

*Wildlife at Risk: Impacts of Shipwrecks on the
Alaska Maritime National Wildlife Refuge*



Aleutian Life Forum 2005
Unalaska-Dutch Harbor

- Introduce the Alaska Maritime National Wildlife Refuge
- History of shipwrecks
- Resources at risk
- Potential threats
 - Oil spills
 - Rat spills
- Introduce ALF Wildlife Forum



Alaska Maritime

National Wildlife Refuge

 Land within the Refuge Boundary (includes some private land)

 Unit Boundary

 Refuge Headquarters

0 80 160 240 320 Miles

0 100 200 300 400 Kilometers



Chukchi Sea Unit

Chukchi Sea

Canada

Barrow

Kotzebue

Nome

Bering Sea Unit

St. Matthew Island

Bering sea

Anchorage

Seward

Homer

Chiswell Islands

Barren Islands

Gulf of Alaska Unit

Juneau

St. Lazaria Island

Sitka

St. Paul
Pribilof Islands

St. George

Attu Island

Kiska Island

Amchitka Island

Adak

Sand Point

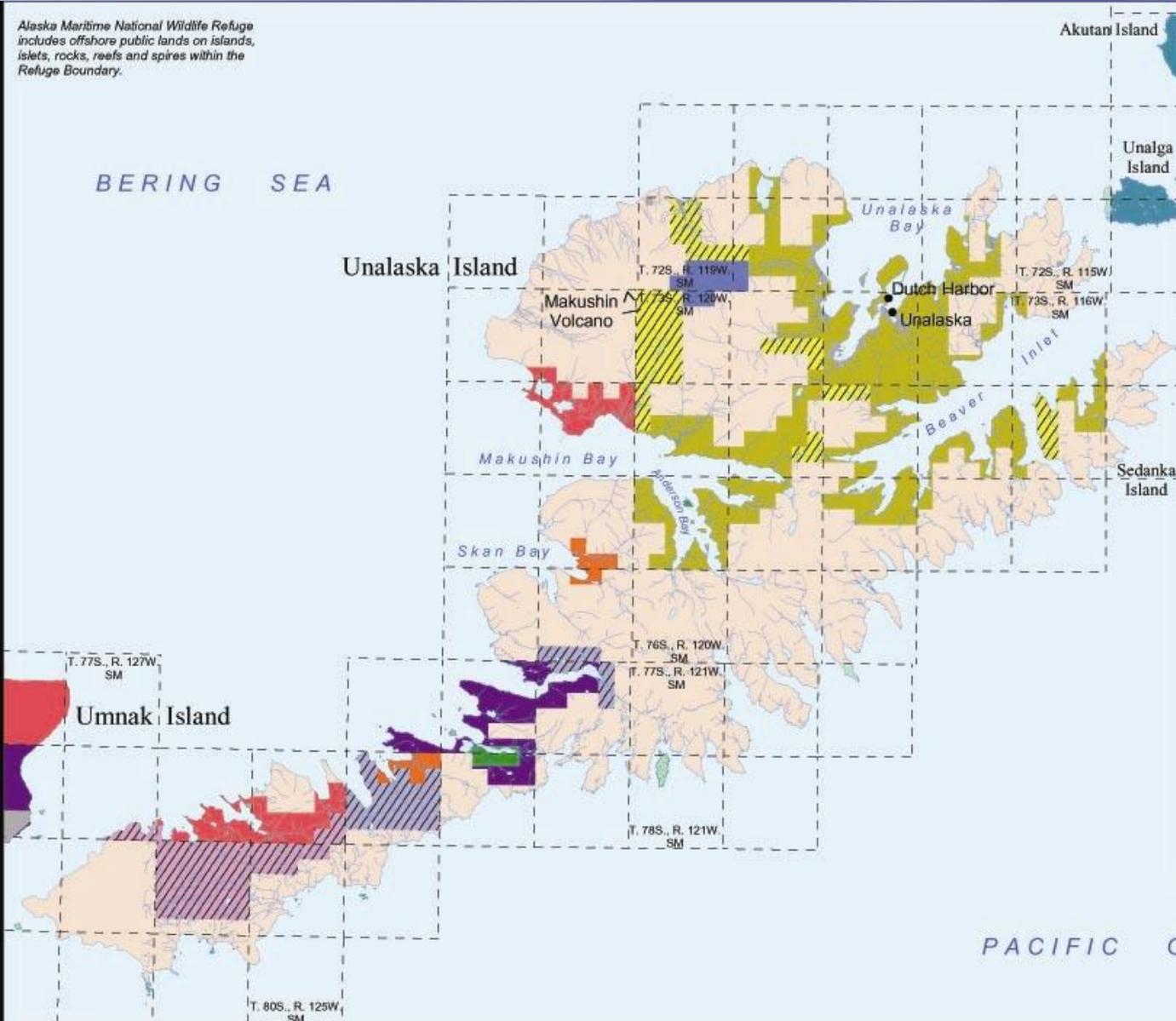
Alaska Peninsula Unit

Unalaska

Aleutian Islands Unit

Pacific Ocean

Alaska Maritime National Wildlife Refuge includes offshore public lands on islands, islets, rocks, reefs and spires within the Refuge Boundary.

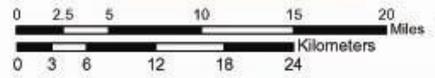


Unalaska Island Native Corporation Lands

Alaska Maritime National Wildlife Refuge



- The Aleut Corporation Selected
- The Aleut Corporation Selected in Conflict
- The Aleut Corporation Conveyed
- Unalashka Corporation Selected (Village of Unalaska)
- Unalashka Corporation Conveyed (Village of Unalaska)
- Tanadgusix Corporation Selected (Village of St. Paul)
- Tanadgusix Corporation Conveyed (Village of St. Paul)
- St. George Tanaq Corporation Selected
- St. George Tanaq Corporation Conveyed
- The Akutan Corporation Conveyed
- Atkam Corporation Conveyed (Village of Atka)
- Other Status
- USFWS Acquired - Surface
- USFWS Administered Land
- Existing Wilderness
- Volcano



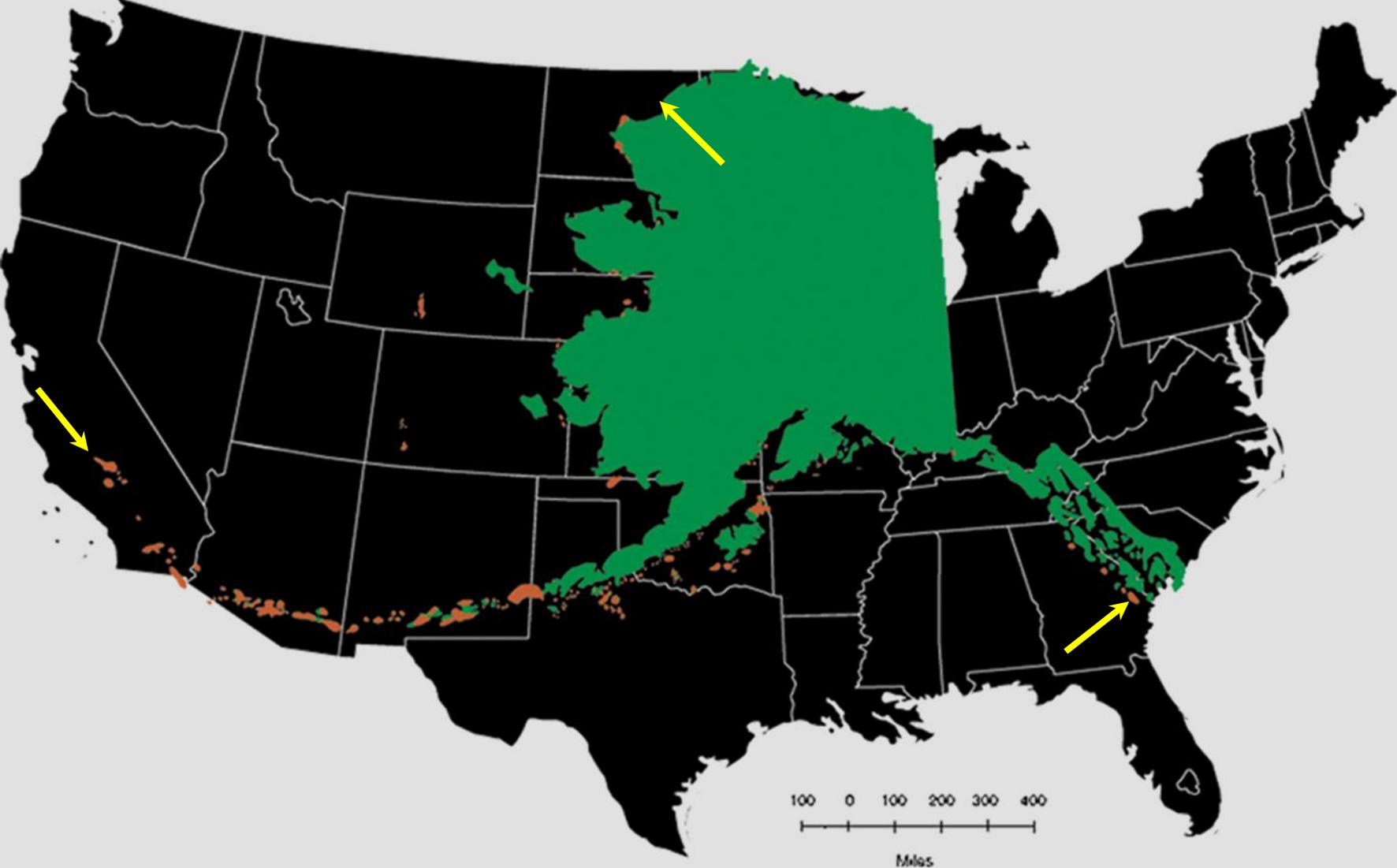
Land ownership extracted from BLM MTPs and the review of BLM casettes. Land ownership only shown on Alaska Maritime National Wildlife Refuge.

