

Coastal Alaska

Asher Wilkinson

FORS 4327

Land Acknowledgment Statement



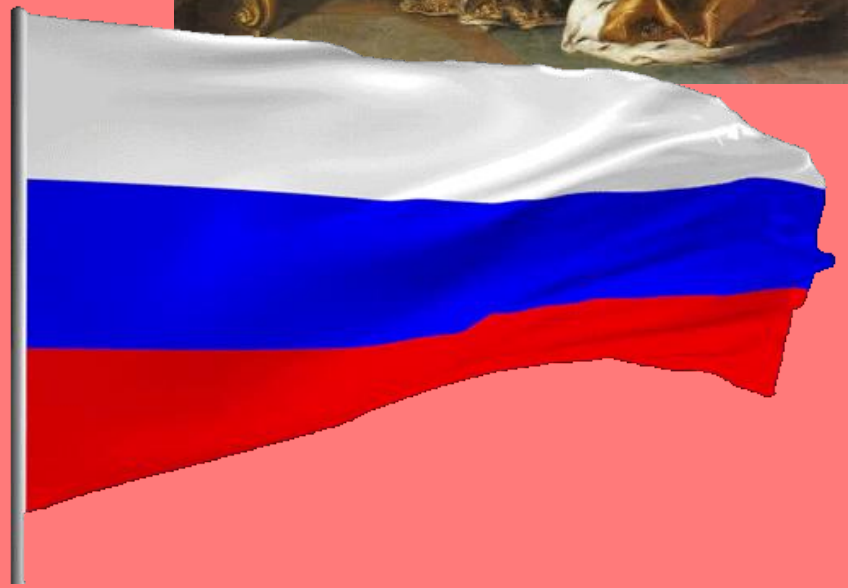
RUSSIA

1741-Exploration and claim
1784-First permanent settlement at Three Saints Bay on Kodiak Island
1867-Treaty signed to transfer Alaska to America
1959-Alaska became the 49th state













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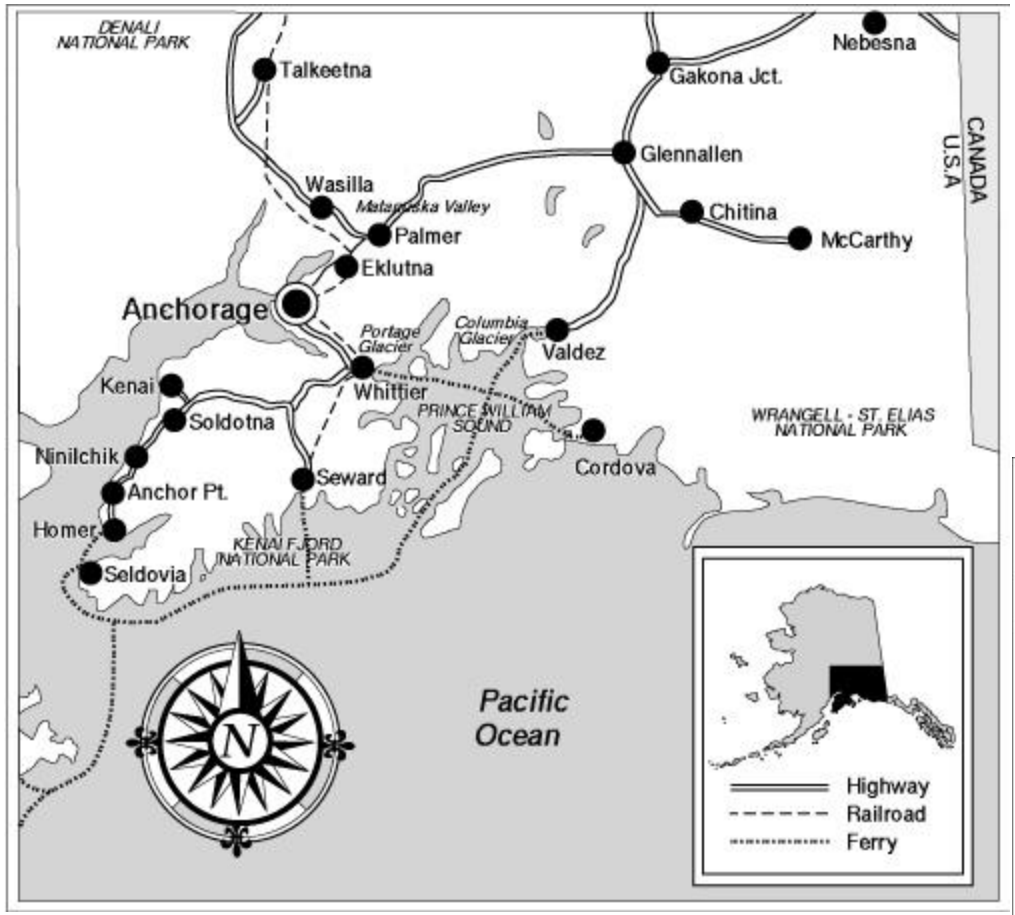
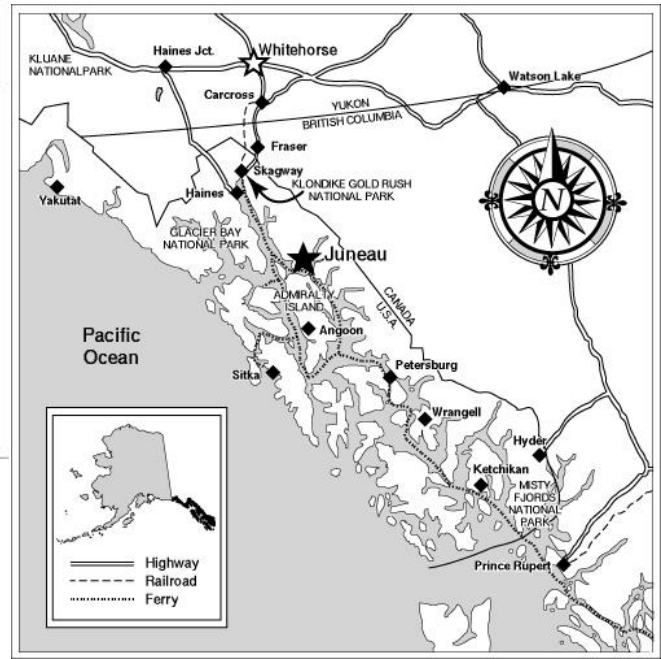
- Introduction to the region
- Forests
- Tree species
- Silviculture practices
- Disturbances



Alaska


Scammon Bay
Holy Cross
McGrath
Hooper Bay
YUKON DELTA NATIONAL WILDLIFE REFUGE
Bethel
Aniak
Bering Sea
Iliamna
PRIBOLOF ISLANDS
Dillingham
King Salmon
KATMAI NATIONAL PARK
Adak
ALEUTIAN ISLANDS
Dutch Harbor
Cold Bay
Chignik
Kodiak
Unalaska
King Cove
Sand Point
KODIAK NATIONAL WILDLIFE REFUGE
Pacific Ocean
Ferry

