroelectric generation potential, especially in the late summer, will very likely be affected by the recession of glaciers (Jost & Webster, 2012).

### *What are the trends and current conditions?*

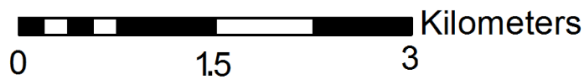
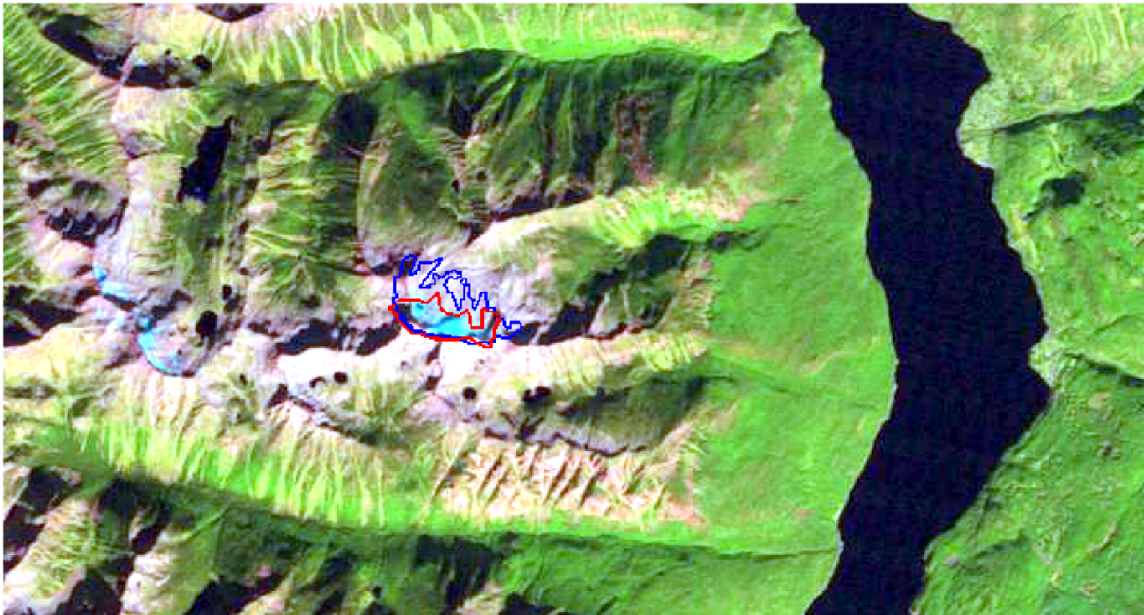
On average, the extent of glaciers in our region dropped 14% over the period 1985-2005. That's an average rate of change of 0.7% per year. The trend for this region is more pronounced than the average for Western Canada—11% over the entire study period, or 0.6% per year.

The rate of glacial melt is higher in certain parts of the region. Glaciers in the south are receding the fastest, while glaciers in the north are receding the slowest (Figure 47).



**Figure 1: 1985-2005 change in extent of Basin Boundary glaciers, by major watershed**  
Source: R. Wheate, pers. comm., 2013; DataBC, 2011

Research suggests that glacier size is an important factor affecting rates of recession. In our region, one of the smaller glaciers, the New Denver glacier, is receding at an alarming pace. Over the period 1999 to 2010, the extent of the New Denver glacier dropped by 54%, a rate of almost 5% per year.



### Legend

-  Red: 2010 Boundary
-  Blue: 1999 Boundary

**Figure 2: Change in extent of New Denver Glacier, 1999-2010**  
Source: Zhang, 2013