01-0011

02/15/05 JGB



Alaska Maritime National Wildlife Refuge



Alaska Maritime NWR includes islands in southeast Alaska....



St. Lazaria Island near Sitka

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... in Cook Inlet & along the Alaska Peninsula ...



Chisik & Duck islands, Cook Inlet

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... through the Aleutian chain ...



Islands of the Four Mountains

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... north through the Bering Sea ...



St. George Island

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...to the headlands and barrier islands of the Chukchi Sea.



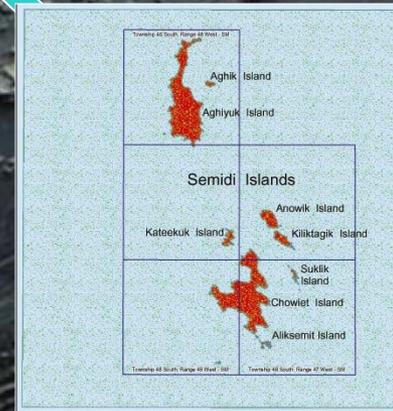
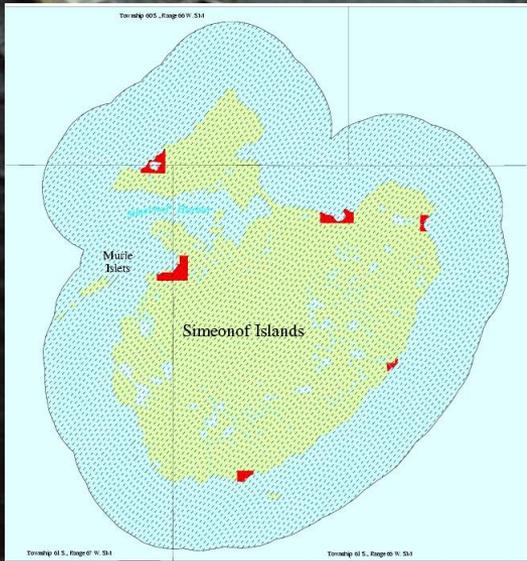
Cape Thompson

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Alaska Maritime NWR Marine Water Areas

14% of refuge (673,000 acres)





Common murre



Black-legged kittiwake



Whiskered auklet



Thick-billed murre



Horned puffin



Parakeet auklet



Tufted puffin



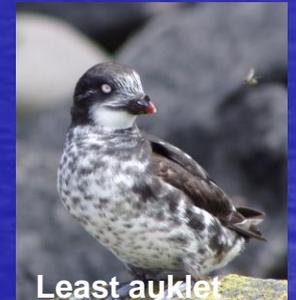
Red-faced cormorant



Crested auklet



Northern fulmar



Least auklet



Harlequin duck



Long-tailed duck



Pigeon guillemot



Eiders



Loons



Emperor goose



Black oystercatcher





Northern Fur Seal



Pacific Walrus



Sea Otter



Steller Sea Lion



Harbor Seal



Terrestrial Endemics

Rock sandpiper



Aleutian
Cackling Goose



Attu Island 2003

Rock Ptarmigan

Insular vole



McKay's Bunting



There are more than 540 National Wildlife Refuges, totaling more than 100 million acres (76 million in Alaska)

National network of lands and waters for the conservation, management, and restoration of fish, wildlife and plants and their habitats for the benefit of present and future generations

- Wildlife comes first
- Priority public uses = compatible wildlife-dependent activities
 - hunting & fishing
 - wildlife observation & photography
 - interpretation & environmental education



Alaska Maritime NWR's Establishing Purposes

- Conserve fish and wildlife populations and habitats in their natural diversity, including marine mammals, marine birds and other migratory birds, and the marine resources on which they rely
- Fulfill international treaty obligations with respect to fish and wildlife and their habitats
- Provide the opportunity for continued subsistence uses by local residents
- Provide a program of national and international scientific research on marine resources
- Ensure water quality and necessary quantity within the refuge



Alaska Maritime NWR's Primary Programs

- Annual monitoring of seabird productivity & population trends
- Seabird, marine mammal & oceanographic coordinated investigations
- Invasive species prevention, control, and eradication
- Interpretation & environmental education



Special Management Areas

- Wilderness Areas > 2.37 million areas (60% of refuge)
- Aleutian Islands International Biosphere Reserve
- National Natural Landmarks > Simeonof & Bogoslof
- National Historic Landmarks > e.g. Attu, Kiska, Dutch Harbor
- Archeological sites & traditional subsistence use areas
- NWRS Land Management Research and Demonstration Area
- Sister Refuge with Commander Islands Nature & Biosphere Reserve

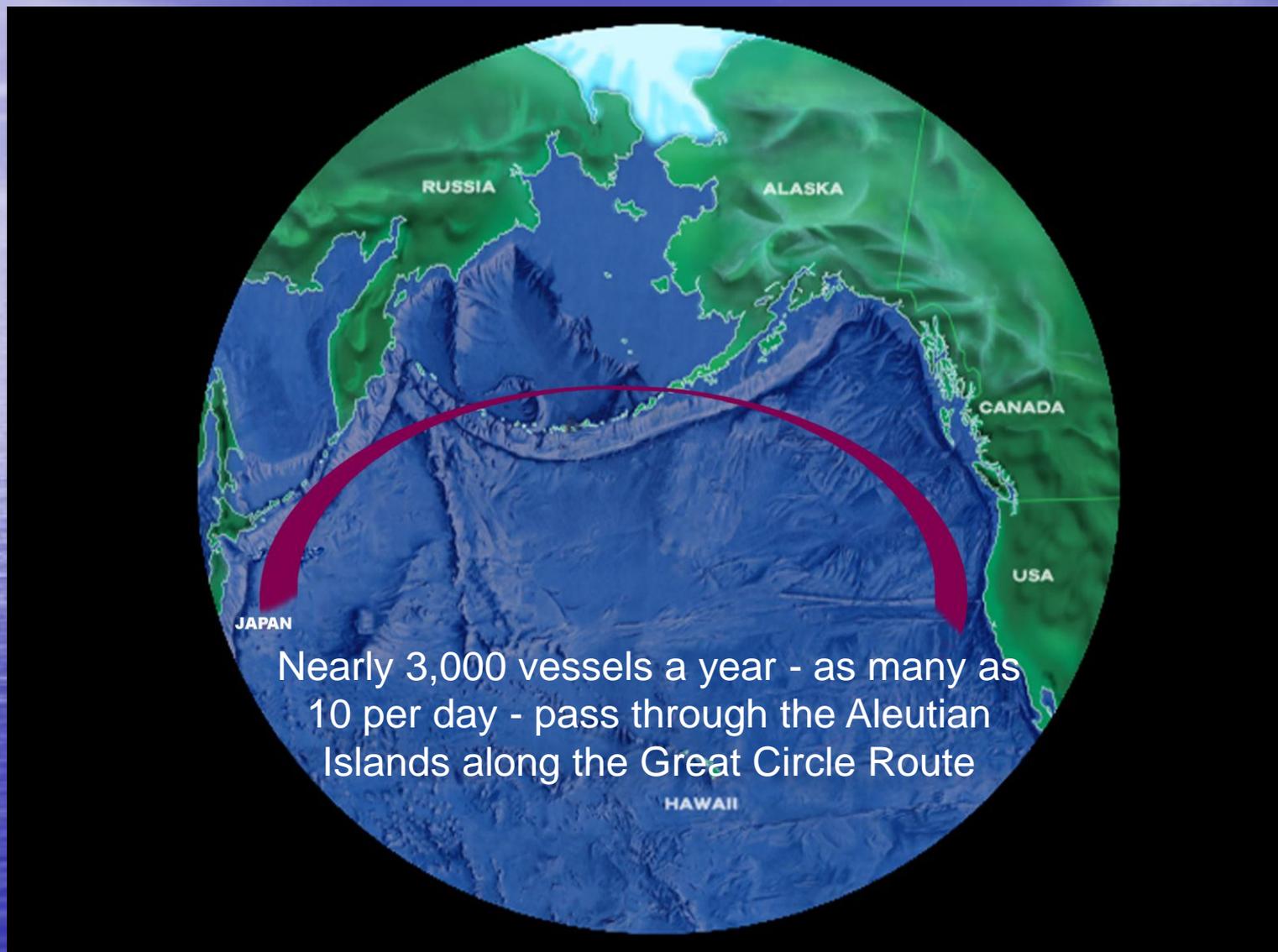




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North Pacific Great Circle Route

