



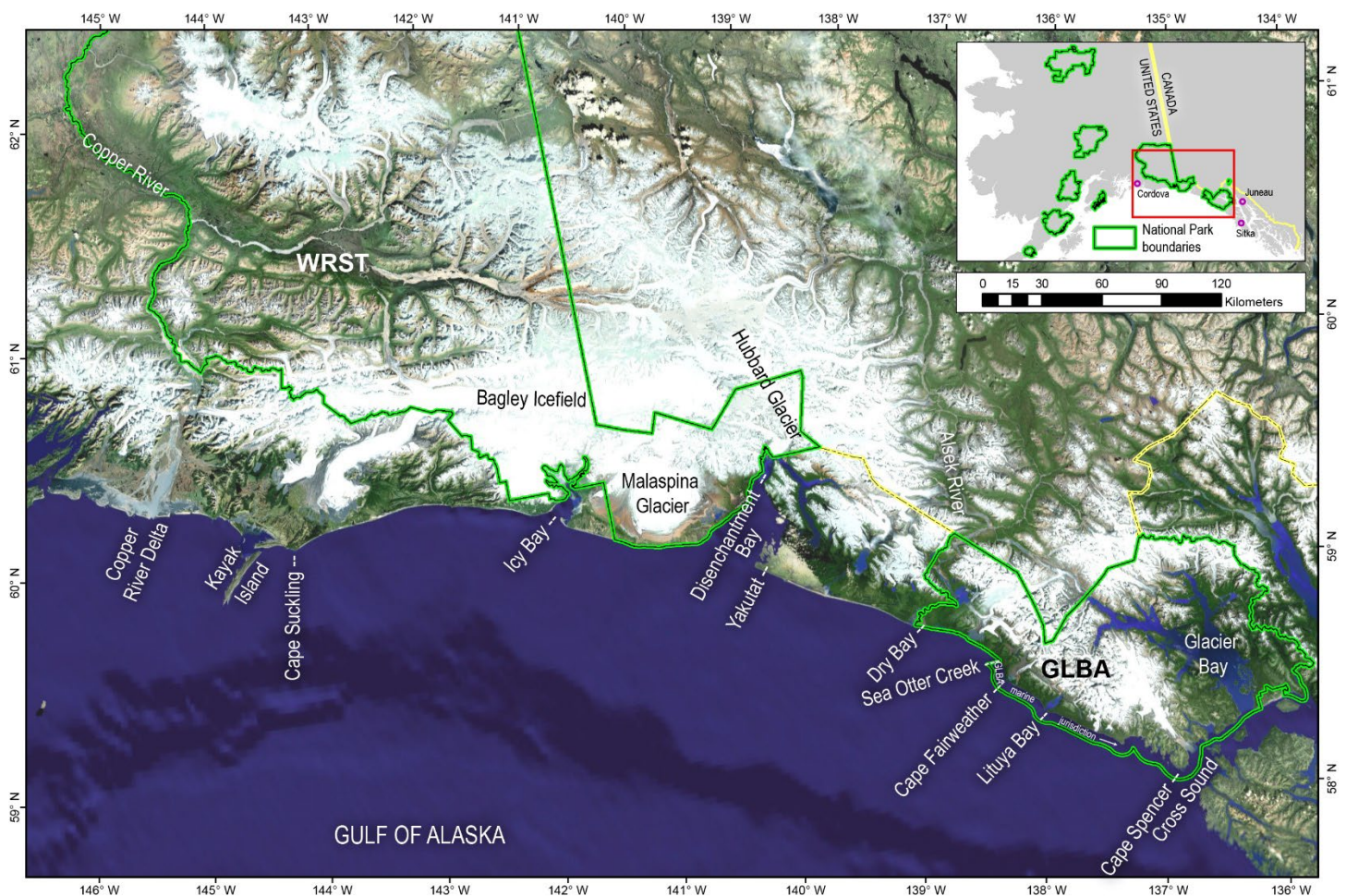
Outer Coast Glacier and Climate Monitoring 2022

Background

The Southeast Alaska Network recently expanded its existing monitoring program to include previously unstudied areas in the remote “outer coast” of two parks: Glacier Bay National Park & Preserve and Wrangell-St. Elias National Park & Preserve (see map below). Several vital signs will ultimately be monitored, and in summer 2022 we conducted aerial reconnaissance of the outer coast with the purpose of selecting sites for the closely linked Glacier and Climate vital signs.

Aerial Reconnaissance

NPS scientists Andrew Bliss and Michael Loso spent several days based in Yakutat, each day flying a distinct portion of the outer coast with an eye towards future monitoring activities. We maintained existing long-term weather stations in Lituya Bay and Deception Hills, and two temporary weather stations that we are considering “adopting” at Malaspina Glacier. We also visited several potential sites for new time-lapse cameras. The camera sites, all located near Hubbard Glacier within Disenchantment Bay, are envisioned to be part of a monitoring system that tracks changes around the terminus of the Hubbard Glacier. As a test of concept, we installed one camera this summer, and will likely install others next year after we see how our test camera performed.



Why are the Climate and Glacier Vital Signs Important?

Glacier growth and retreat is linked directly to climate, which makes glaciers a valuable indicator of climate change and its consequences. As Alaska's glaciers retreat, they have the potential to contribute significantly to sea level rise, limit water supply to major rivers, reorganize watersheds, and trigger landslides. Tidewater glaciers like Hubbard Glacier also provide important habitat for harbor seals that use icebergs for resting, pupping, and protection from predators. A better understanding of the local trends of this vital sign will improve our ability to anticipate the scale and timing of such events and to strengthen our preparedness and response.

What Do We Want to Know About Climate and Glaciers?

Some of the largest glaciers in the world (Hubbard and Malaspina glaciers, for example) are located along the outer coast. We plan to use weather stations and remote sensing to estimate the impact of climatic changes on glacier size, and then directly monitor changes at the terminus of one tidewater glacier.

How We Monitor the Climate and Glaciers Vital Signs

We are in the process of developing a long-term monitoring program. We plan to install and maintain a network of weather stations and time-lapse cameras that, in combination with remotely sensed images and data from satellites, enable us to document climatic changes, consequent glacier changes, and the impact of these changes on harbor seals and other members of the nearshore marine ecosystem.



NPS scientists examine a mid-elevation weather station near Malaspina Glacier, with a goal of determining whether this site is appropriate for the installation and maintenance of a longer-term station.

How Monitoring These Vital Signs Can Help Park Managers

- Maintain up-to-date information on the status of glaciers – some of the park's most unique and spectacular resources – for scientists and visitors alike
- Understand the local impacts of climate change on parks with direct and familiar examples
- Anticipate the future trajectory and position of glaciers to inform park infrastructure and resource planning
- Contribute valuable data to scientific research in fields including glaciology, meteorology, and geomorphology

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