

Developing a New Visitor Map of Glacier Bay National Park, Alaska

**Tom Patterson
US National Park Service
Harpers Ferry Center**



Glacier Bay at a glance



Part 1

Map planning

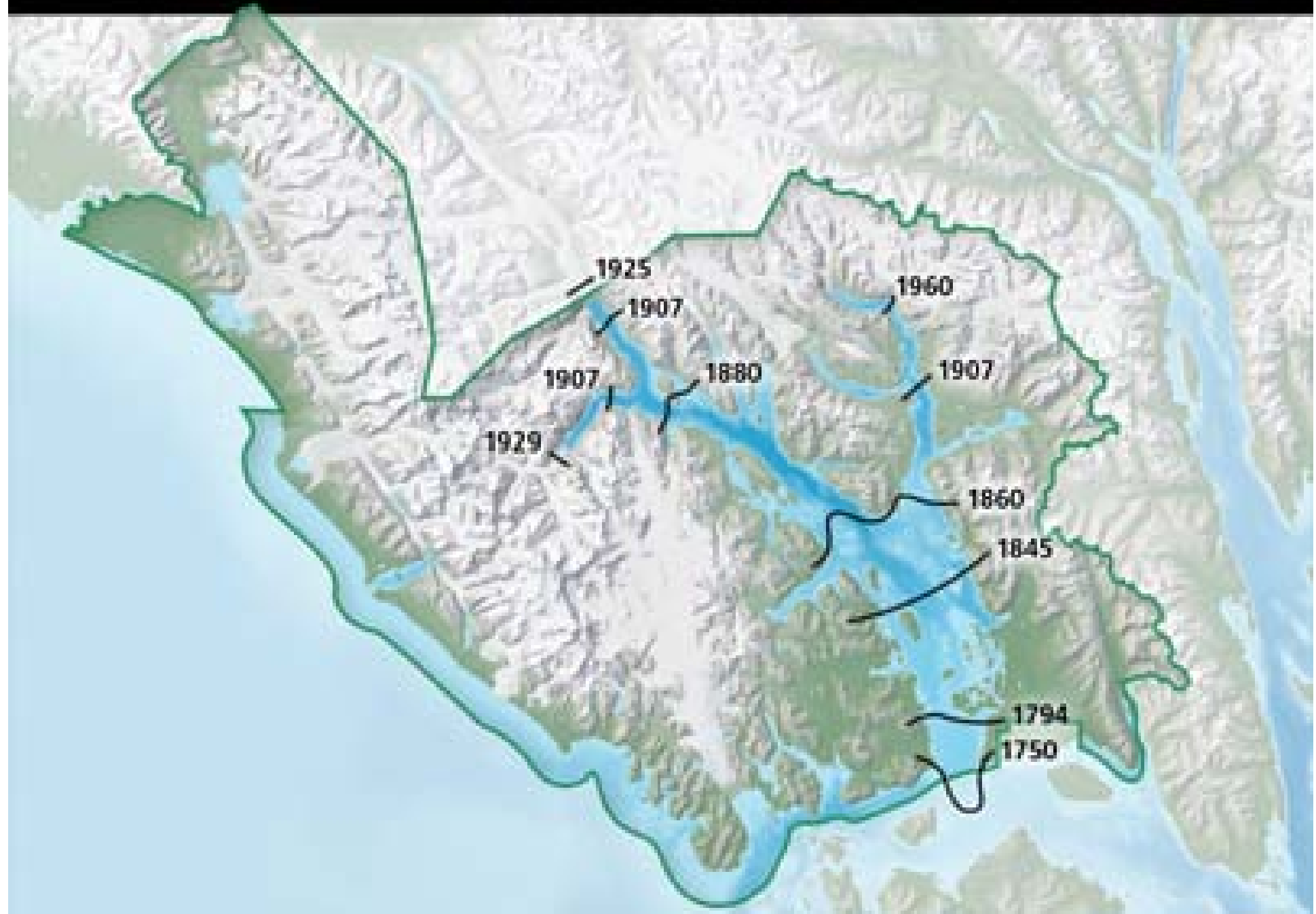
Visitors: 95 percent arrive by ship



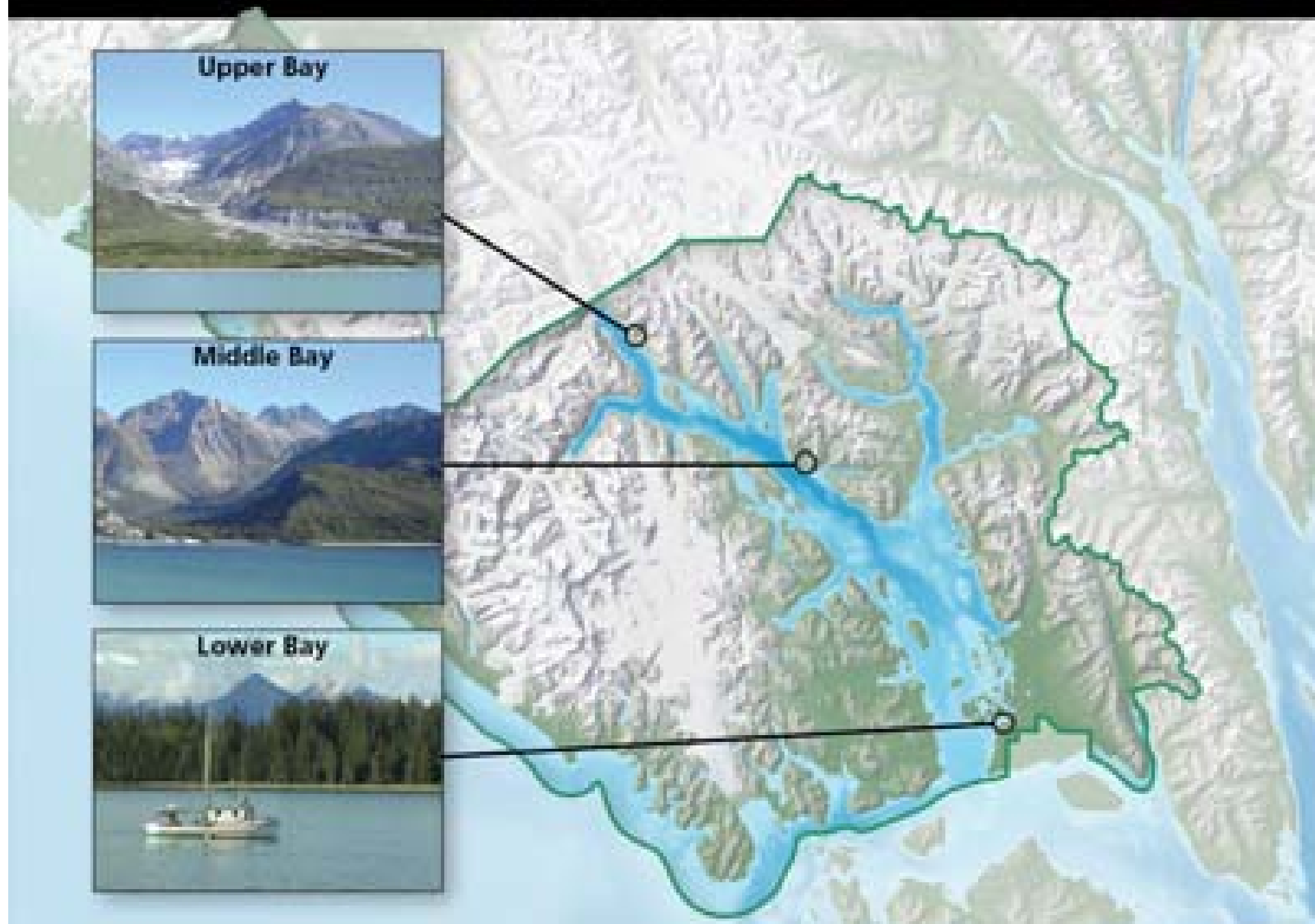
Primary theme: *change*



Glacial retreat



Plant succession



Glacial rebound: Headquarters Cove



Sedimentation: Taylor Bay



Ice dam bursts: Abyss Lake



Earthquakes: Fairweather Fault



Tsunami: Lituya Bay



Trees swept from slope
525m (1720ft) above sea level

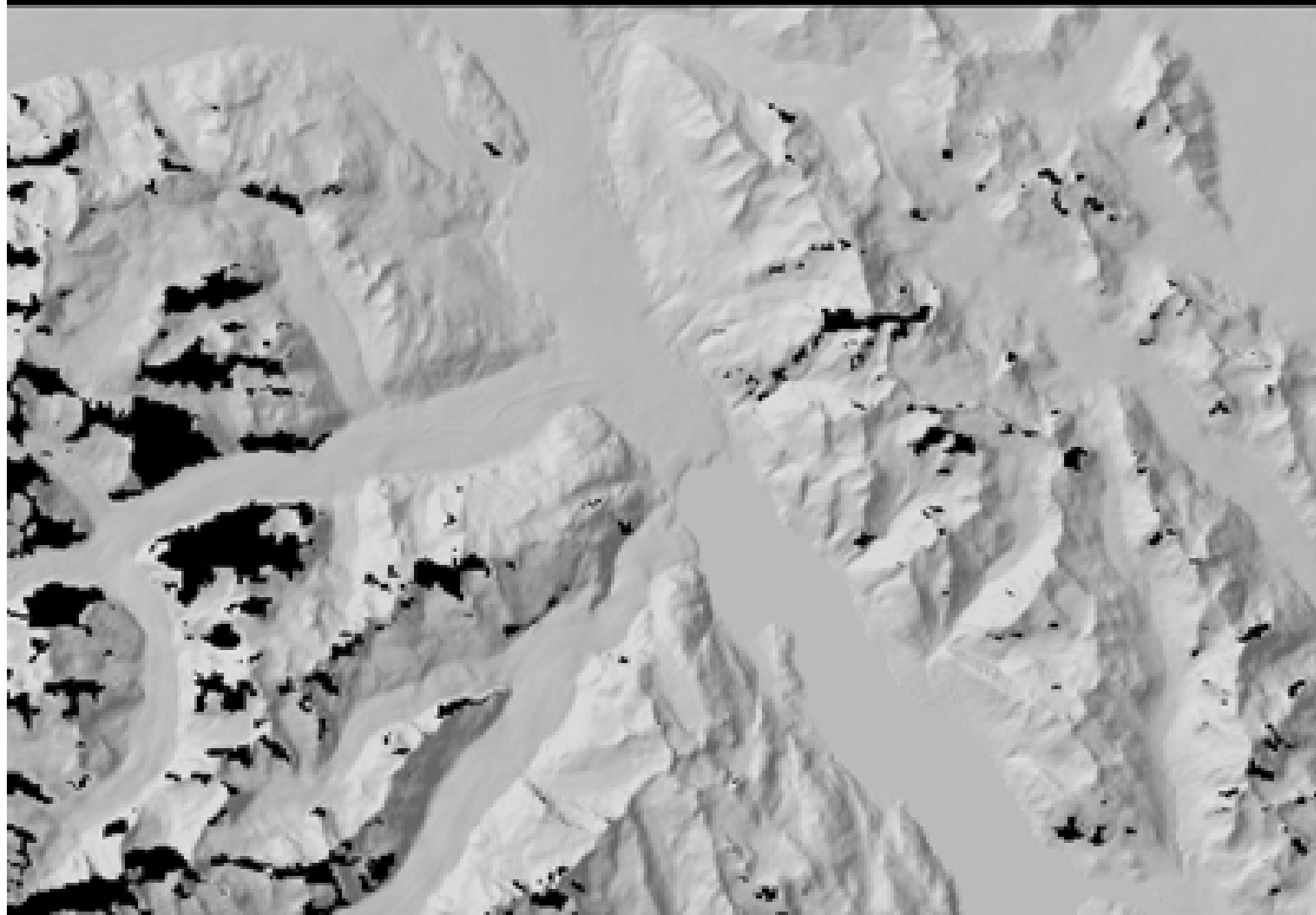
Part 2

Mapping challenges

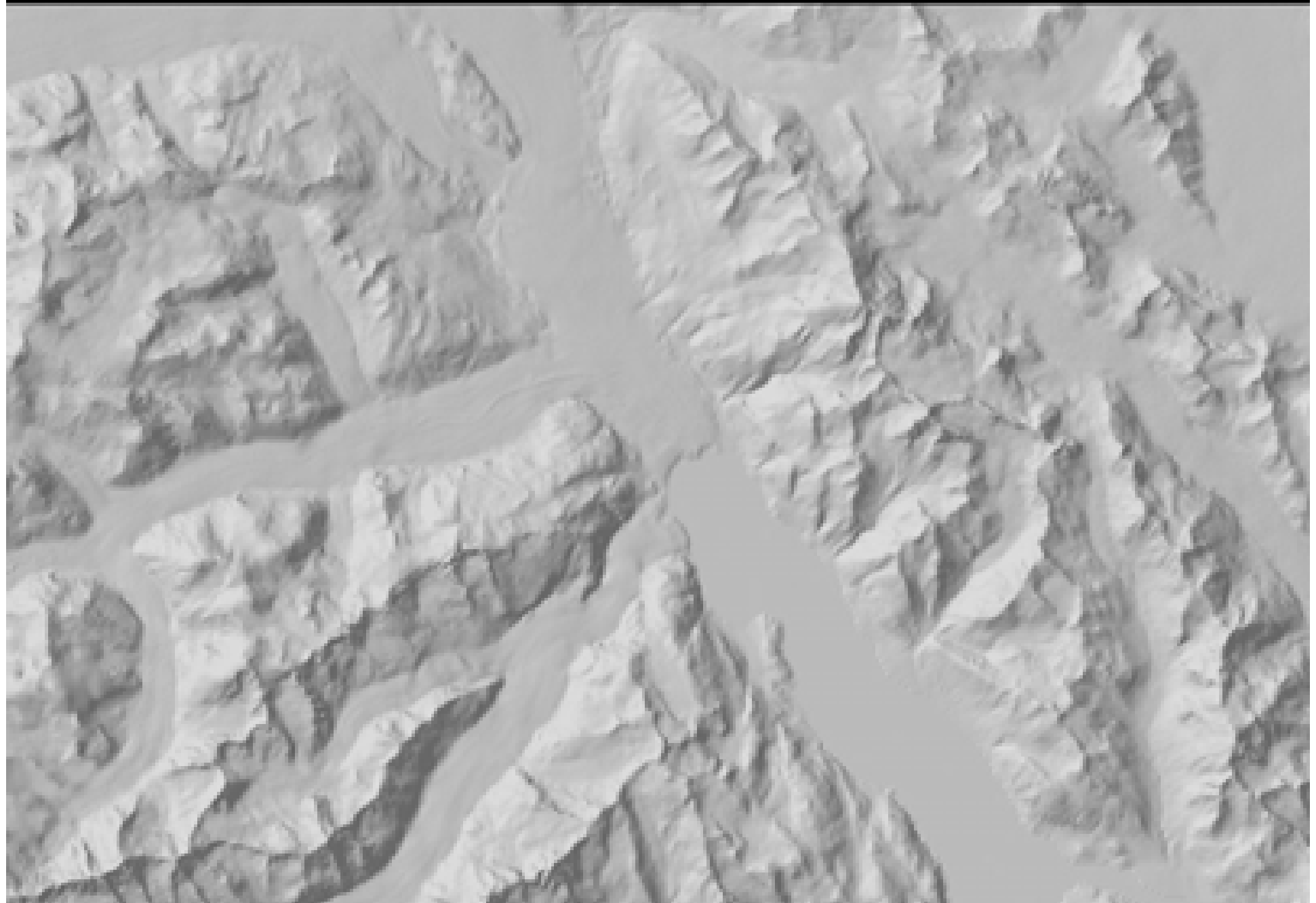
Shaded relief: 48-meter NED