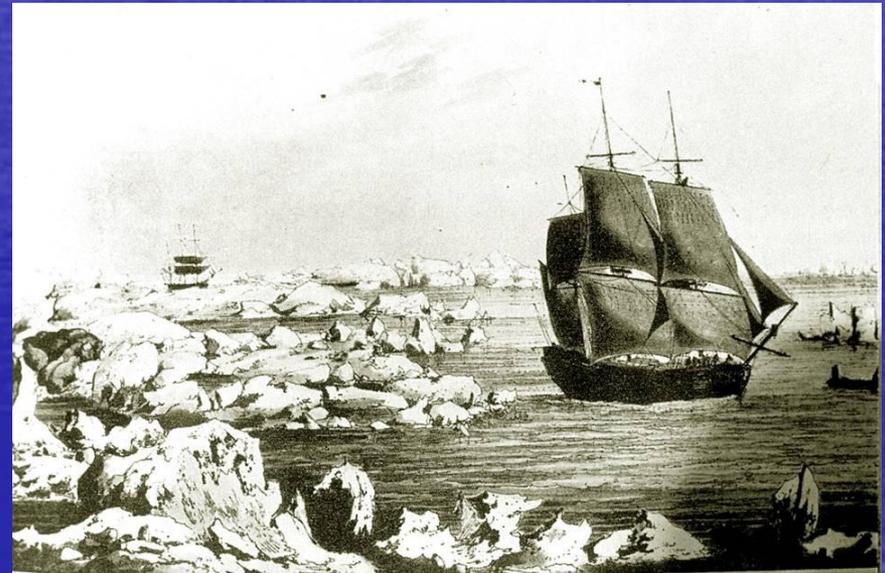


History of Shipwrecks and Groundings

More than 190 wrecks and groundings are known to have occurred on or adjacent to lands that are now part of the Alaska Maritime National Wildlife Refuge

The majority of these wrecks occurred in the Aleutian archipelago

- **15 Russian vessels in mid to late 1700s during Russian exploration and commercial sealing periods**
- **11 Japanese fishing junks in the late 1700s and early 1800s**
- **75 schooners, steamers, whalers, in mid 1800s to early 1900s during American commercial whaling, sealing, & fish cannery periods**



History of Shipwrecks and Groundings

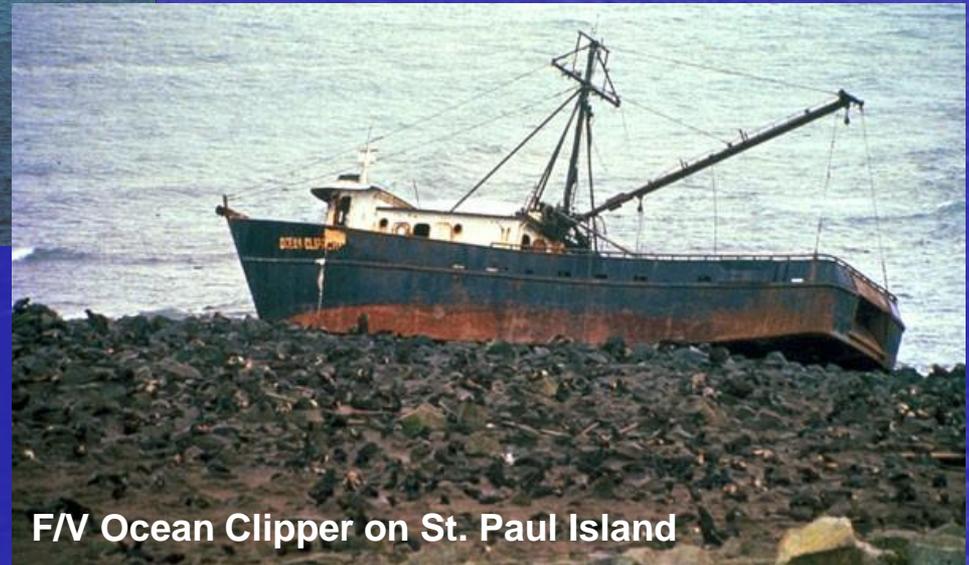
- **30 military vessels, both American and Japanese, during the Aleutian Campaign of World War II**

**13 Japanese vessels
(9 ships & 5 subs)
were sunk at Kiska
Island**



History of Shipwrecks and Groundings

- **35 fishing vessels, primarily during the 1980-90s corresponding the peak of the Bering Sea crab fishery**