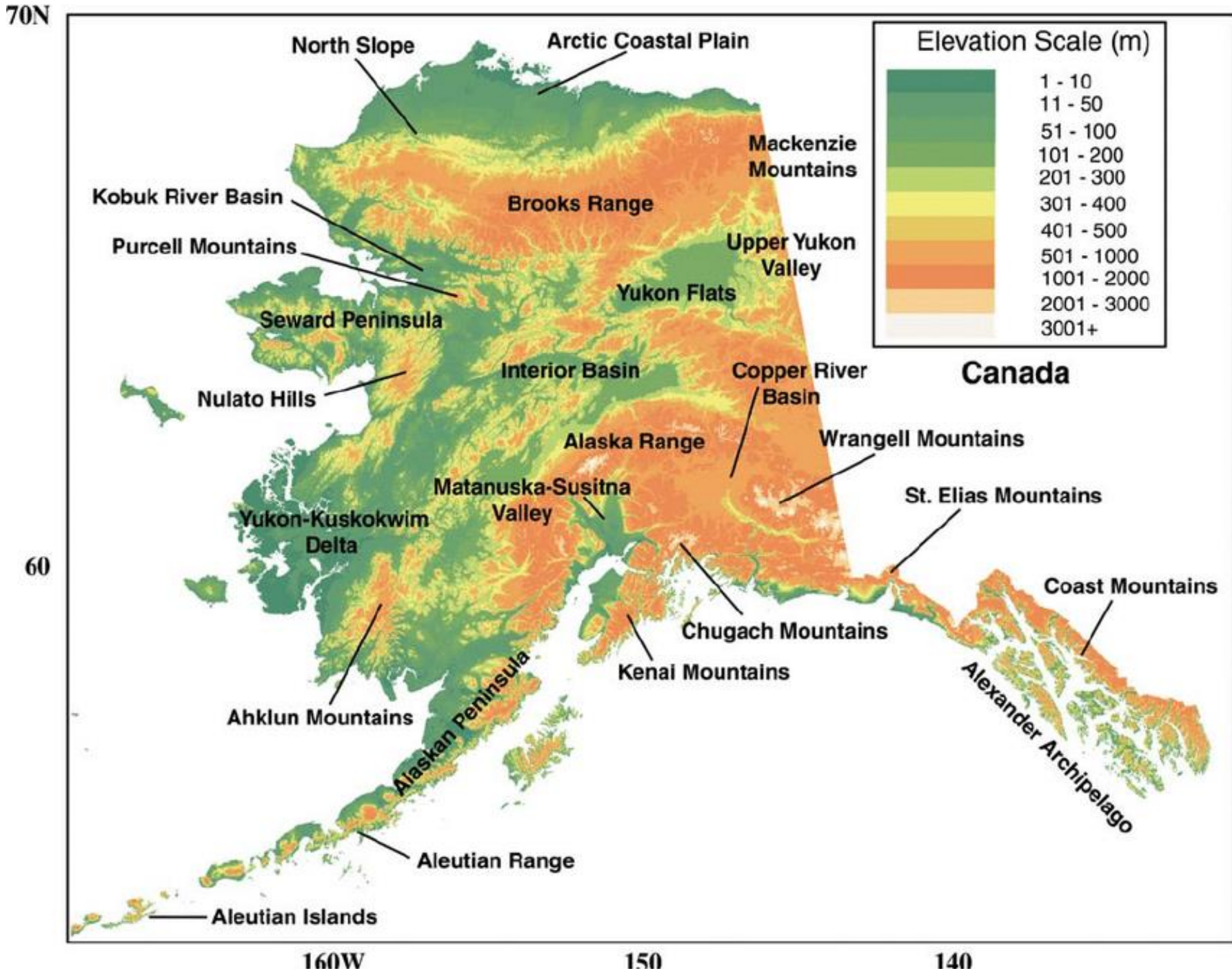

DENALI NATIONAL PARK
Talkeetna
Gakona Jct.
Nebesna
CANADA U.S.A
Glennallen
Wasilla
Matanuska Valley
Palmer
Chitina
McCarthy
Eklutna
Anchorage
Portage Glacier
Columbia Glacier
Valdez
Kenai
Whittier
PRINCE WILLIAM SOUND
WRANGELL - ST. ELIAS NATIONAL PARK
Soldotna
Ninilchik
Seward
Cordova
Anchor Pt.
Homer
KENAI FJORD NATIONAL PARK
Seldovia
Pacific Ocean
Highway
Railroad
Ferry

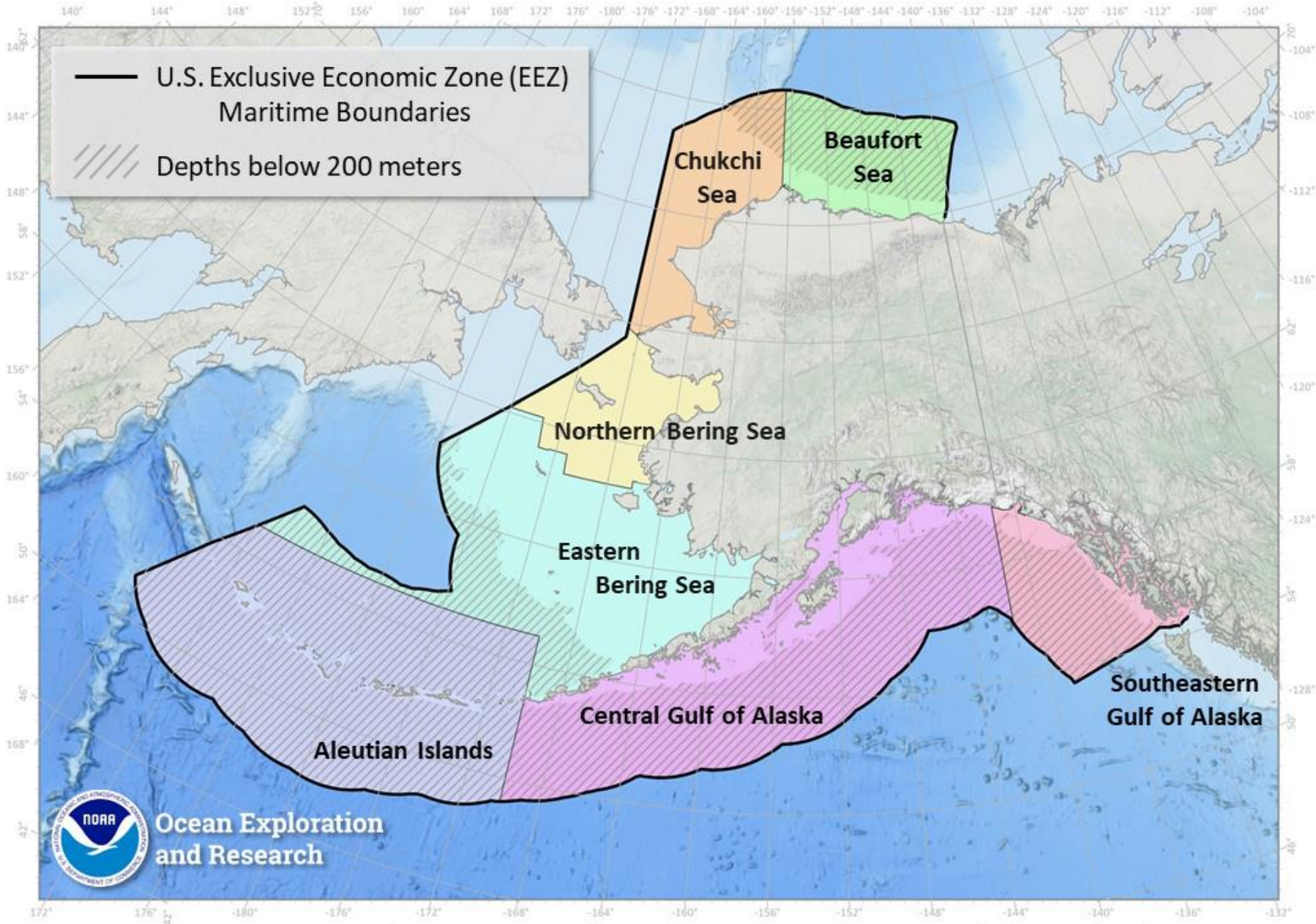

KLUANE NATIONALPARK
Haines Jct.
Whitehorse
Watson Lake
Carcross
YUKON BRITISH COLUMBIA
Fraser
Skagway
KLONDIKE GOLD RUSH NATIONAL PARK
Haines
Yakutat
GLACIER BAY NATIONAL PARK
Juneau
ADMIRALTY ISLAND
CANADA U.S.A.
Pacific Ocean
Angoon
Sitka
Petersburg
Wrangell
Hyder
Ketchikan
MISTY FJORDS NATIONAL PARK
Prince Rupert
Highway
Railroad
Ferry