Shaded relief: 72-meter SRTM



Shaded relief: merged final



USGS Landcover



Source: USGS EROS Alaska Field Office, 1996

Vegetation tint below 750 meters



Vegetation tint + ice



Glacier mapping: 2000 Landsat



Glacier mapping: less contrast above 2500 m



Glacier mapping: colored





Image © 2006 DigitalGlobe

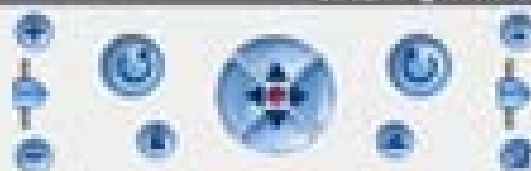
Google

Address: 15° 01' 24.34"N 124° 08' 00.00"E Alt: 1601 ft

Zooming: 100%

Eye alt: 14000 ft

- | | |
|----------------------------------|------------------------------------|
| ☐ Lodging | ☐ Dining |
| ☐ Roads | ☐ Borders |
| ☐ Terrain | ☐ Buildings |



USGS 5-meter multibeam bathymetry



Inforain 25-meter bathymetry



Supplemental NOAA/NGDC 90-meter bathymetry



Merged final bathymetry



Unofficial place names



Part 3
Final map design



Type legibility: background halos

Before



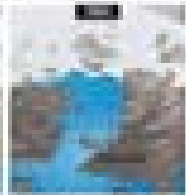
After



Western America and the Land Settlements



As shown in the map, the coastal region of the Pacific Northwest is characterized by a series of fjords and inlets, which are the result of the retreat of the ice sheets during the last glacial period.



The inland region of the Pacific Northwest is characterized by a series of mountain ranges, which are the result of the collision of the Pacific Plate with the North American Plate.