F/V Ocean Clipper on St. Paul Island



History of Shipwrecks and Groundings

- 26 freighters, barges, cargo vessels, passenger ships



T/V Exxon Valdez on Bligh Reef



M/V Kuroshima on Unalaska Island

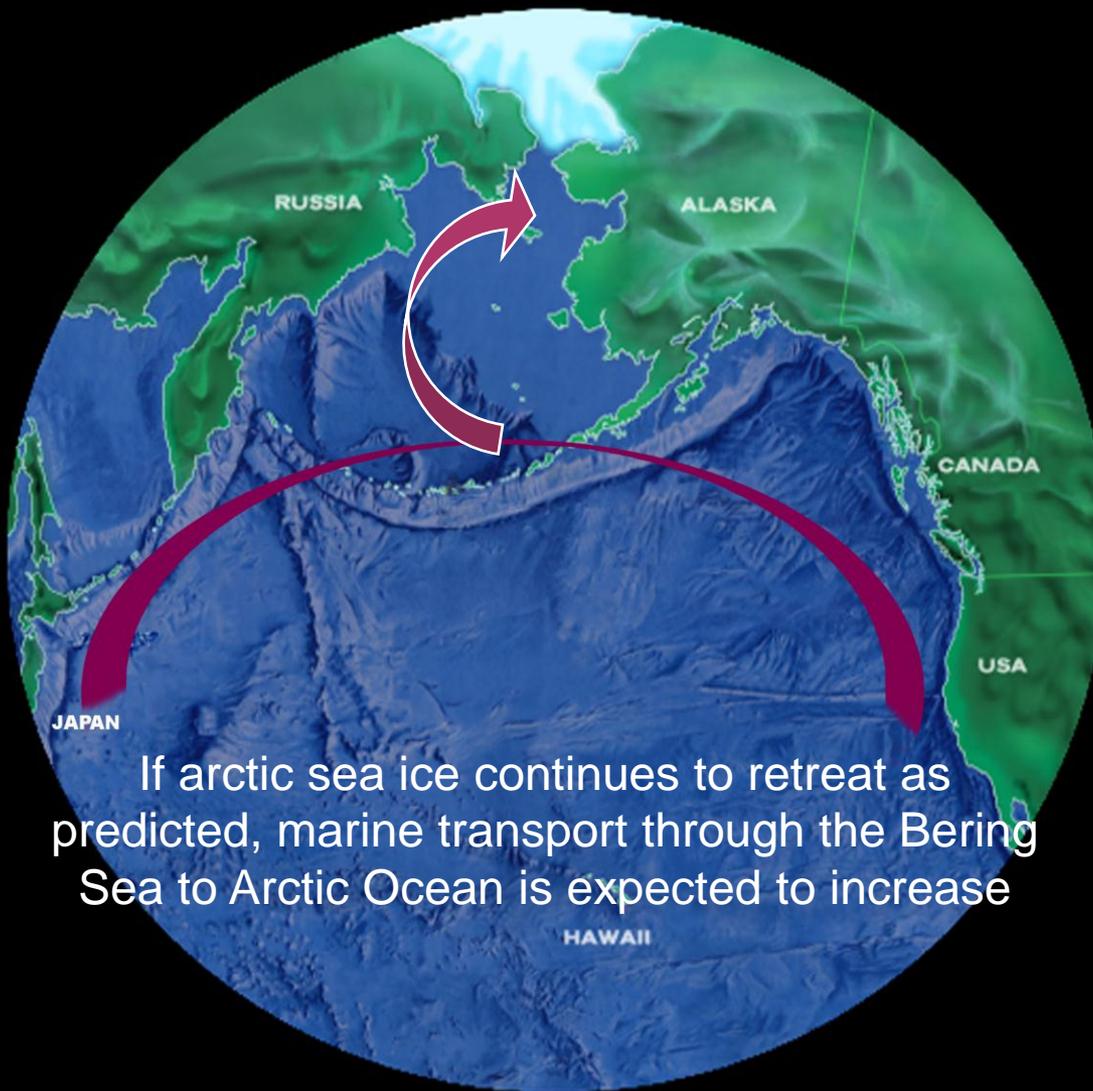


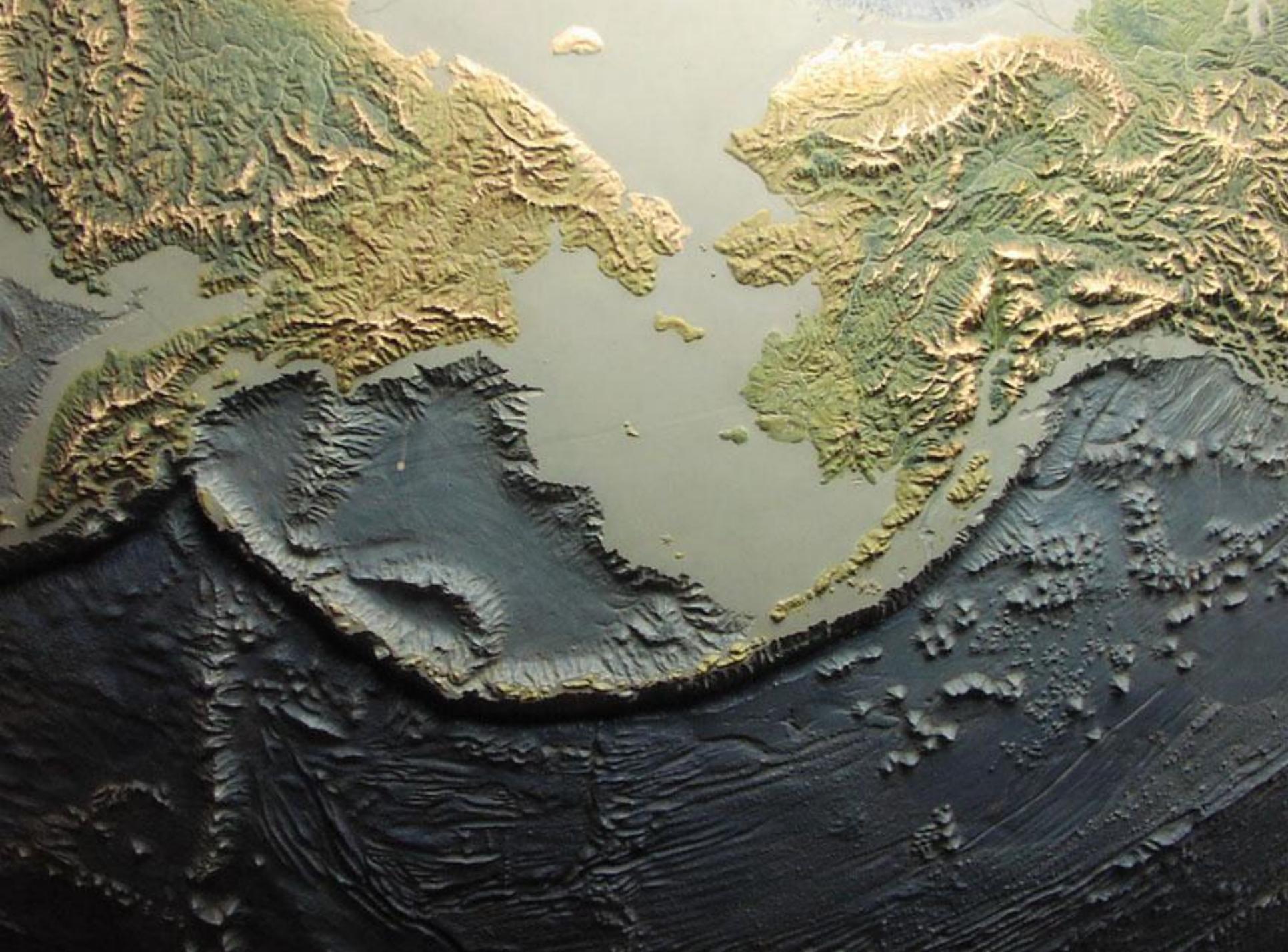
History of Shipwrecks and Groundings

By far, the most wrecks and groundings (25) on any one individual island has occurred on Unimak Island, located on the main pass through the Aleutian archipelago



...and into the future?







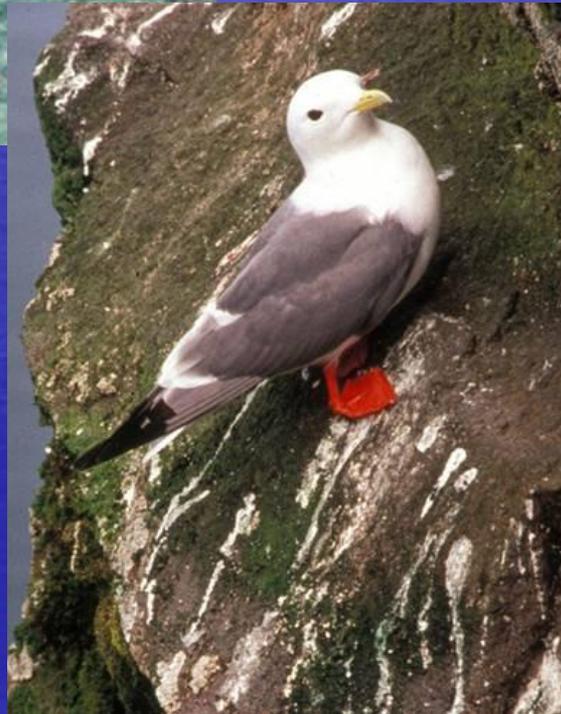
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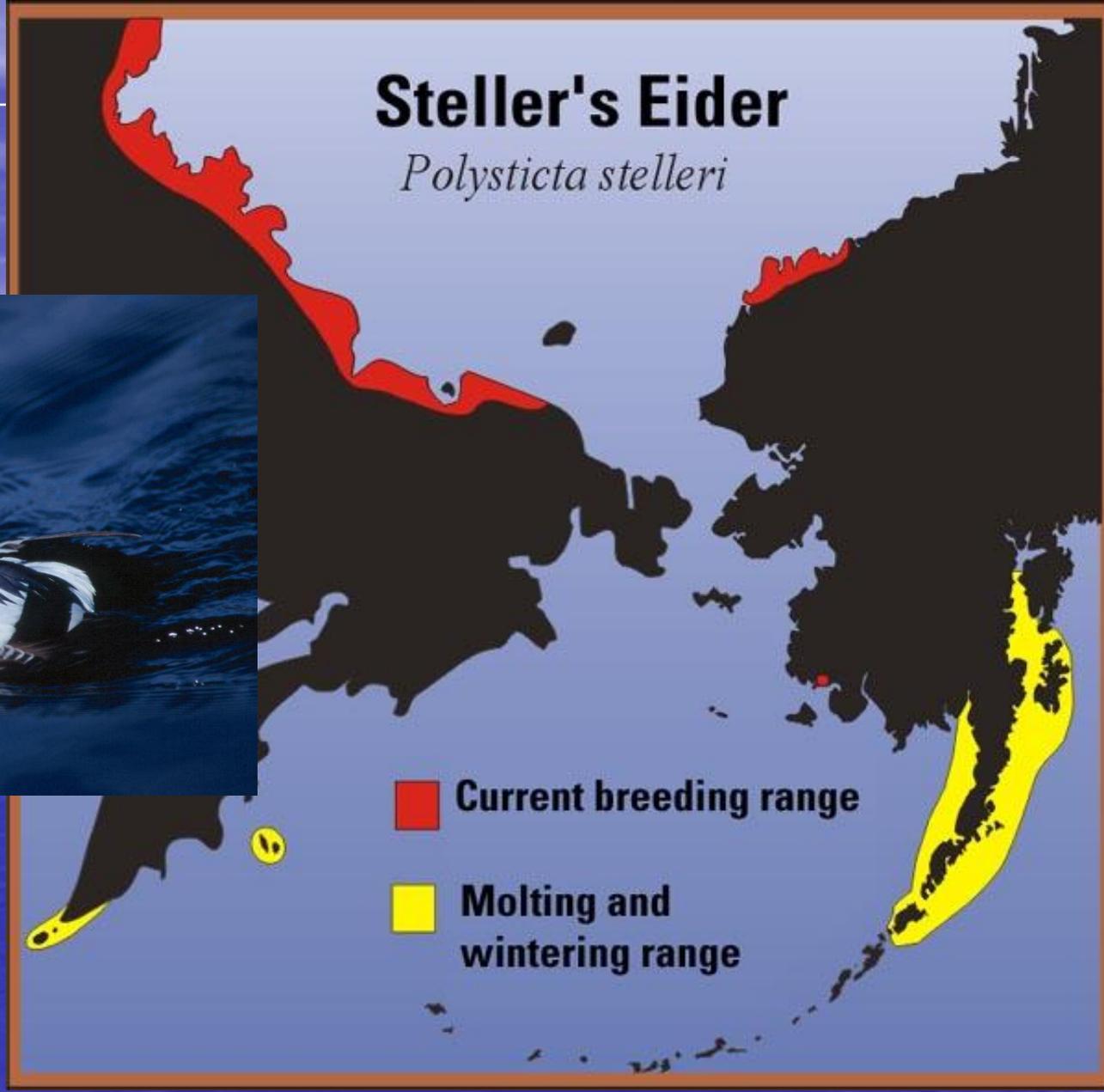
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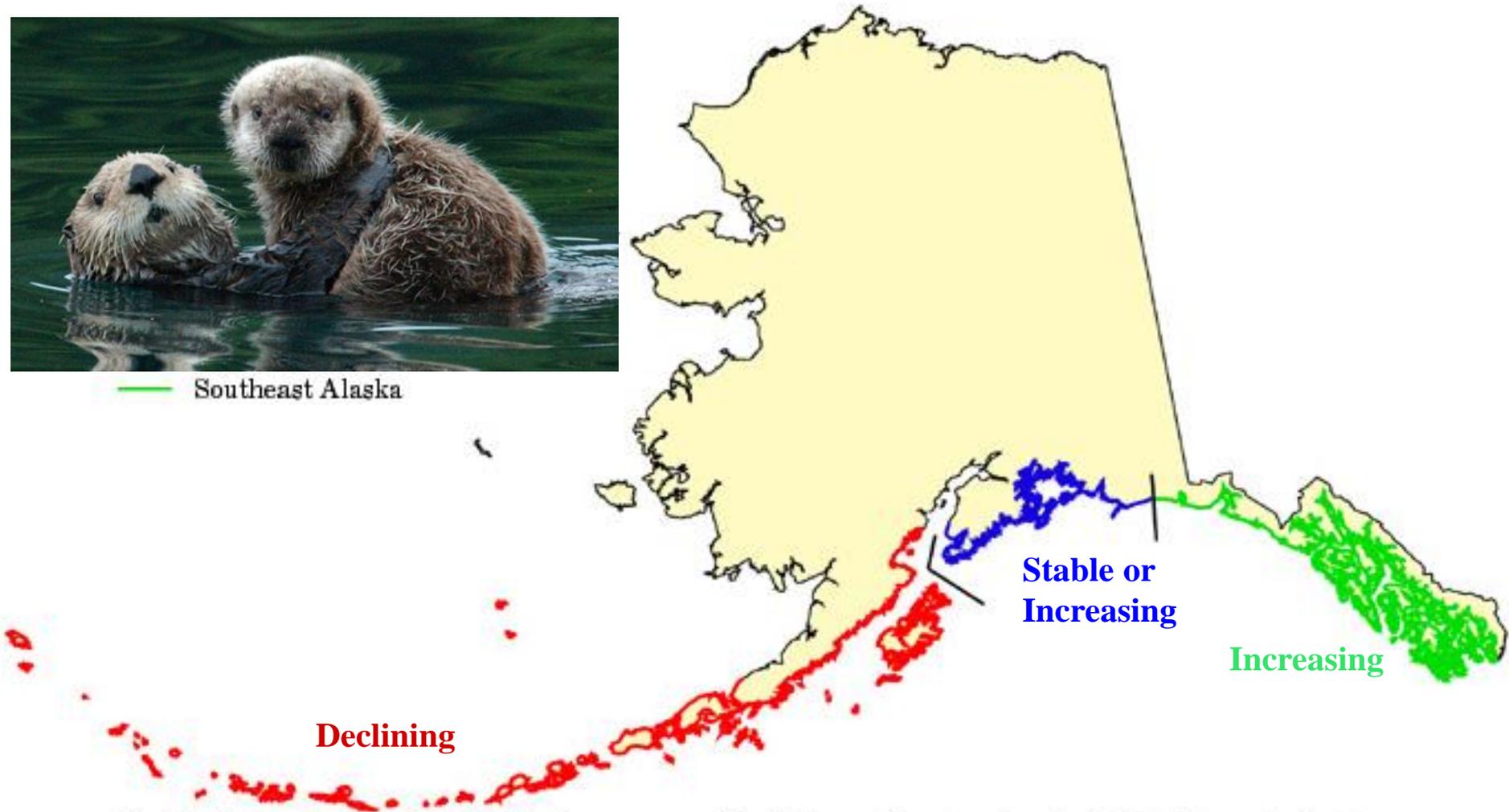