Simplified Regions



Topography

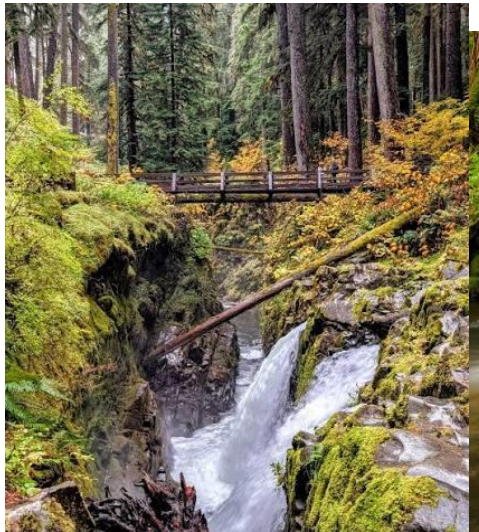

70N
60
160W
150
140
North Slope
Arctic Coastal Plain
Mackenzie Mountains
Kobuk River Basin
Brooks Range
Purcell Mountains
Upper Yukon Valley
Yukon Flats
Seward Peninsula
Interior Basin
Copper River Basin
Nulato Hills
Alaska Range
Wrangell Mountains
Matanuska-Susitna Valley
St. Elias Mountains
Yukon-Kuskokwim Delta
Coast Mountains
Chugach Mountains
Kenai Mountains
Ahklun Mountains
Alaskan Peninsula
Alexander Archipelago
Aleutian Range
Aleutian Islands
Elevation Scale (m)
1 - 10
11 - 50
51 - 100
101 - 200
201 - 300
301 - 400
401 - 500
501 - 1000
1001 - 2000
2001 - 3000
3001+
Canada



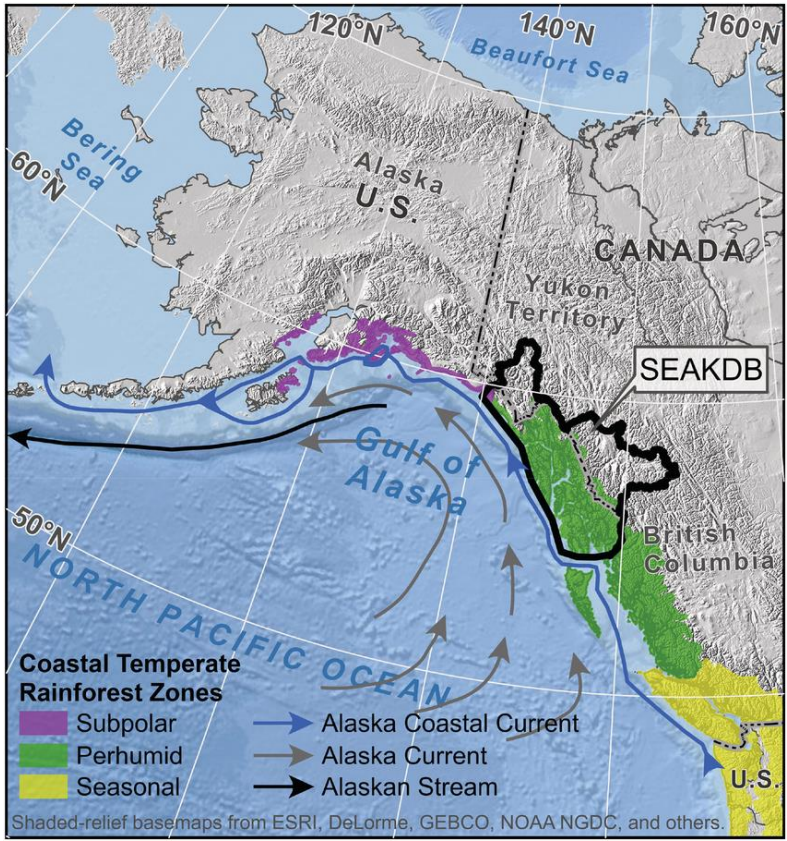
Source: GEBCO_2019 Grid Base Map; Map created by NOAA's National Centers for Environmental Information (NCEI)
Alaska Albers Equal Area Conic Projection

Temperate Rainforest Climate

- Summer highs around 60-65 degrees Fahrenheit (Heat Advisory)
- Winter averages hover around the freezing mark
- VERY WET (150 inches)



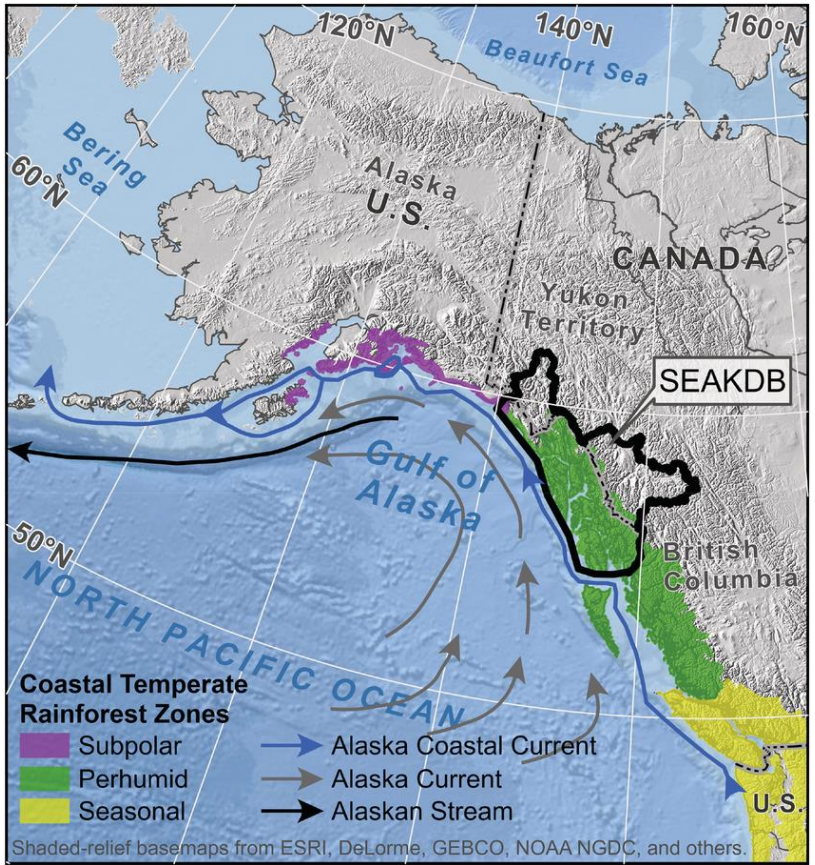




South-Central Coast Climate

- Mountain shield (Blocks significant rain)
- 60-70ish inches of precipitation annually
- Winters are colder than Southeast (5-20)
  - Heavy snow
- 19-22 hours of sunlight during summer
- Hovers in the upper 60s



