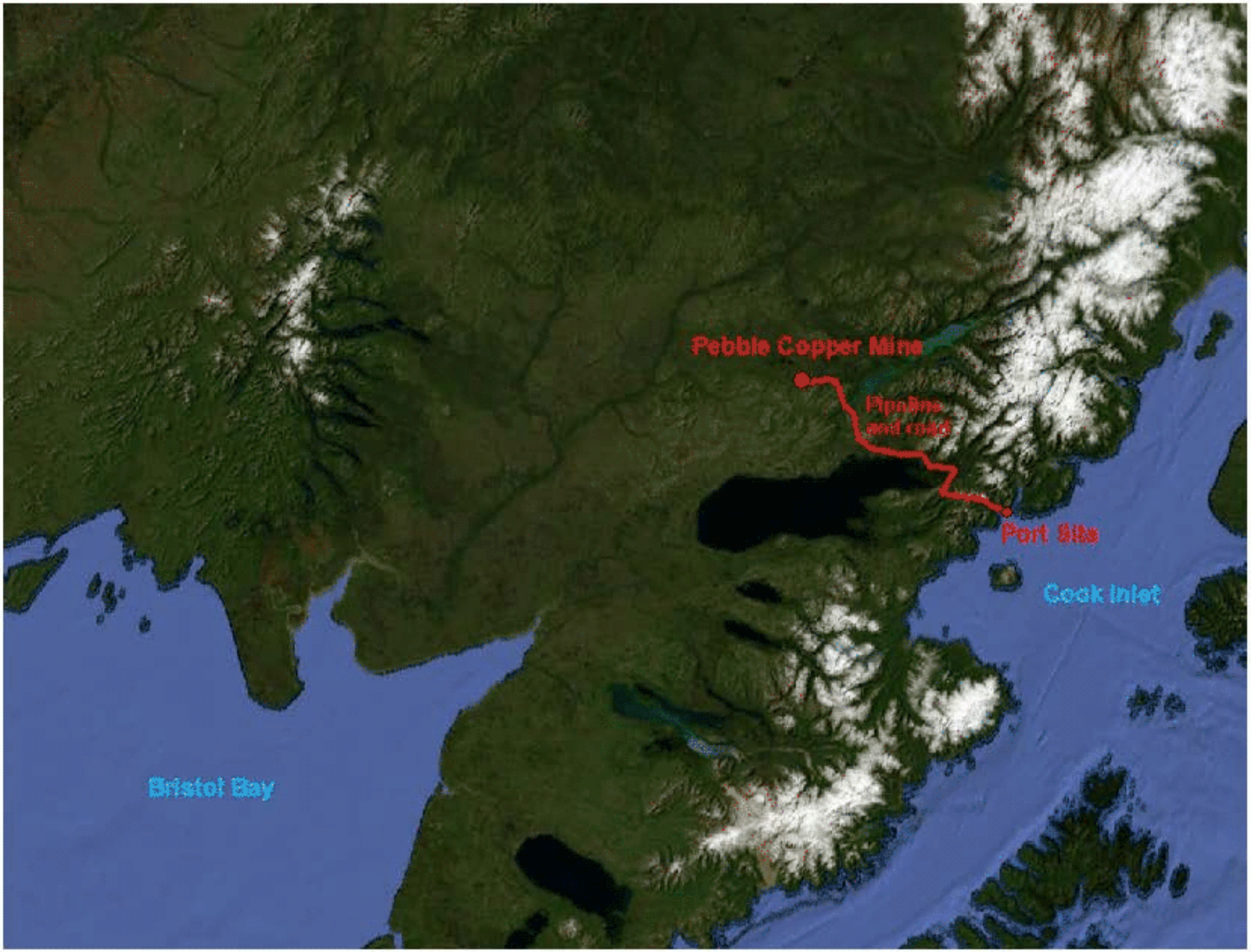
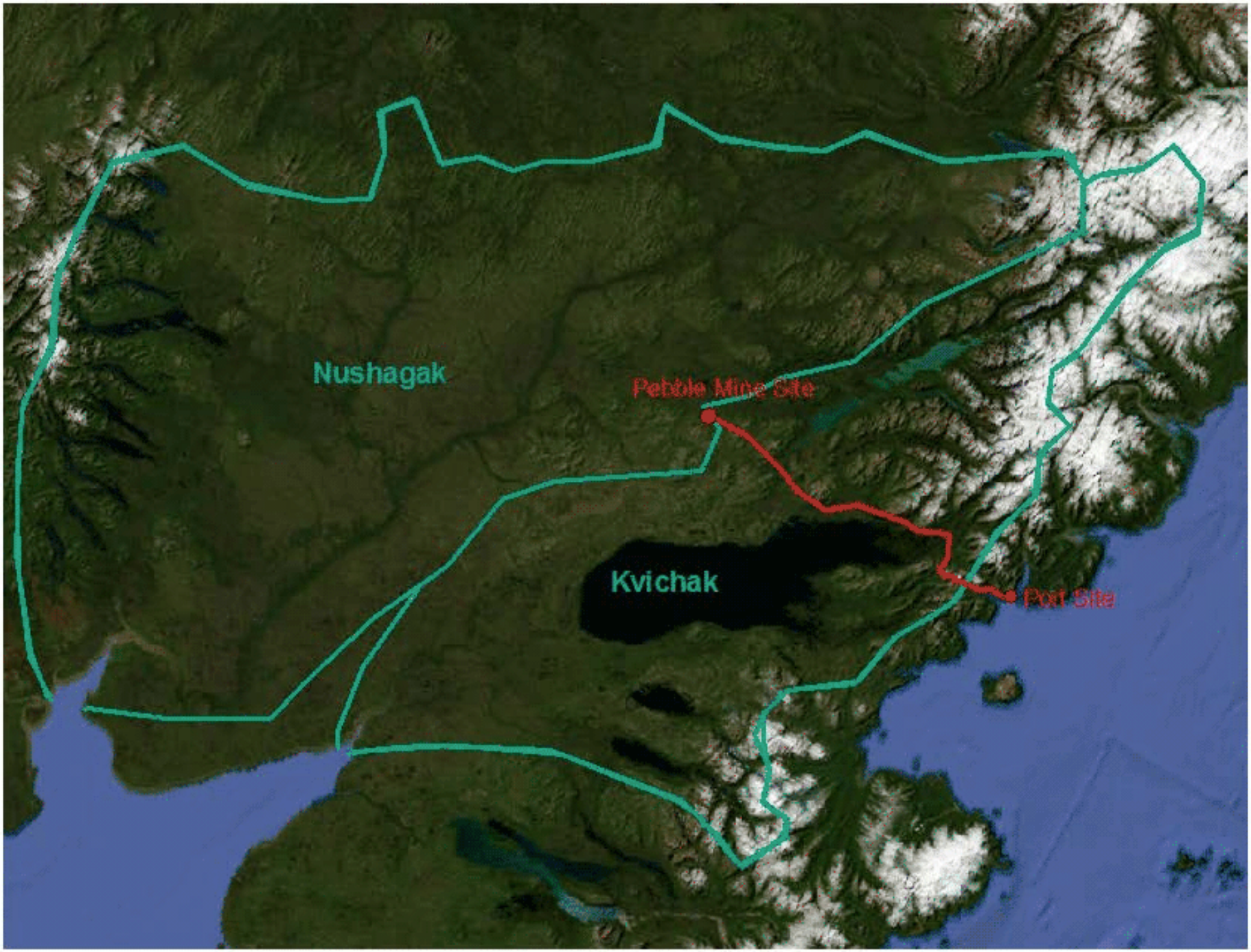
Dec 1971
Pebble Copper Mine
Bristol Bay and Cook Inlet
Alaska
Mine
Port