Northern Sea Otter (*Enhydra lutris kenyoni*) Stocks in Alaska



— Southeast Alaska



The Southwest Alaska DPS, which has been proposed for listing as threatened under the ESA, is equivalent to the Southwest Alaska stock (shown in red). Other stocks on the map above are not included in the listing proposal.





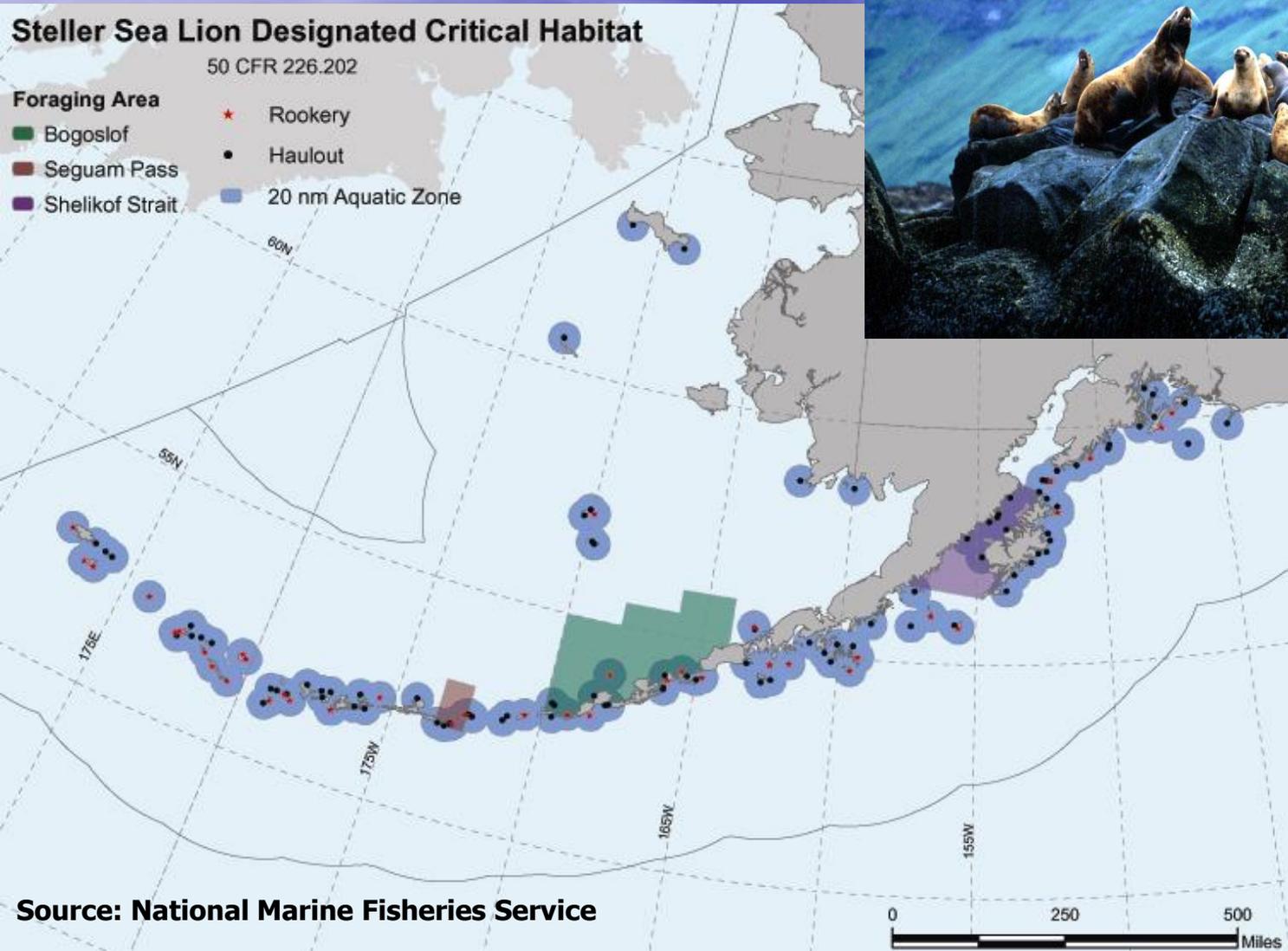
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Steller Sea Lion Designated Critical Habitat

50 CFR 226.202

- Foraging Area**
 - Bogoslof
 - Seguam Pass
 - Shelikof Strait
- Rookery** (Red star)
- Haulout** (Black dot)
- 20 nm Aquatic Zone** (Blue circle)



Source: National Marine Fisheries Service



BERING SEA ECOREGION



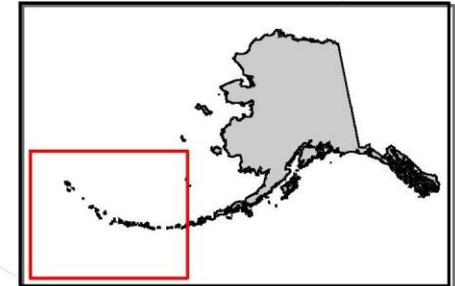
Source: World Wildlife Fund

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- Aleutian Islands Habitat Conservation Area
- Open to Bottom Trawling
- Aleutian Islands Coral Garden Marine Habitat Protection Areas
- Bowers Ridge Habitat Conservation Zone



Areas shown in yellow would be closed to bottom trawling (279,114 nm²)

Areas shown in green would remain open to bottom trawling (12,423 nm²)

Areas shown in red would be closed to all bottom-tending fishing gear (110 nm²)