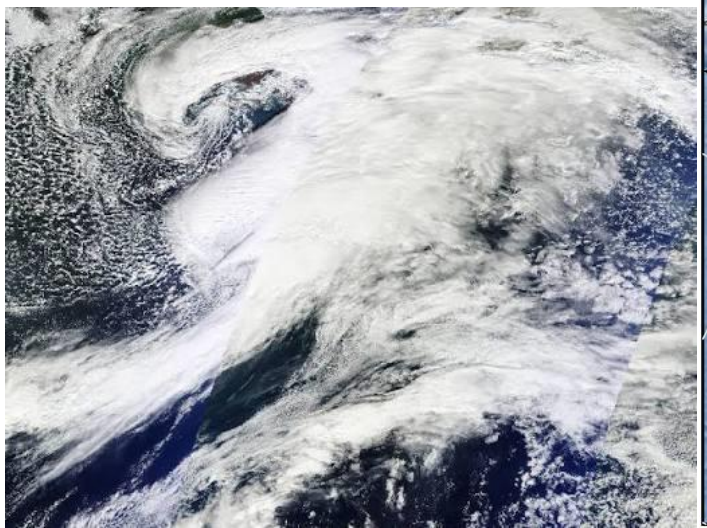


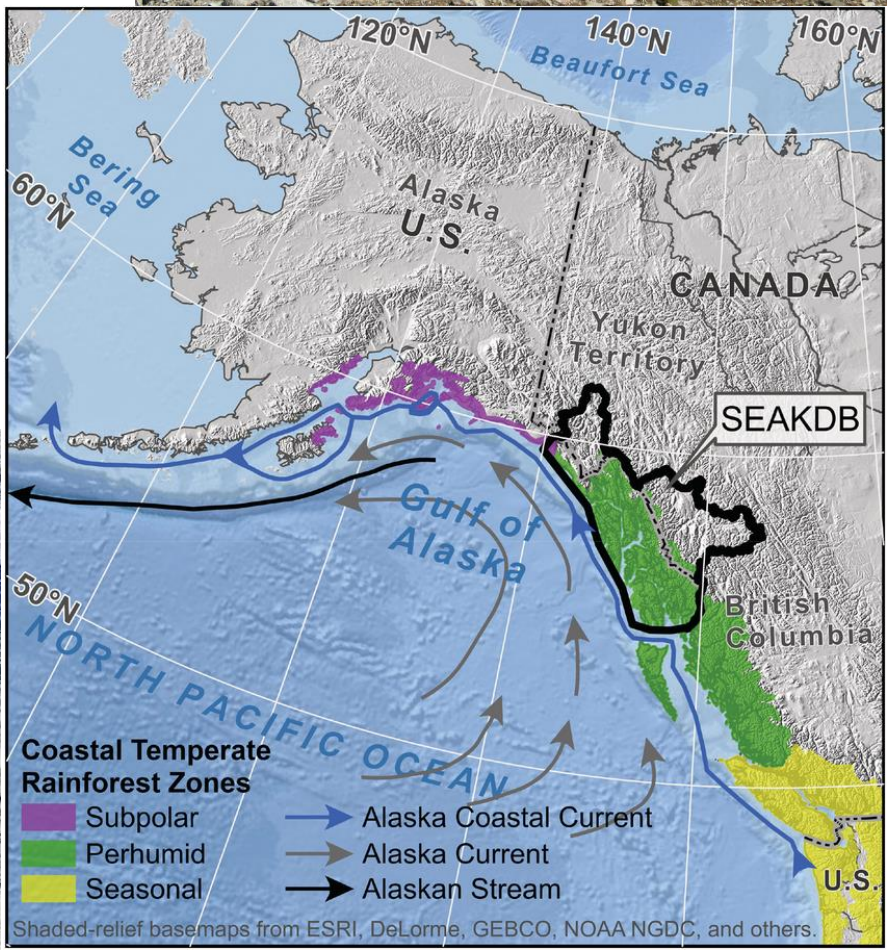


Southwest-Aleutian Islands Climate



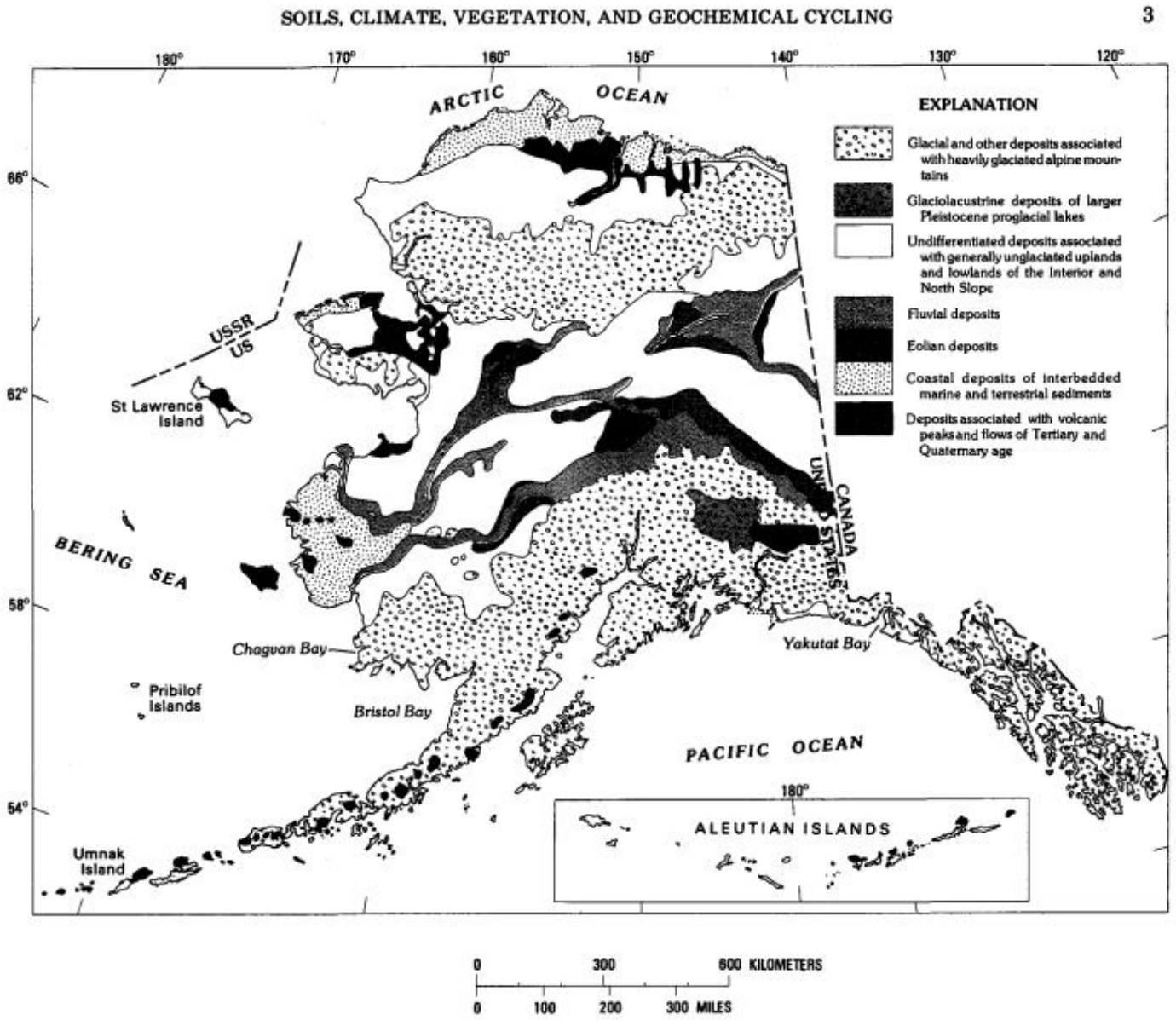
- Storm incubator – in the path of the Aleutian Low
- The land of never-ending gray
- Relentless winds
- Winters hover in the low 30s
- Summers hover in the low 50s





Soils

- Southeast: Spodosols and Histosols
- South-Central: Inceptisols, Spodosols, and Entisols
- Aleutian Islands: Andisols