Pebble Copper Mine
Pipeline and road
Port Site
Cook Inlet
Bristol Bay


Nushagak
Pebble Mine Site
Kvichak
Port Site

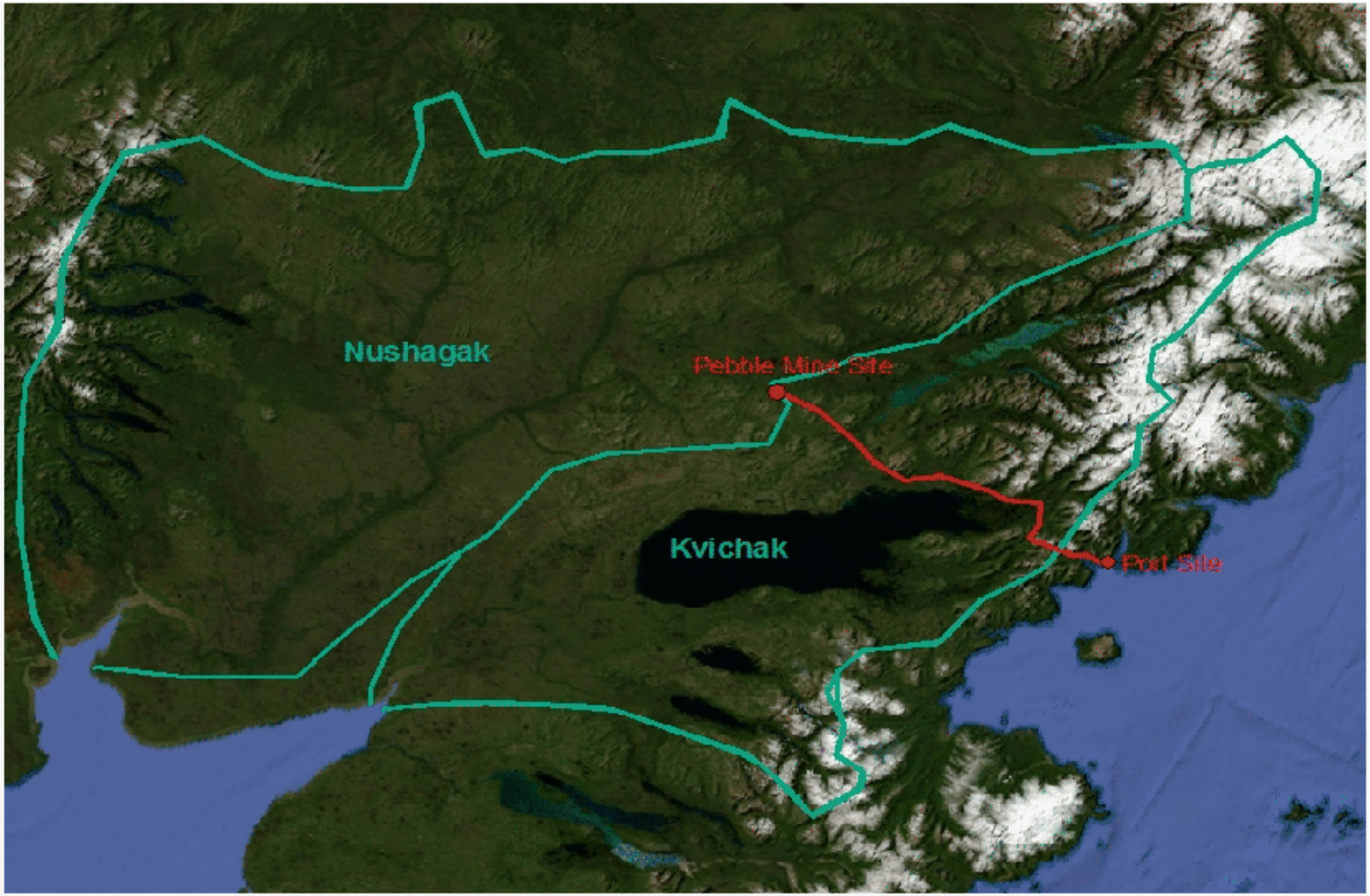
Mine Statistics

- Copper, molybdenum, gold, silver
- $500,000,000,000 worth of metals in ore
- 8,000,000,000 tons of waste
- 50 to 100 year mine life
- 85+/- mile new pipeline for copper and molybdenum concentrate slurry to port
- 85+/- mile new road between port and mine site
- Open pit ~1.5 X 2.2 miles wide X 1800 feet deep
- Underground workings 5000 feet deep