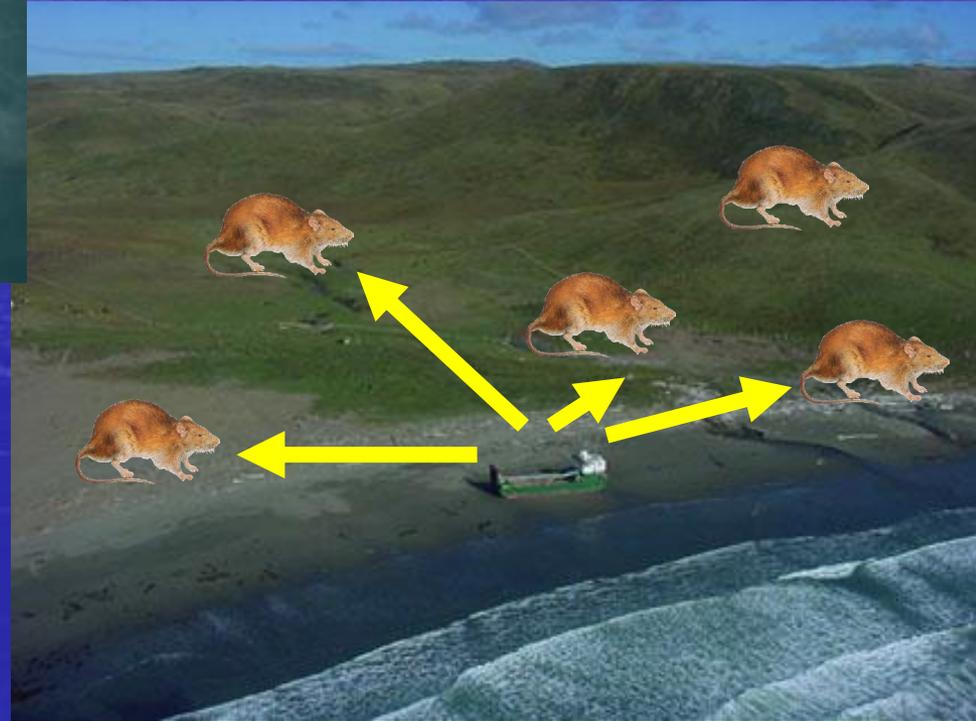
Areas shown in purple would be closed to mobile bottom-tending fishing gear (5,286 nm²)



Risks to Wildlife from Shipping Accidents:



Oil spills



Rat spills



M/V Selendang Ayu

Unalaska Island (2004-2005)



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December 7, 2004 - M/V *Selendang Ayu* first reported adrift in the Bering Sea near Bogoslof Island