Largest Industries

- Commercial Fishing
- Coastal Tourism and Cruising
- Coastal Oil








Forests

Tongass National Forest



- Largest National forest In USA 17 million acres (larger than the state of West Virginia)
- Coastal Rainforest
- Ancient trees







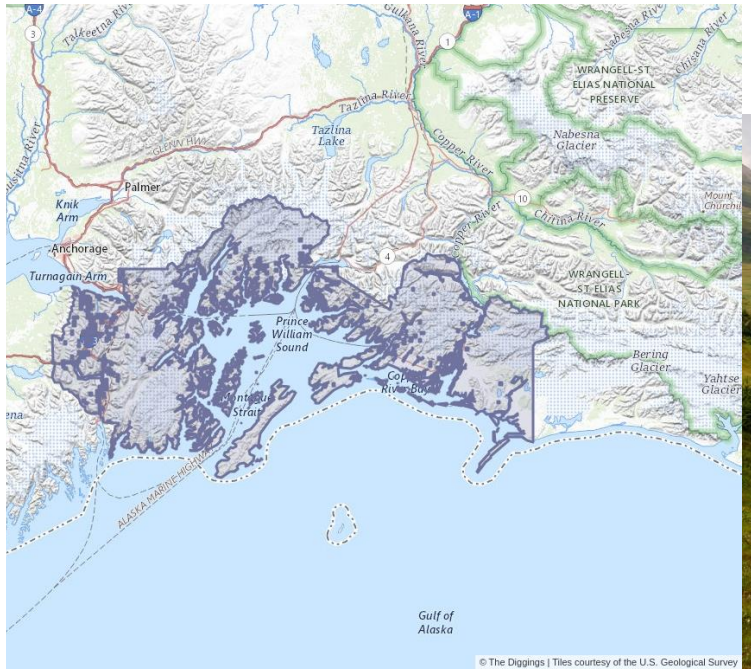
Chugach National Forest



- Nations 2nd largest national forest at 4.8 million acres
- Salmon runs
- Dall sheep



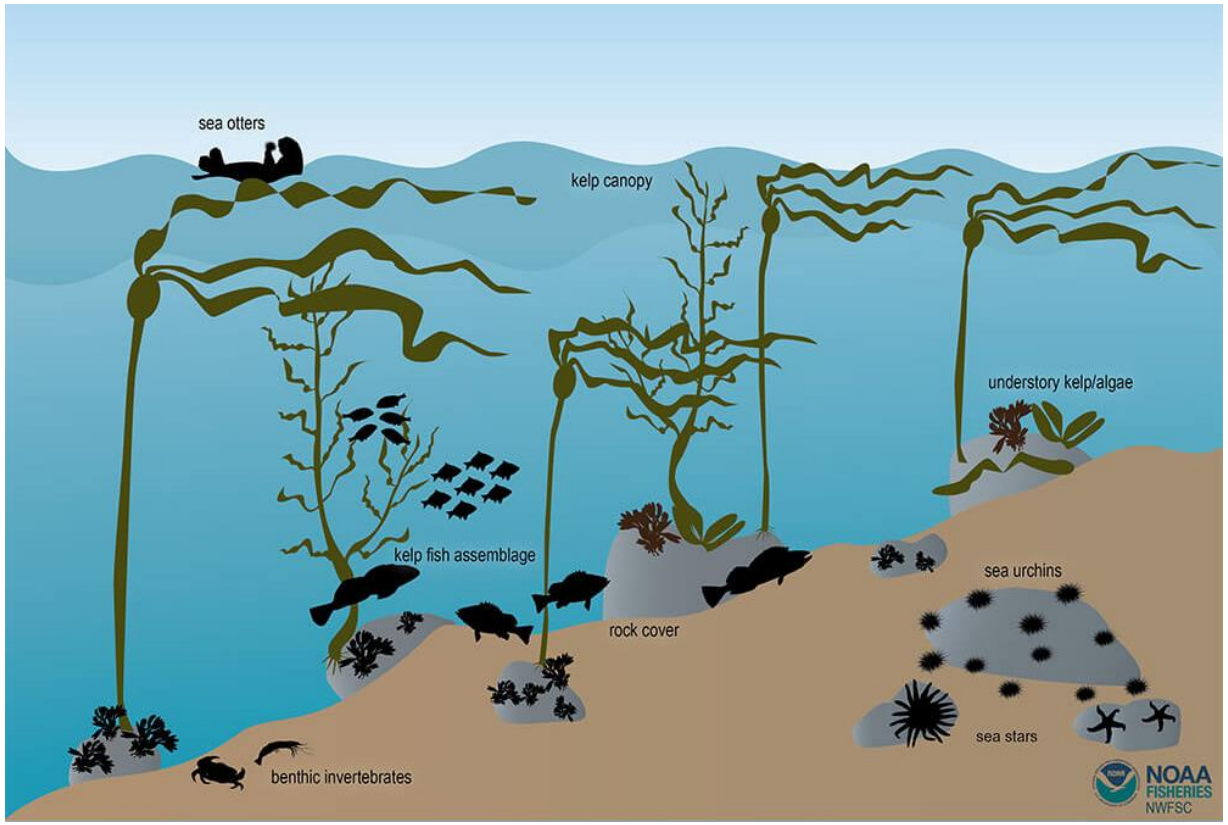






Canopy Kelp Forests

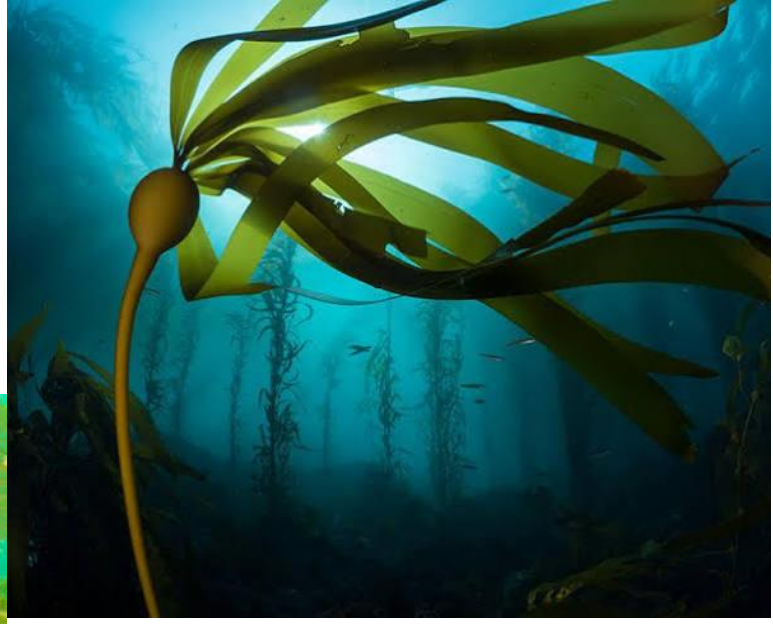




Kelp Species

- Bull Kelp (*Nereocystis luetkeana*)





- Giant Kelp (*Macrocystis pyrifera*)



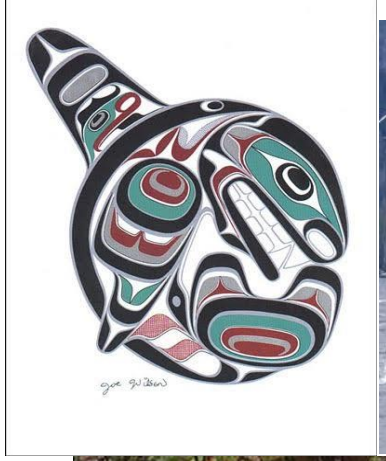


- Dragon Kelp (*Eualaria fistulosa / Alaria fistulosa*)