Environmentally Significant Mine Characteristics

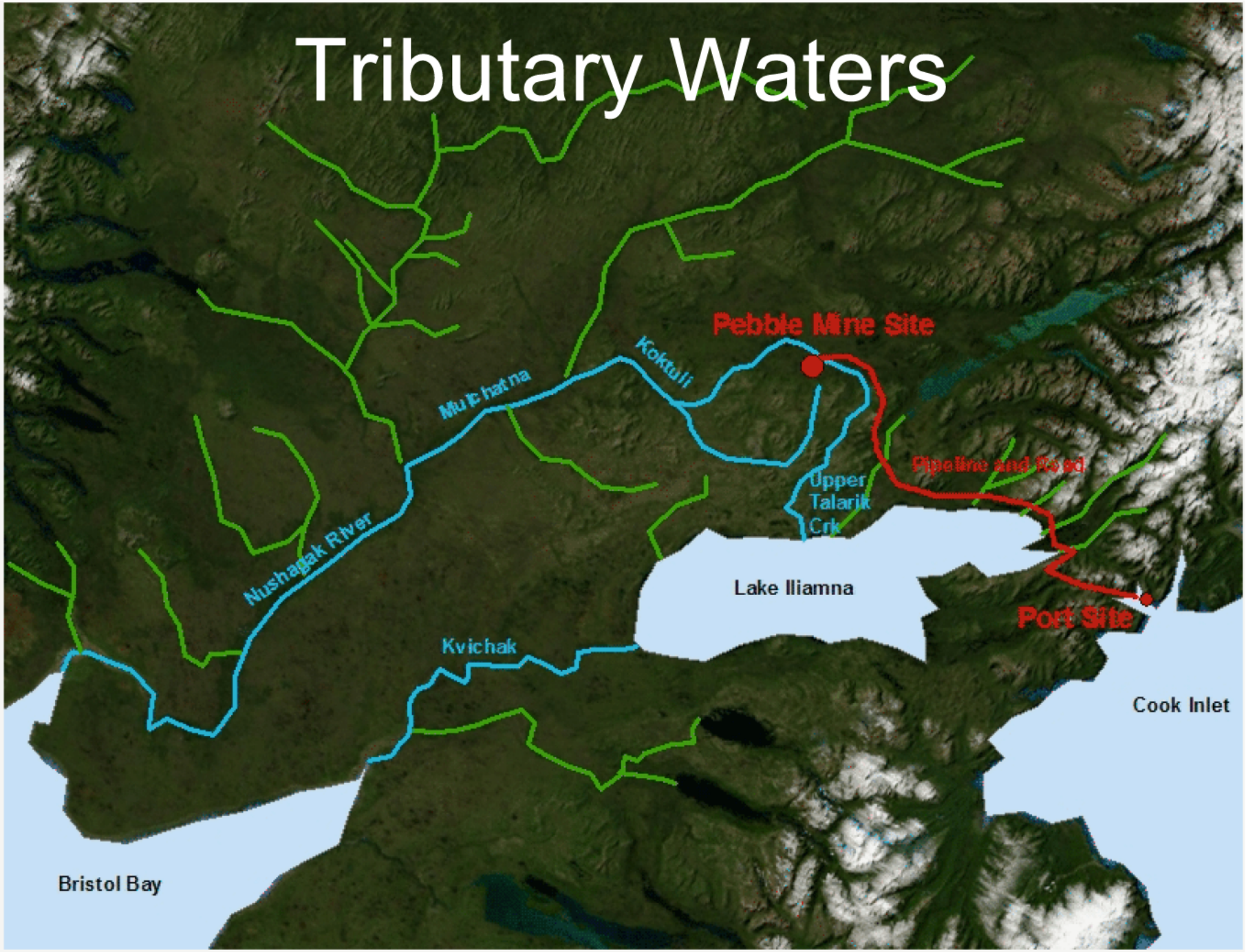
- “Waste rock would be expected to produce ARD in several decades if exposed to weathering.” – 2006 Pebble project briefing meeting.
- 8 billion tons of waste in tailings impoundments
- Open pit capacity is ~ 3,801,600 acre feet
- Underground capacity more or less?
- Pipeline parallels shore of Iliamna
- 85 mile +/- new road along shore of Iliamna
- 4 endangered species, 2 species of concern, several birds of conservation concern in project area
- Located at headwater of the two most productive salmon watersheds on earth.

