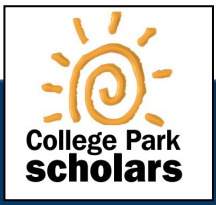




# Impacts of Climate Change: Mountain Glacier Loss



## Introduction

An indication of the severity and urgency of climate change.

What is a glacier?

- “a large, persistent body of ice originating on land generally flowing and/or sliding due to stresses induced by its weight”
- Glaciers are Earth’s largest “natural reservoir”<sup>1</sup> for freshwater

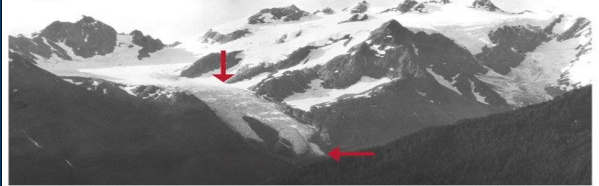
Why should we be concerned?

- CO<sub>2</sub> levels in Earth’s atmosphere are on course to reach irreversible, adverse effects on essential aspects of life
- Largely a result of anthropogenic causes, agriculture, human health, infrastructure, and the economy are all at risk of declining

Mountain glacier loss will continue to accelerate and depreciate humans’ quality of life if mitigation and adaptation procedures are not taken urgently.

## Olympic National Park - Blue Glacier

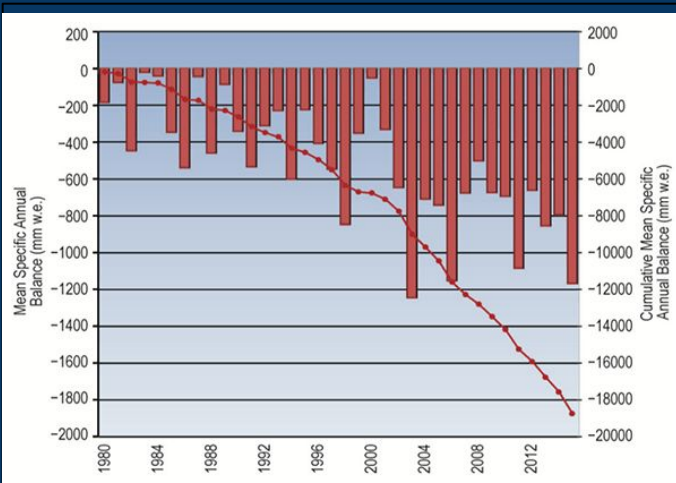
1899



2008



Major loss of glacial mass can be attributed to the rising temperatures as a result of climate change. Picture received from the [National Park Service](#)



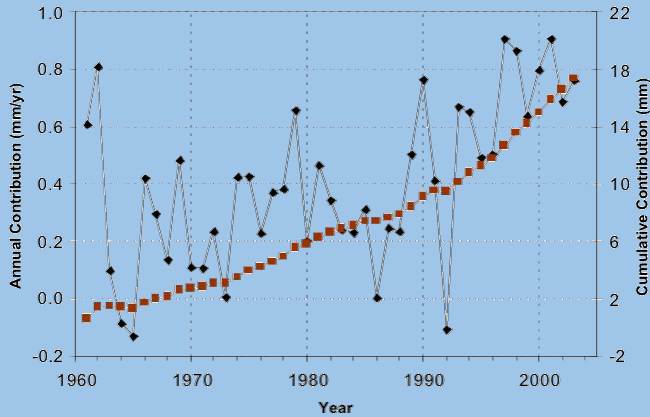
## How Current Global Change is Making This Worse

Over the past few years, mountain glaciers around the world have been vanishing at unprecedented rates: the snows of Kilimanjaro have melted more than 80% since 1912, and the glaciers in Himalaya are predicted to disappear completely by 2035. Scientists are pointing the finger to one cause: modern energy use. Burning fossil fuels and other economic activities release greenhouse gases like CO<sub>2</sub> and methane into the atmosphere, warming the atmosphere. Warming air temperatures leads to an increase of melting mountain glaciers.

The mass balance of a glacier refers to the difference in accumulation of glacier mass in the winter and glacier ablation in the summer. The graph above shows mass balance for 41 glaciers monitored by the WGMS. As shown, the glacier mass balance over the years has shown a consistent decreasing pattern.



Annual glacier contribution to sea level change (left axis, mm/yr), and cumulative value (right axis, mm) based on area-weighted averaged mass balance.

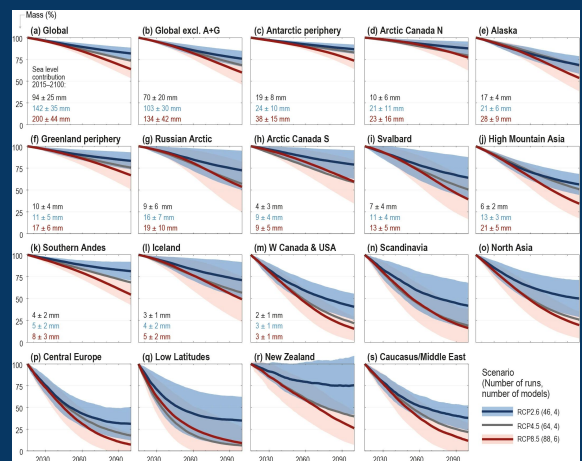


## How will this change impact humans &/or wildlife in the near future

Melting glaciers greatly increases sea level which in turn, leads to coastal erosion and landslides while also increasing the frequency and intensity of tropical storms due to the warming air and ocean temperatures. Receding coastlines reduces the space for humans and wildlife to inhabit, and extreme storms have to potential to greatly disturb ecosystems.

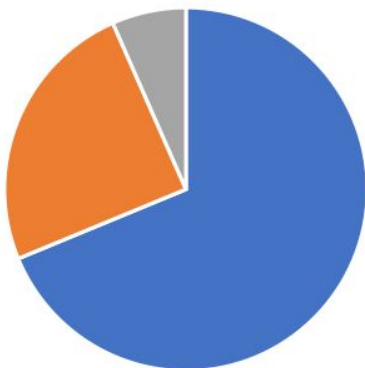
### Extra Info

- The melting of mountain ice decrease the stability of mountain slopes making natural hazards more likely
- Melting of mountain ice has negative effects on tourist activities like skiing
- Harder to gain support because to most it seems far away and has no impact on them.
- One obstacle is governing transboundary mountains



The projected glacier mass from 2015 to 2100 of different regions of the world

### Mountain Glacier Loss



■ Significantly ■ Very weakly ■ Not at all

Results of 333 respondents conducted in Spring 2020 to the query "Please indicate if in your opinion the degree to which this phenomenon is affected or intensified now or in the near future (within the next 30 years) by global climate change."

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