Wildlife

- Bald eagles
- Salmon
- Grizzly bears
- Wolves
- Orcas
- Humpback whales
- Sea otter









Utah



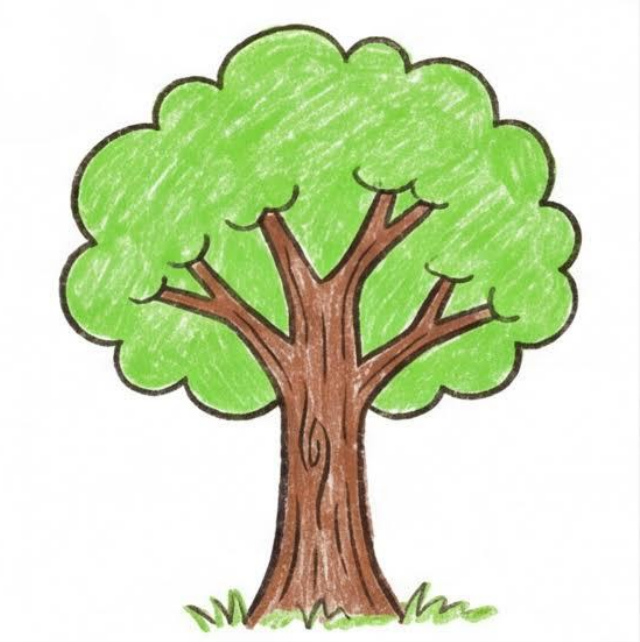






Notable Tree Species

- Sitka spruce (*Picea sitchensis*)
- Western hemlock (*Tsuga mertensiana*)
- Shore pine (*Pinus contorta*)
- Red alder (*Alnus rubra*)
- Alaska yellow cedar (*Chamaecyparis nootkatensis*)

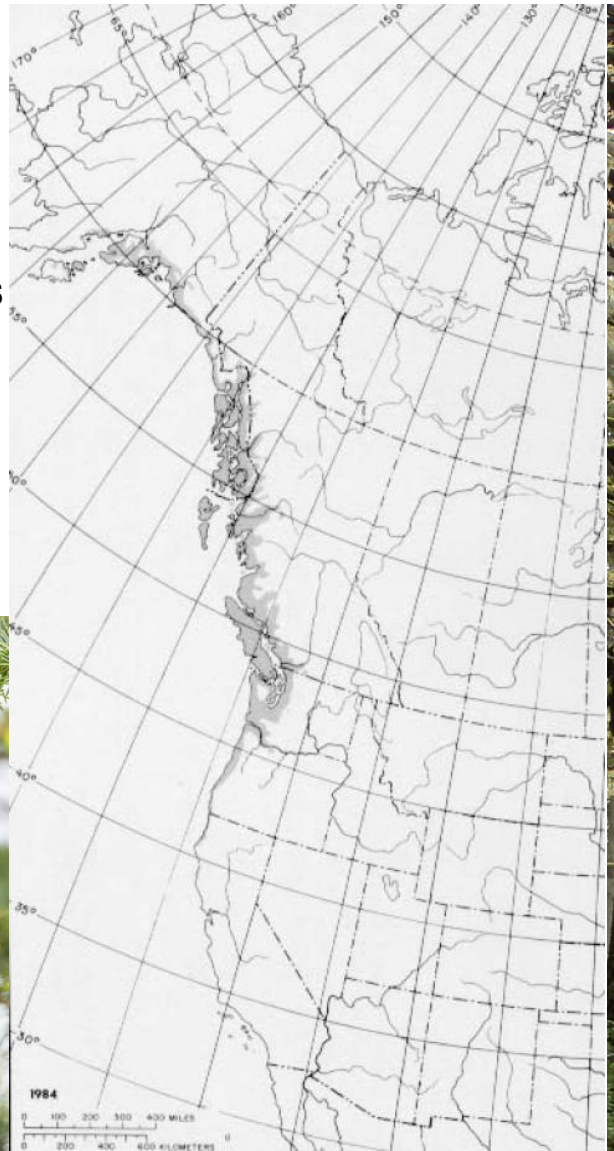


Sitka Spruce (*Picea sitchensis*)

- Intermediate shade tolerance
- Grows slowly, then rapidly (90ft)
- Largest of the world's spruces
- Narrow native range
- Good for lumber, pulp, and special uses

- "Lighthouse" Tree Legend





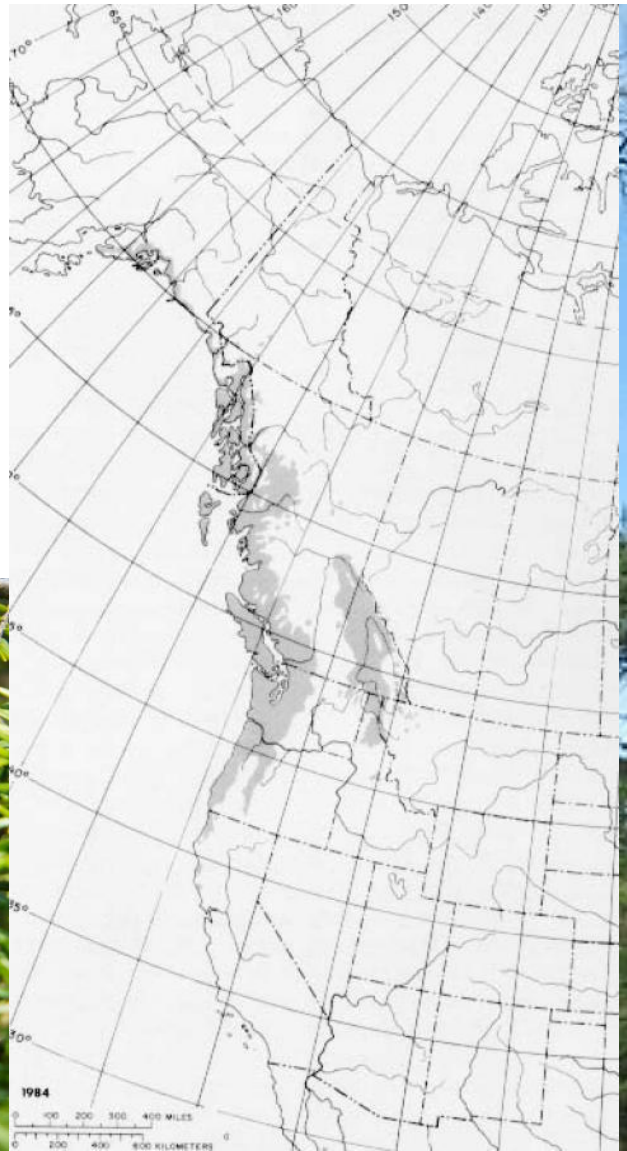


Western Hemlock (*Tsuga mertensiana*)

- Tolerant of shade
- Fast growth rate under optimal conditions
- Thrives in humid areas
- Browse species
- Pioneer species
- Climax dominant

- "Cinderella of the Northwest"



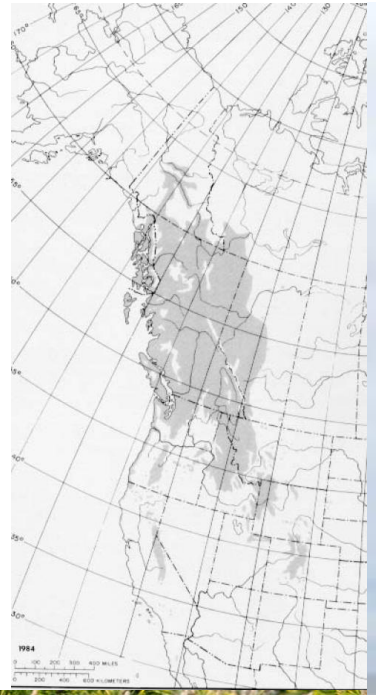




Shore pine (*Pinus contorta*)