Local Geography

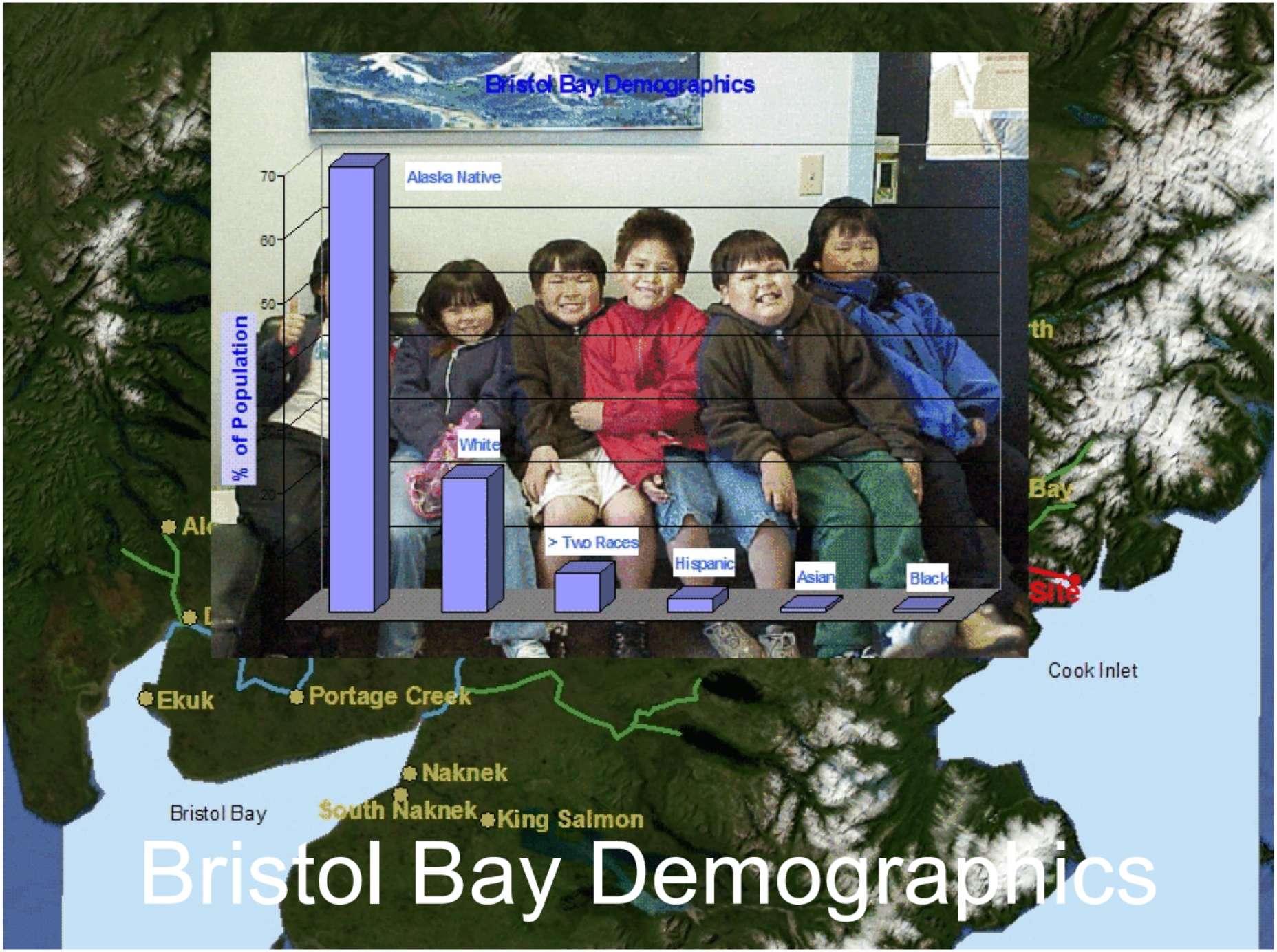


Downstream waters

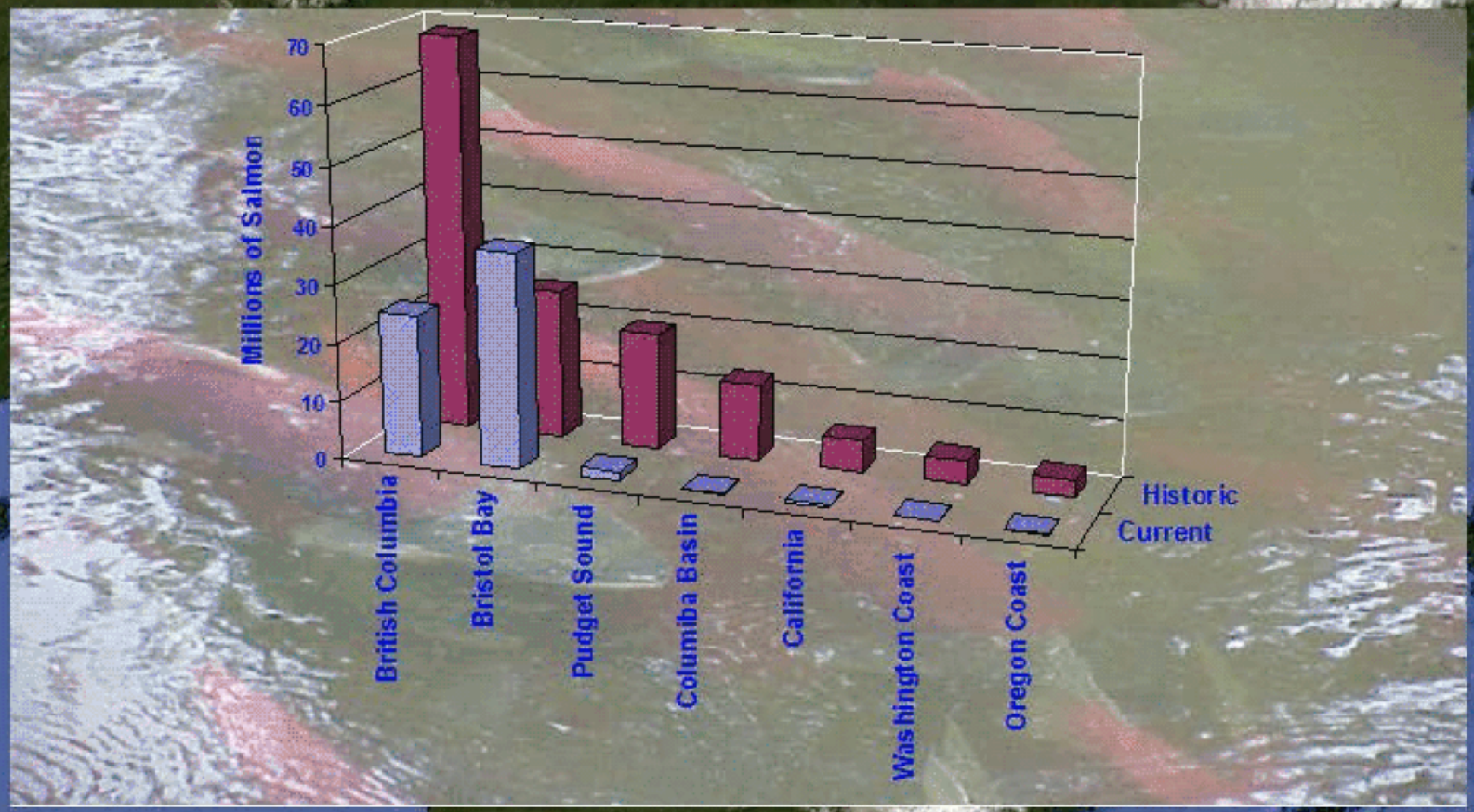
Tributary Waters

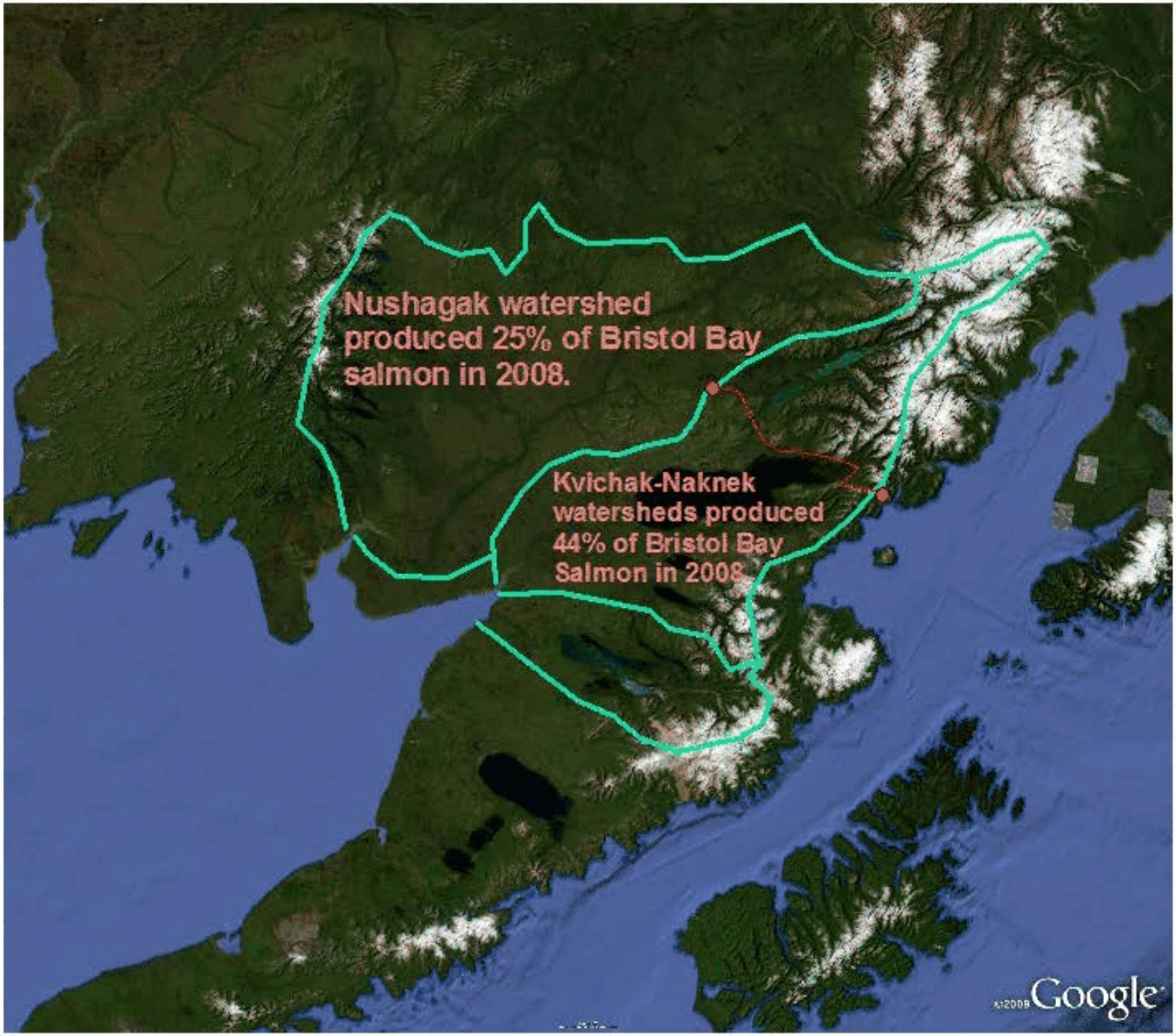


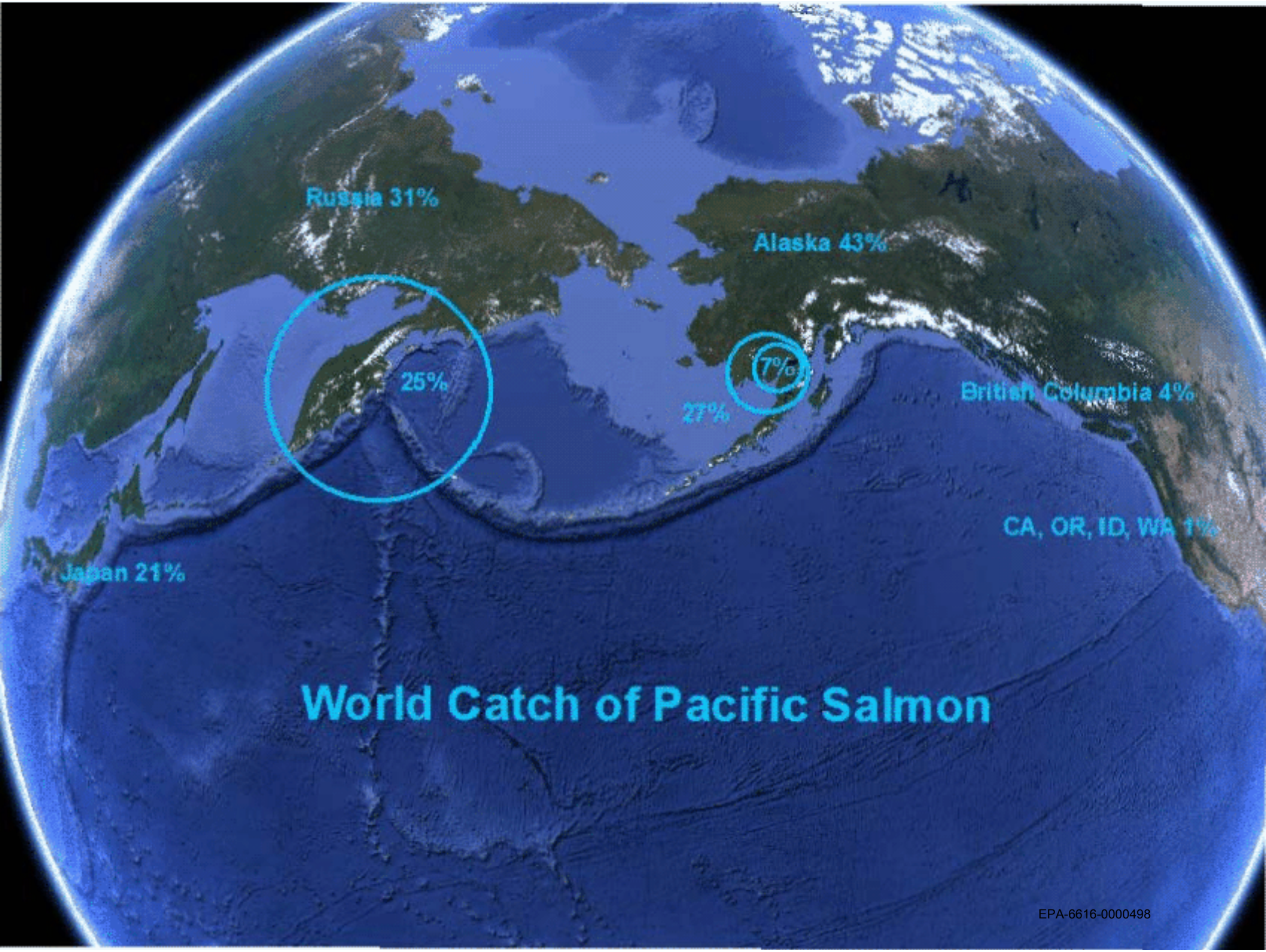
Alaska Native Villages
Port Alsworth
Pebble Mine Site