The mountain region of the Pacific Northwest is characterized by a series of high peaks, which are the result of the collision of the Pacific Plate with the North American Plate.



The river network of the Pacific Northwest is characterized by a series of large rivers, which are the result of the collision of the Pacific Plate with the North American Plate.

Settling the West

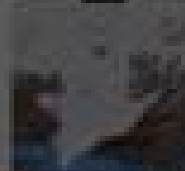
The settlement of the West was a process that began in the mid-19th century and continued through the late 19th century. It was driven by a variety of factors, including the discovery of gold, the need for land, and the desire for a better life.

The settlement of the West was a process that began in the mid-19th century and continued through the late 19th century. It was driven by a variety of factors, including the discovery of gold, the need for land, and the desire for a better life.



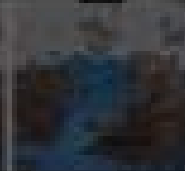
Western Network and the Great Network

1900



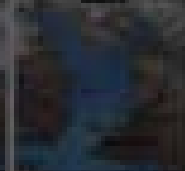
The Western Network was the first major water project in the United States. It was designed to provide water to the western states and to the Great Network.

1910



The Western Network was expanded in 1910 to include the Great Network. This was done by adding new water projects and by expanding the network.

1920



The Western Network was further expanded in 1920 to include the Great Network. This was done by adding new water projects and by expanding the network.