- Intolerant of shade
- Coastal species grow between sea level and 2,000ft
- Often found on histosols
- Species has been divided into four varieties
  - Sierra lodgepole pine, tamarack pine
  - Shore pine, coast pine, beach pine
  - Bolander pine
  - Rocky Mountan lodgepole pine, or black pine

- Indigenous groups used the resin as a natural waterproof sealant for canoes and wounds







Red Alder (*Alnus rubra*)

- Intolerant of shade
- Rapid growth rate
- Most common hardwood in the Pacific Northwest
- Favored by disturbance and increases after logging
- Vigorously sprouts

- The "Rusty" secret: When the bark is cut the inner tissue turns a bright, rusty-orange color





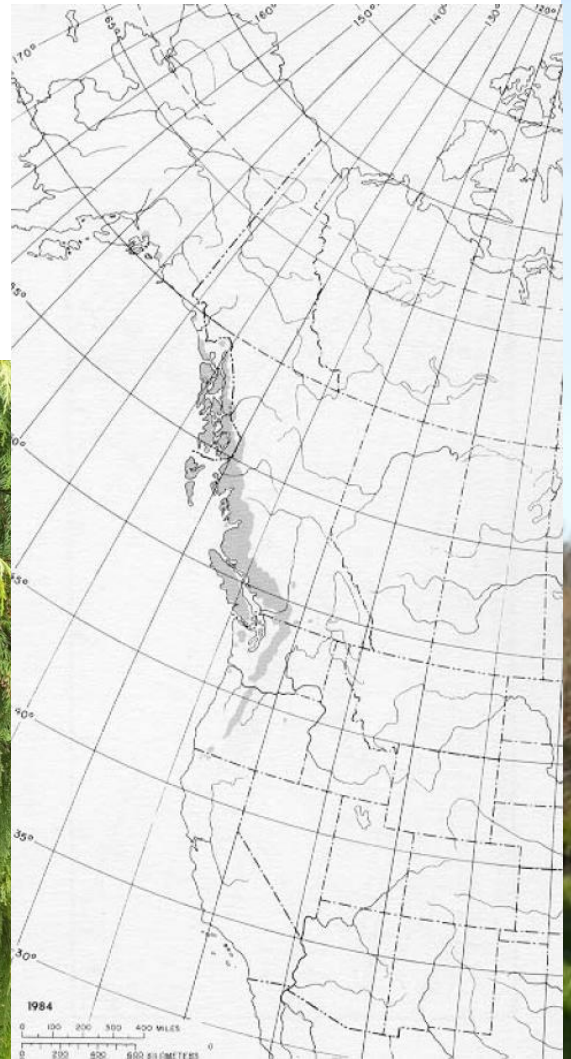


Alaska yellow cedar (*Chamaecyparis nootkatensis*)

- Generally shade tolerant
- One of the slowest growing conifers in North America
- Confined to cool-humid climate
- Extremely durable wood
- Histosols and Spodosols

- The "bear scratching tree"







Silviculture In Southeast



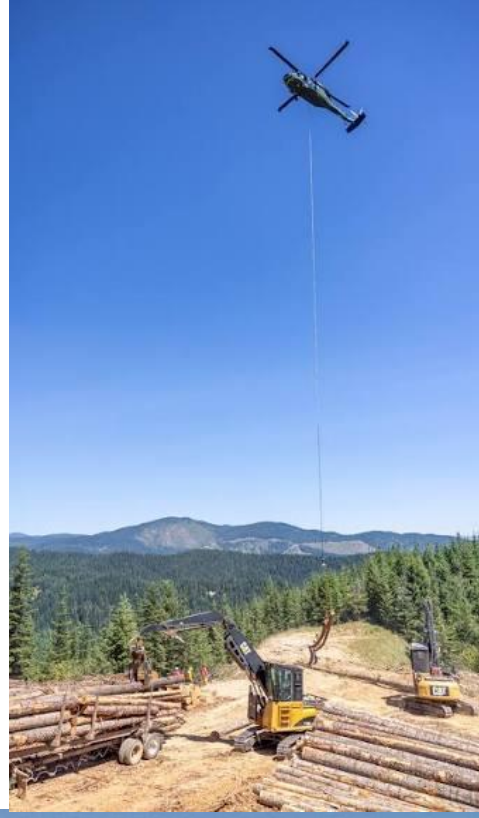
- Clearcutting extensively 1950s-1990s
- Shifting from old growth logging toward second growth management and variable retention harvesting (mimic)
- Artificial regen is rarely required. High humidity and open mineral soils.
- Focus on pre-commercial thinning
- Focus on environmental protections
- Primary commercial species
  - Sitka spruce
  - Western hemlock
  - Alaska yellow-cedar



Harvesting

Coastal floor is easily rutted and prone to erosion

- **Cable Logging**
- **Helicopter**
- **Water Transport**
  - (SWLT)







Silviculture in South-Central

- Highly community-focused
- Driver of timber harvesting since the 2016 spruce bark beetle outbreak
  - 2.26 million acres
  - Focus on salvage harvesting
- Harvested wood is for locals
  - Local mills
  - Biomass pellets



Harvesting

- Standard ground-based equipment
- **Feller-buncher**
- **Skidder**
- **Log trucks**
- Winter is the preferred time to harvest



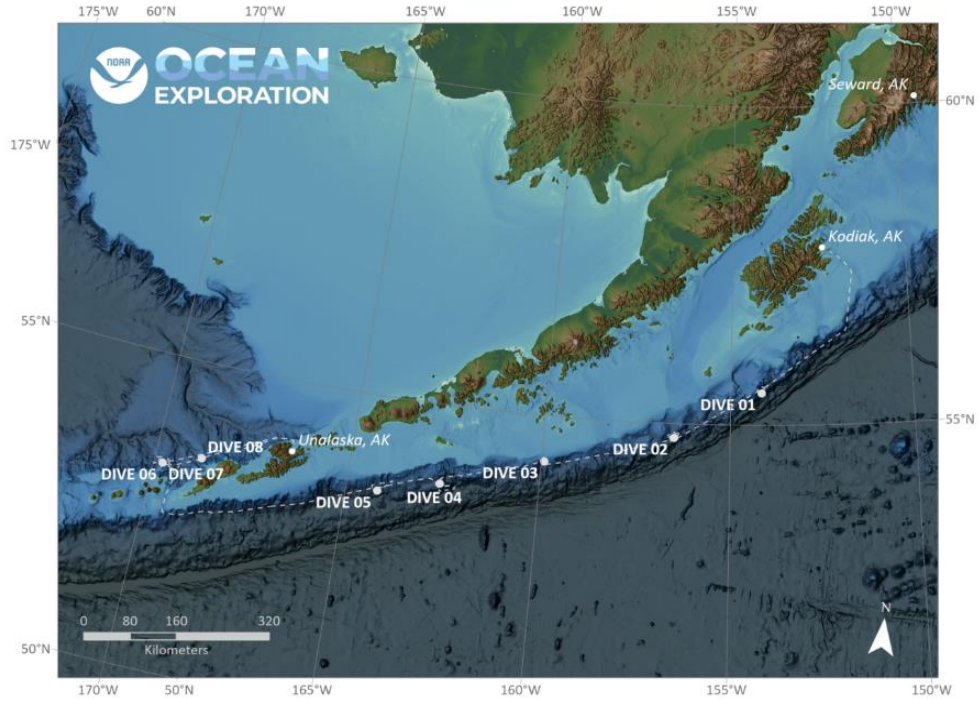




Silviculture in Aleutian Islands

- Traditional commercial silviculture is NON EXISTANT HERE
- Attempts to plant trees by Russia and USA