Nondalton
Koliganek
Pipeline and Road
Iliamna
Pedro Bay
New Styahok
Newhalen
Aleknagik
Ekwok
Lake Iliamna
Igiugig
Port Site
Dillingham
Levelock
Kakhonak
Cook Inlet
Ekuk
Portage Creek
Naknek
Bristol Bay
South Naknek
King Salmon

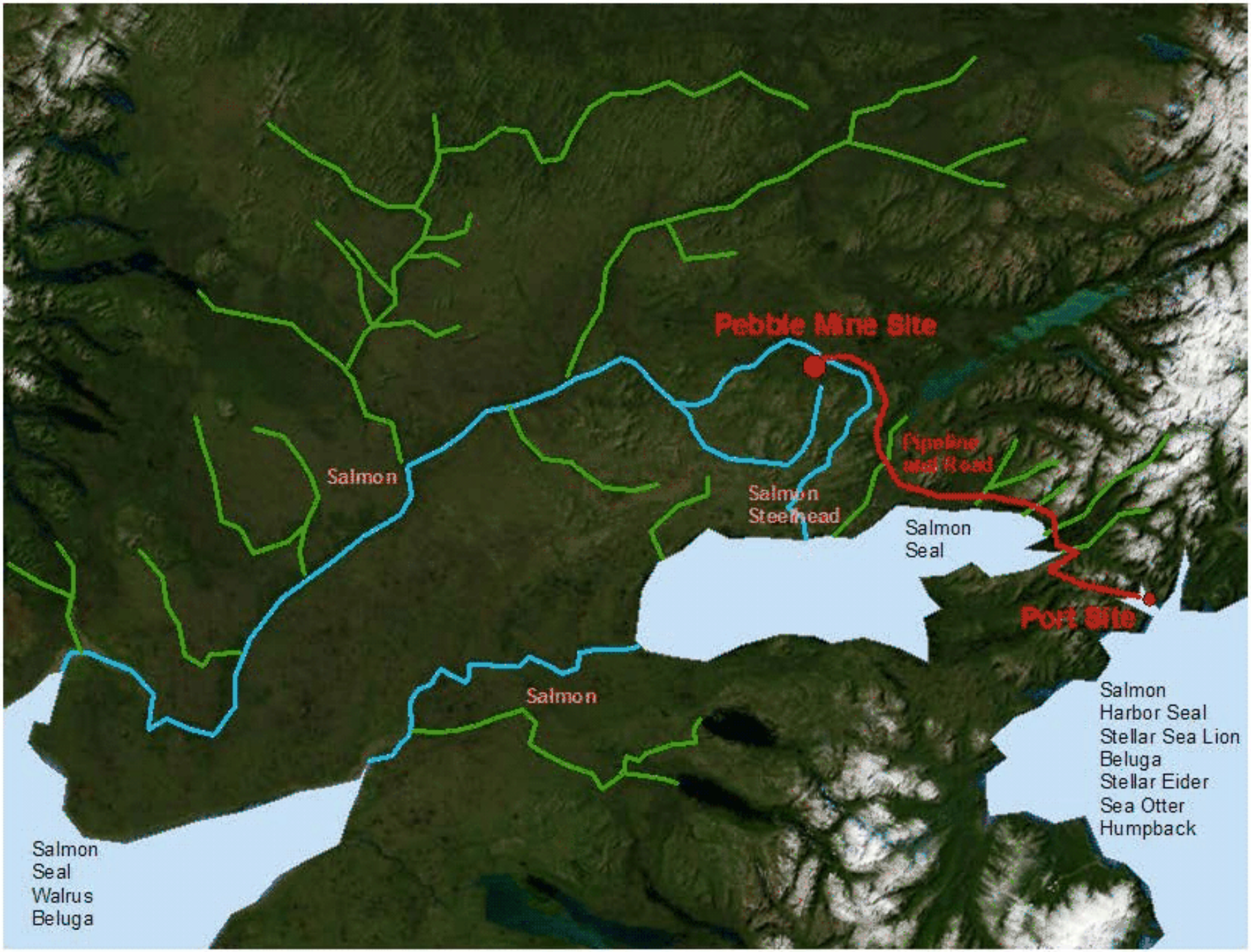

Bristol Bay Demographics
% of Population
70
60
50
40
30
20
Alaska Native
White
> Two Races
Hispanic
Asian
Black
Cook Inlet
Ekuk
Portage Creek
Naknek
South Naknek
King Salmon
Bristol Bay
Bristol Bay Demographics

Currently produces more salmon than any other watersheds on earth.