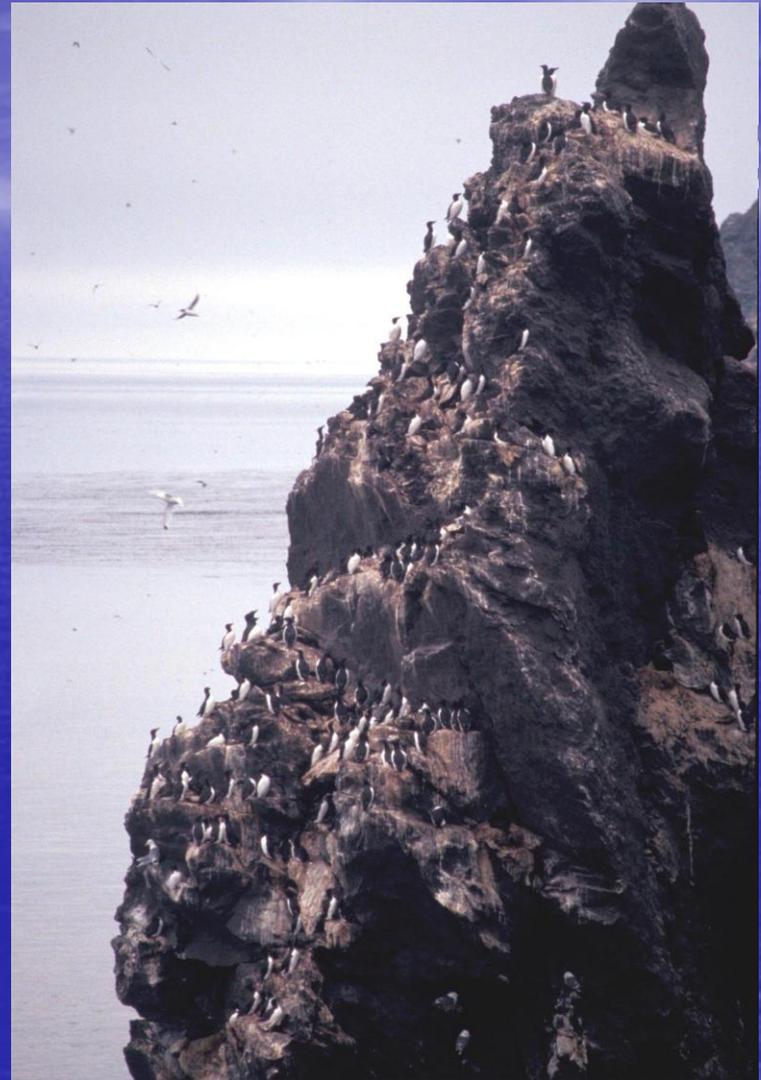




Bogoslof Island
Photo by: T. Keith, USGS 1994

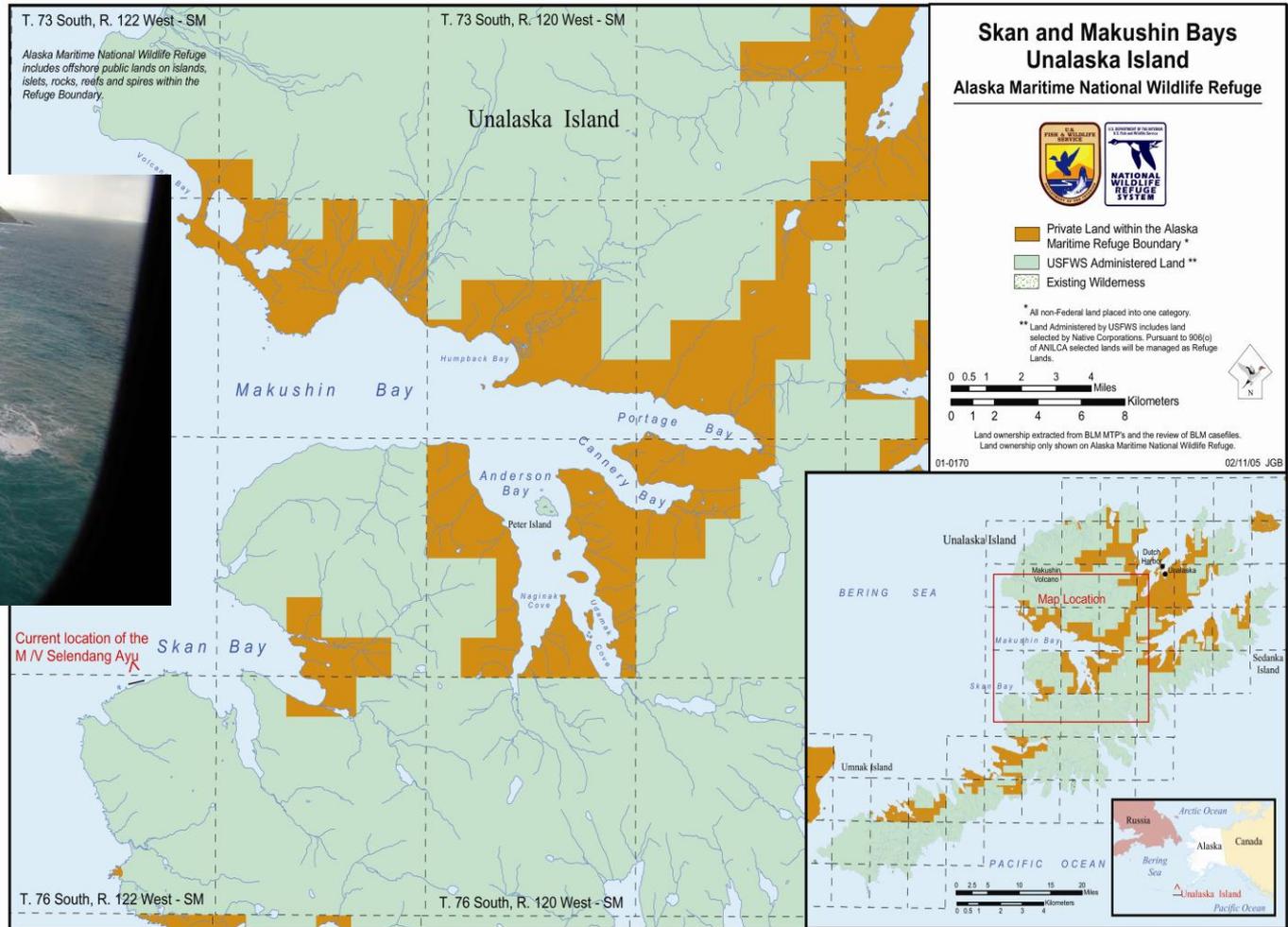
Bogoslof Island



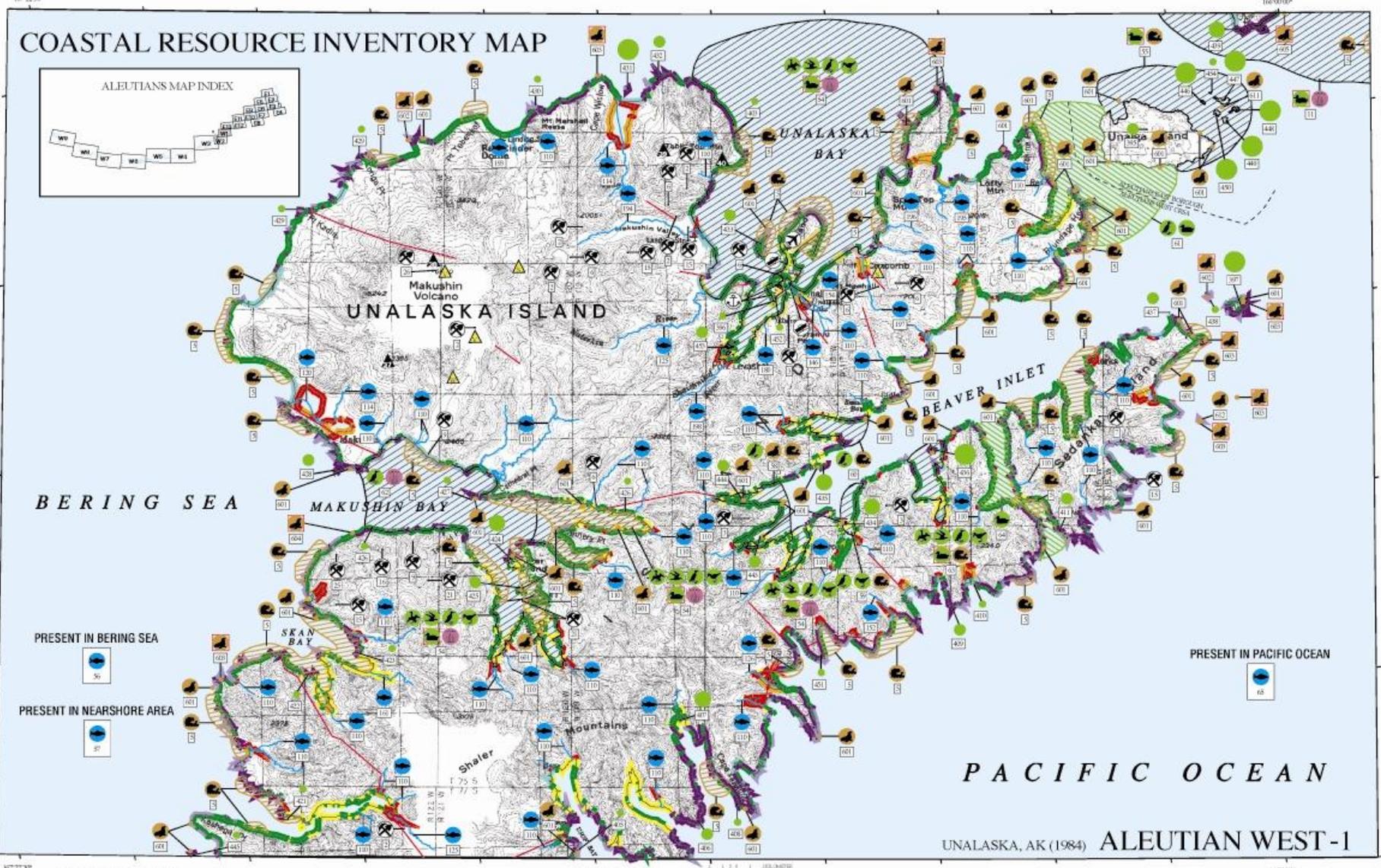
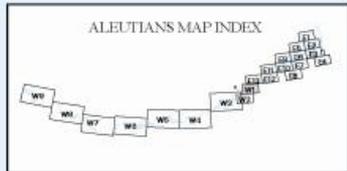


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COASTAL RESOURCE INVENTORY MAP



PRESENT IN BERING SEA
50
PRESENT IN NEARSHORE AREA
57

PRESENT IN PACIFIC OCEAN
65

PACIFIC OCEAN

UNALASKA, AK (1984) ALEUTIAN WEST-1

SCALE 1:250000

Published: September 2001

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Habitats at risk:

- Nearshore marine waters
- Intertidal zone
- Gravel & sand beaches
- Rocky headlands & offshore rocks
- Freshwater streams
- Tidal flats & lagoons
- Eelgrass beds





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Secondary Risk to Scavengers





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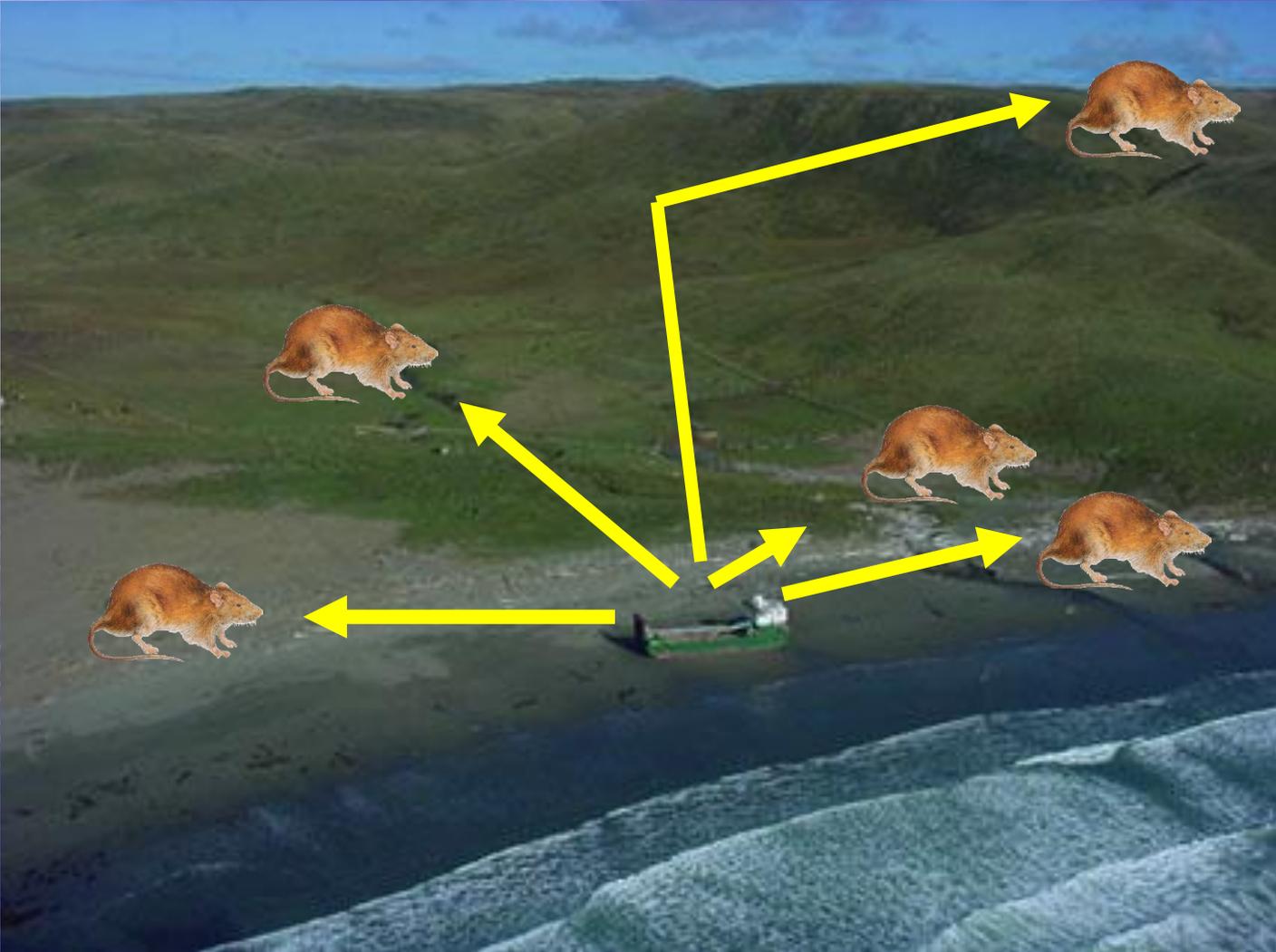