1930



The Western Network was completed in 1930 and the Great Network was added. This was done by adding new water projects and by expanding the network.

Building the West

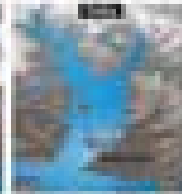
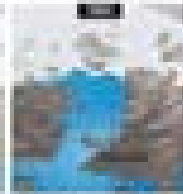
The Western Network was the first major water project in the United States. It was designed to provide water to the western states and to the Great Network. The Western Network was expanded in 1910 to include the Great Network. This was done by adding new water projects and by expanding the network. The Western Network was further expanded in 1920 to include the Great Network. This was done by adding new water projects and by expanding the network. The Western Network was completed in 1930 and the Great Network was added. This was done by adding new water projects and by expanding the network.

The Western Network was the first major water project in the United States. It was designed to provide water to the western states and to the Great Network. The Western Network was expanded in 1910 to include the Great Network. This was done by adding new water projects and by expanding the network. The Western Network was further expanded in 1920 to include the Great Network. This was done by adding new water projects and by expanding the network. The Western Network was completed in 1930 and the Great Network was added. This was done by adding new water projects and by expanding the network.

The Western Network was the first major water project in the United States. It was designed to provide water to the western states and to the Great Network. The Western Network was expanded in 1910 to include the Great Network. This was done by adding new water projects and by expanding the network. The Western Network was further expanded in 1920 to include the Great Network. This was done by adding new water projects and by expanding the network. The Western Network was completed in 1930 and the Great Network was added. This was done by adding new water projects and by expanding the network.



Western Forests and the Great Lakes



As shown in these maps, the Pacific Northwest is a region of high rainfall and high forest cover. The region is also a major source of timber for the United States and the world.

The Pacific Northwest is a region of high rainfall and high forest cover. The region is also a major source of timber for the United States and the world.

The Pacific Northwest is a region of high rainfall and high forest cover. The region is also a major source of timber for the United States and the world.



The Pacific Northwest is a region of high rainfall and high forest cover. The region is also a major source of timber for the United States and the world.

The Pacific Northwest

The Pacific Northwest is a region of high rainfall and high forest cover. The region is also a major source of timber for the United States and the world.

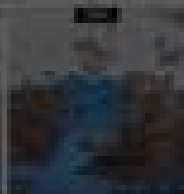
The Pacific Northwest is a region of high rainfall and high forest cover. The region is also a major source of timber for the United States and the world.



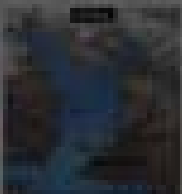
Watersheds and the Great Network



The Pacific Northwest is a region of great natural beauty and resources. It is home to some of the most diverse and productive ecosystems on the planet. The Great Network is a collection of watersheds that are vital to the health and well-being of the region.



The Great Network is a collection of watersheds that are vital to the health and well-being of the region. It is a network of watersheds that are interconnected and interdependent. The Great Network is a collection of watersheds that are vital to the health and well-being of the region.



The Great Network is a collection of watersheds that are vital to the health and well-being of the region. It is a network of watersheds that are interconnected and interdependent. The Great Network is a collection of watersheds that are vital to the health and well-being of the region.



The Great Network is a collection of watersheds that are vital to the health and well-being of the region. It is a network of watersheds that are interconnected and interdependent. The Great Network is a collection of watersheds that are vital to the health and well-being of the region.

Watersheds and the Great Network

The Great Network is a collection of watersheds that are vital to the health and well-being of the region. It is a network of watersheds that are interconnected and interdependent. The Great Network is a collection of watersheds that are vital to the health and well-being of the region.

The Great Network is a collection of watersheds that are vital to the health and well-being of the region. It is a network of watersheds that are interconnected and interdependent. The Great Network is a collection of watersheds that are vital to the health and well-being of the region.





t_patterson@nps.gov