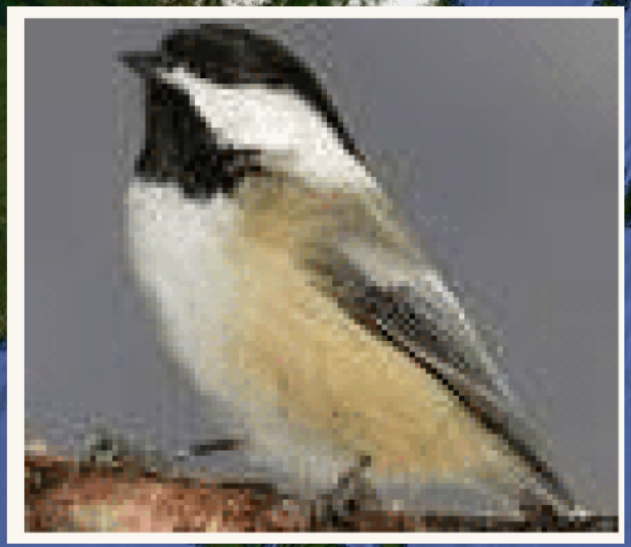



Nushagak watershed
produced 25% of Bristol Bay
salmon in 2008.
Kvichak-Naknek
watersheds produced
44% of Bristol Bay
Salmon in 2008
Google


Russia 31%
Alaska 43%
25%
7%
27%
British Columbia 4%
CA, OR, ID, WA 1%
Japan 21%
World Catch of Pacific Salmon


Pebble Mine Site
Pipeline and Road
Salmon
Salmon
Steelhead
Salmon
Seal
Port Site
Salmon
Salmon
Harbor Seal
Stellar Sea Lion
Beluga
Stellar Eider
Sea Otter
Humpback
Salmon
Seal
Walrus
Beluga

Terrestrial Wildlife



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image NASA
©2009 Google

Shorebirds, Gulls, Game Birds, and Woodpeckers

Species of conservation concern.

- Greater Yellowlegs
- Wilson's Snipe
- Whimbrel
- Black Oystercatcher
- American Three-toed woodpecker
- Bonapart's Gull
- American Golden Plover
- Pacific Golden Plover
- Lesser Yellowlegs
- Mew Gull
- Downy Woodpecker
- Hairy Woodpecker
- Spruce Grouse
- Rock Ptarmigan
- Least Sandpiper
- Long-tailed Jaeger
- Black-bellied Plover
- Red-necked Phalarope
- Short-billed Dowitcher
- Willow Ptarmigan
- Wandering Tattler
- Surfbird
- Hudsonian Godwit

Passerines

Species of conservation concern

- Wilson's Warbler
- Orange-crowned Warbler
- Golden-Crowned Sparrow
- Swainson's Thrush
- Yellow-rumped Warbler
- Hermit Thrush
- Dark-eyed Junco
- Yellow Warbler
- Ruby-crowned Kinglet
- American Robin
- Savannah Sparrow
- Blackpoll Warbler
- Fox Sparrow
- White-crowned sparrow
- Gray-cheeked Thrush
- Northern Waterthrush
- Olive-sided Flycatcher
- American Tree Sparrow
- White-winged Crossbill
- American Tree Sparrow
- Lapland Longspur
- Bank Swallow
- Common Raven
- Lincoln's Sparrow
- Tree Swallow
- Gray Jay
- Boreal Chickadee
- Alder Flycatcher
- Black-billed Magpie
- Black-capped Chickadee
- Red-breasted Nuthatch
- Common Redpoll
- Northern Shrike
- Golden-crowned Kinglet
- Common Raven
- Violet-green Swallow
- Bohemian Waxwing
- Rusty Backbird
- Song Sparrow
- Lapland Longspur
- Pine Grosbeak
- American Dipper
- Arctic Warbler
- American Pipit
- Horned Lark
- Snow Bunting

Waterbirds

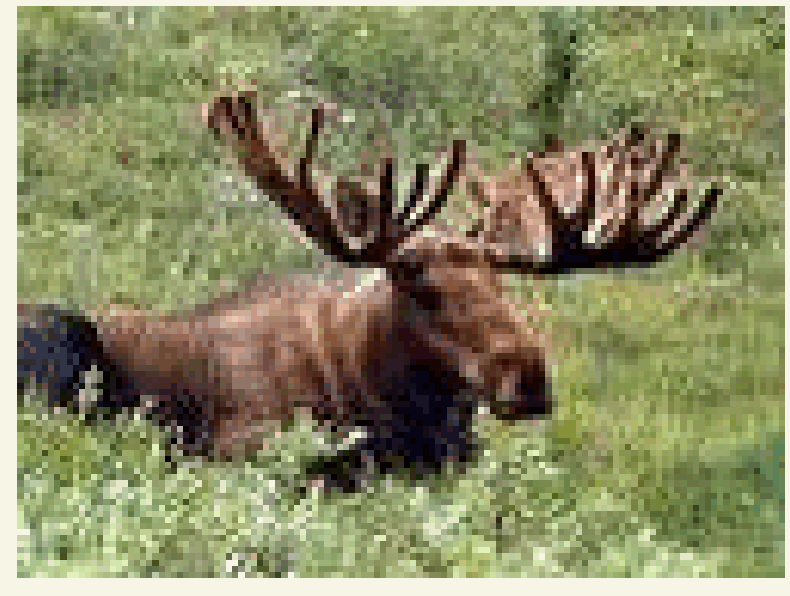
- Mallard
- Northern Shoveler
- Northern Pintail
- Green-winged Teal
- Scaup spp.
- Scoter spp.
- Merganser spp.
- Long-tailed duck
- Goldeneye spp.
- Swan spp.
- Harlequin Duck
- American Wigeon
- Common Loon
- Geese spp.
- Tern spp.