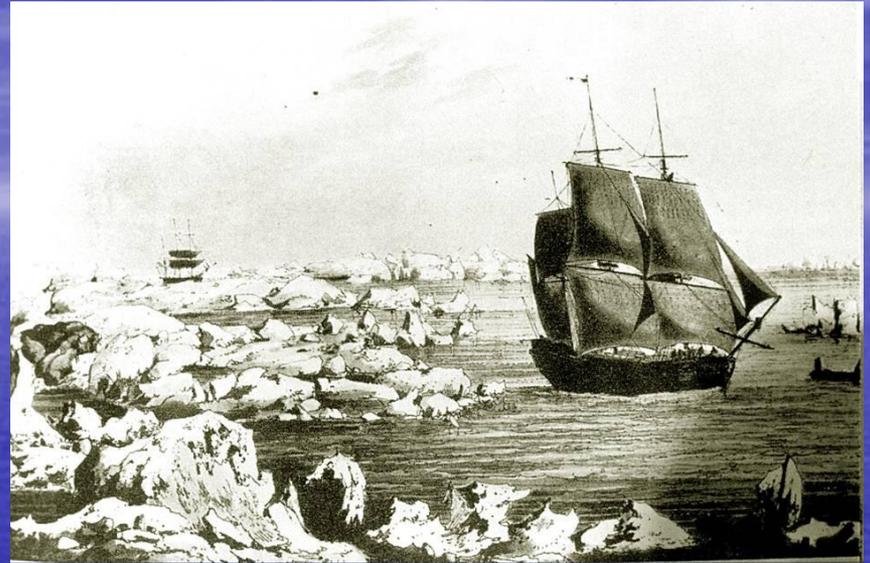
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Rat Spills

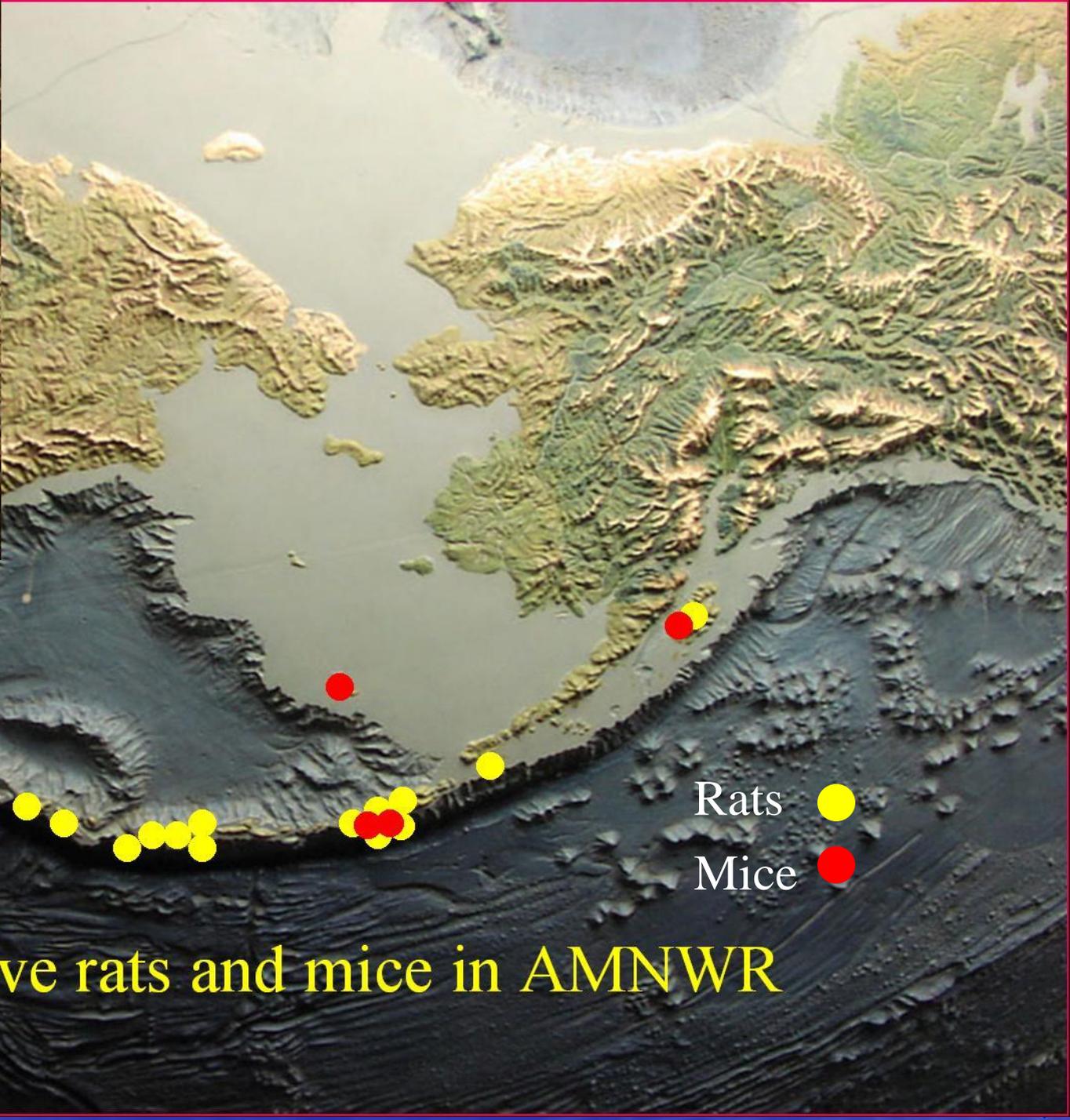


First known rat introduction in the Aleutians occurred in 1780 from grounding of a Japanese fishing vessel on what is now known as Rat Island.



Additional rat introductions occurred on many islands that were occupied by the military during WWII Aleutian Islands Campaign.





Invasive rats and mice in AMNWR

Rat Spills Can Be Worse than Oil Spills

- Rats eat insects & animals
- Rats damage habitat
- Rats transmit disease
- Rats reproduce rapidly
- Rats destroy human food stores & supplies
- Rats are hard to clean up



Rats are responsible for **40-60%** of all
bird and reptile **extinctions**

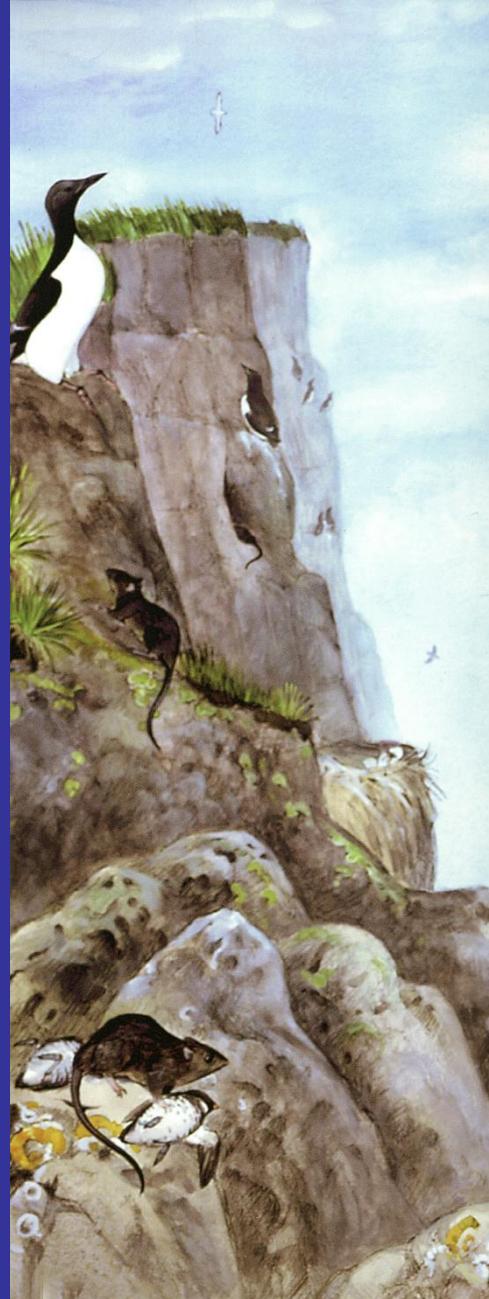


**Rats take:
eggs
chicks
adults**



Invasive Species Management

- Prevention
- Control
- Eradication



Prevention of introductions to rat-free islands

- Pribilof Islands Quarantine Program
- Outreach to Fleet
- Shipwreck Response



Control of rats at source points such as harbors



Ultimate Goal: Eradication of rats from refuge islands

Small scale removal studies at
Bay of Islands, Adak Island





The shore is an ancient world, for as long as there has been an earth and sea there has been this place of the meeting of land and water. Each time that I enter it, I gain some new awareness of its beauty and its deeper meanings, sensing that intricate fabric of life by which one creature is linked with another, and each with its surroundings.” ~ Rachel Carson



A scenic sunset over a fjord. The sky is filled with vibrant orange, red, and purple clouds. The sun is low on the horizon, casting a warm glow over the water and the snow-capped mountains. The water in the foreground is dark and rippled. The mountains on either side are dark with patches of snow. The overall mood is peaceful and majestic.

Thank you!

Wildlife Forum

- Wildlife response in oil spills
- Bird rescue & rehabilitation
- Marine mammals
- Marine invertebrates
- Subsistence resources
- Natural Resource Damage Assessment & Restoration



Wildlife Forum

Roundtable Discussion: Lessons Learned

- Review key points from wildlife presentations
- What worked well in Selendang Ayu case?
- What did not work well?
- What can we improve for the future?