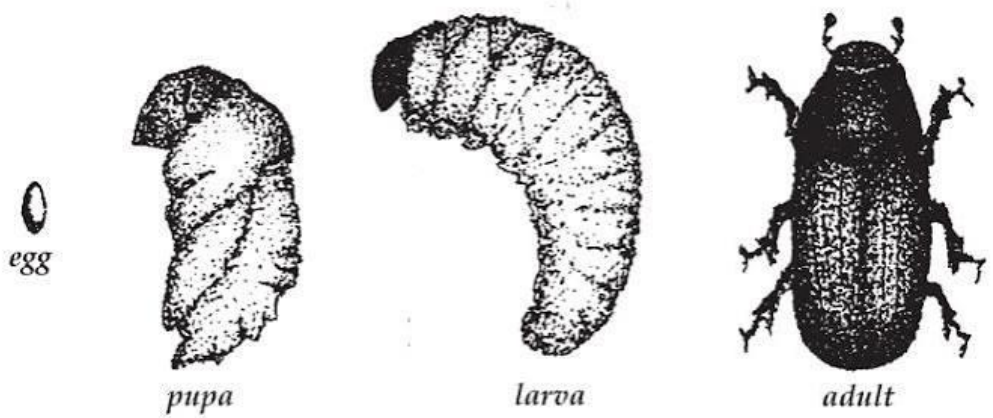


Disturbances-Spruce Beetle Outbreak

- Climate-driven temperature shifts
- Across South Central coasts (2.26 million acres)
- Hosts: White spruce, Sitka, and Lutz spruce







Life cycle of the spruce bark beetle.

Disturbances-Windthrow

- High velocity coastal winds
- Visually destructive
  - However vital
    - Understory
    - Soil



Disturbances-Landslides

- Extreme rainfall on steep mountainsides
- Resets succession

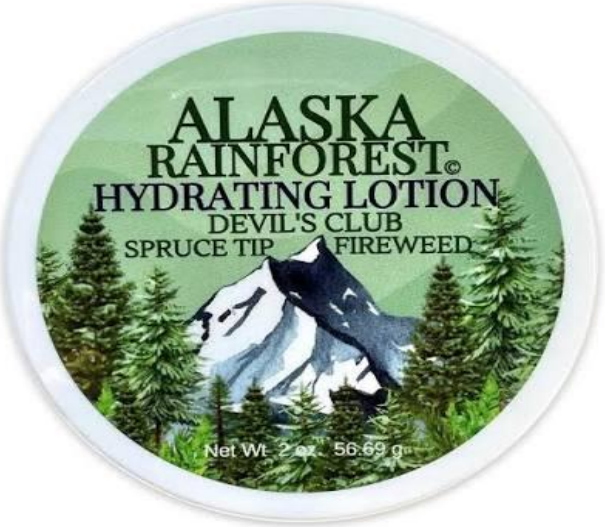


Spruce Tips


The Great Alaska Soap Co
Haines Alaska
Spruce Tip Body Bar
Alaska Rod's LLC


Spruce Tip
Season All
Spruce Tip
Mesquite Rub


ALASKAN
ALASKAN
SPRUCE IPA
SPRUCE IPA

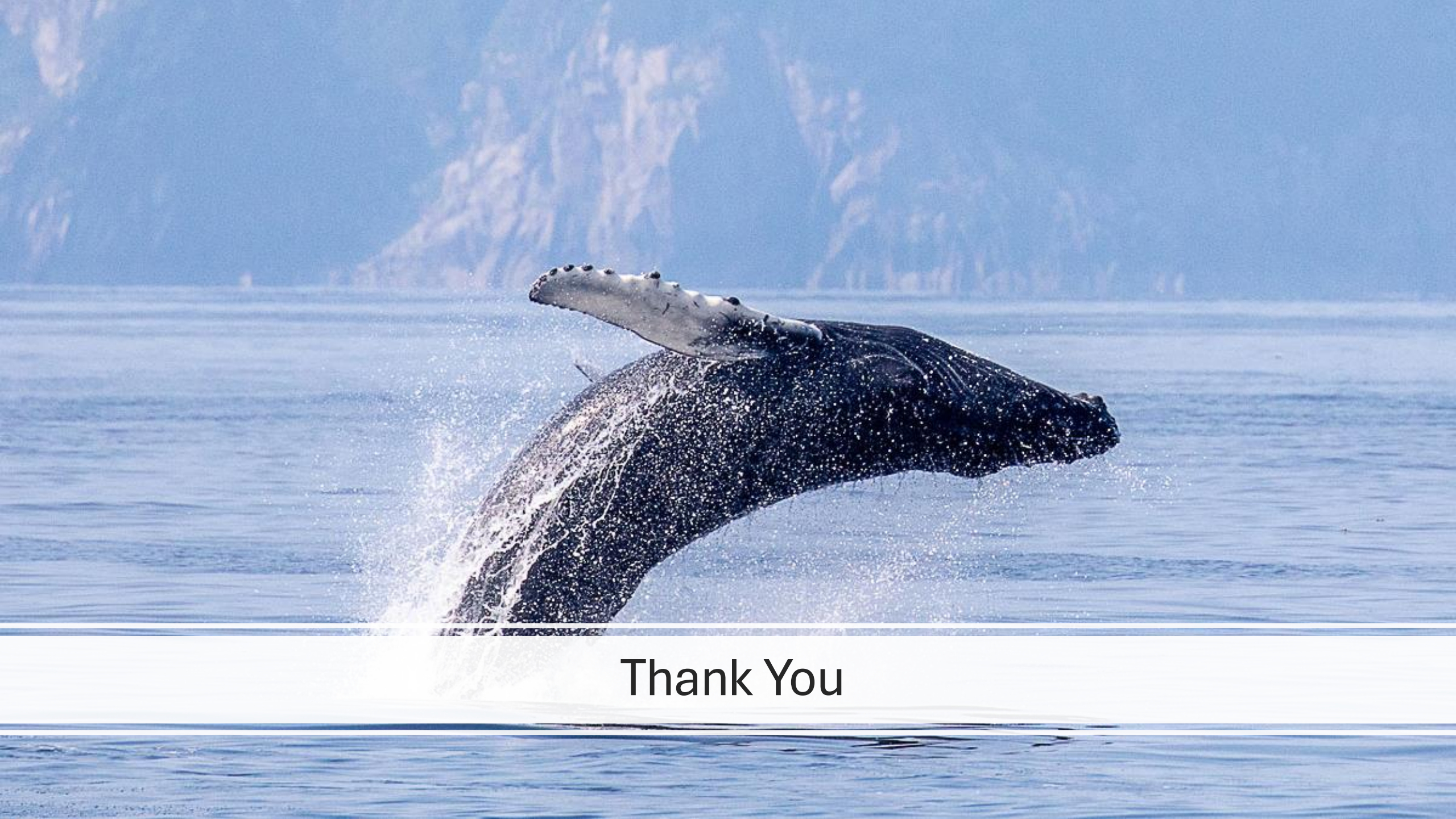

ALASKA
RAINFOREST
HYDRATING LOTION
DEVIL'S CLUB
SPRUCE TIP
FIREWEED
Net Wt. 2 oz. 56.69 g




Adventure
HARVEST
Spruce Tip
Syrup
Net Wt. 8 fl oz. (236 ml)
Adventure
HARVEST
Spruce Tip
Syrup


barnacle
FOODS
ALASKAN
SPRUCE TIP JELLY


FRONTIER
ALASKA SODA
CITRUS
SPRUCE TIP



Thank You

Kelp link (Mesophotic)



- https://youtu.be/5jPCAlE0z7I?si=qCgK7xwfdRkohNlJ