Raptors

- Bald Eagle
- Golden Eagle
- Osprey
- Red-tailed Hawk
- Great Horned Owl
- Merlin
- Northern Goshawk
- Gyrfalcon
- Peregrine Falcon
- Rough-legged Hawk

Mammals

Caribou, brown bear, moose, harbor seals (Lake Iliamna population) and beaver were reported in updates to agencies.



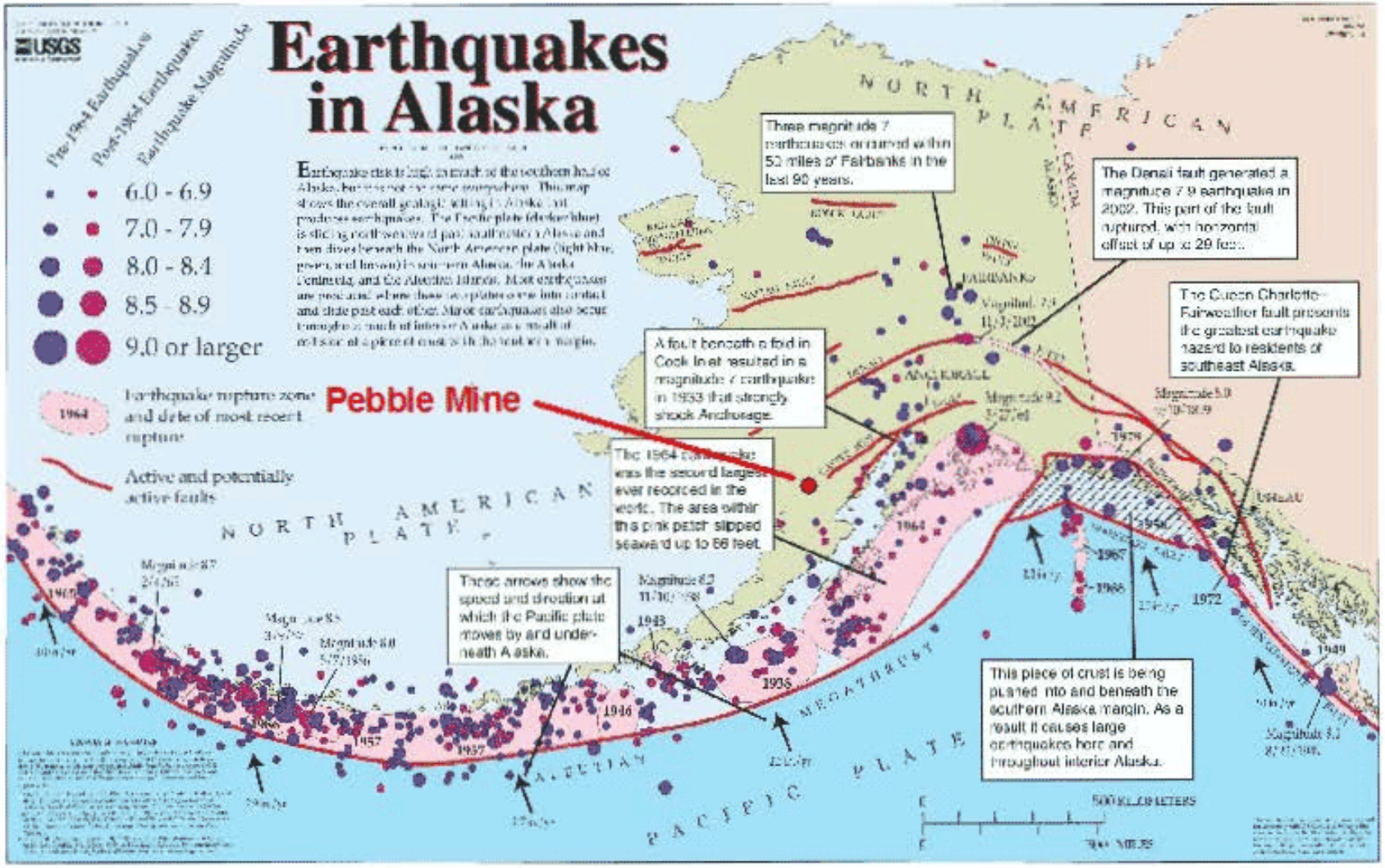
(b) (5)

(b) (5)

(b) (5)

(b) (5)

(b) (5)



Earthquakes in Alaska
USGS
Pre-1964 Earthquakes
Post-1964 Earthquakes
Earthquake Magnitude
6.0 - 6.9
7.0 - 7.9
8.0 - 8.4
8.5 - 8.9
9.0 or larger
1964
Earthquake rupture zone and date of most recent rupture
Active and potentially active faults
Pebble Mine
NORTH AMERICAN PLATE
Three magnitude 7 earthquakes occurred within 50 miles of Fairbanks in the last 90 years.
The Denali fault generated a magnitude 7.9 earthquake in 2002. This part of the fault ruptured, with horizontal offset of up to 29 feet.
The Queen Charlotte–Fairweather fault presents the greatest earthquake hazard to residents of southeast Alaska.
A fault beneath a fold in Cook Inlet resulted in a magnitude 7 earthquake in 1933 that strongly shook Anchorage.
The 1964 earthquake was the second largest ever recorded in the world. The area within this pink patch slipped seaward up to 66 feet.
These arrows show the speed and direction at which the Pacific plate moves by and underneath Alaska.
This piece of crust is being pushed into and beneath the southern Alaska margin. As a result it causes large earthquakes here and throughout interior Alaska.
ALEUTIAN MEGATHRUST
PACIFIC PLATE
FAIRBANKS
ANCHORAGE
1964
1946
1957
1938
1943
1972
1949
500 KILOMETERS

(b) (5)

(b) (5)

(b) (5)

(b) (5)

(b) (5)

(b) (5)