



# Community-Based Marine Mammal Research in Alaska

Bowhead and beluga whales,  
walruses, and ice seals

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# Bowhead Whale Satellite Tagging



## Partners:

Alaska Eskimo Whaling Commission, North Slope Borough, Greenland Institute of Natural Resources, Denmark, Department of Fisheries and Oceans Canada, Barrow, Gambell, Savoonga, and Kaktovik Whaling Captains Associations, Barrow Arctic Science Consortium, Tuktoyaktuk Hunters and Trappers Committee, Canada



NMFS Permit #14610  
Photo by Chuck Gruben

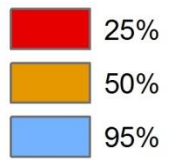


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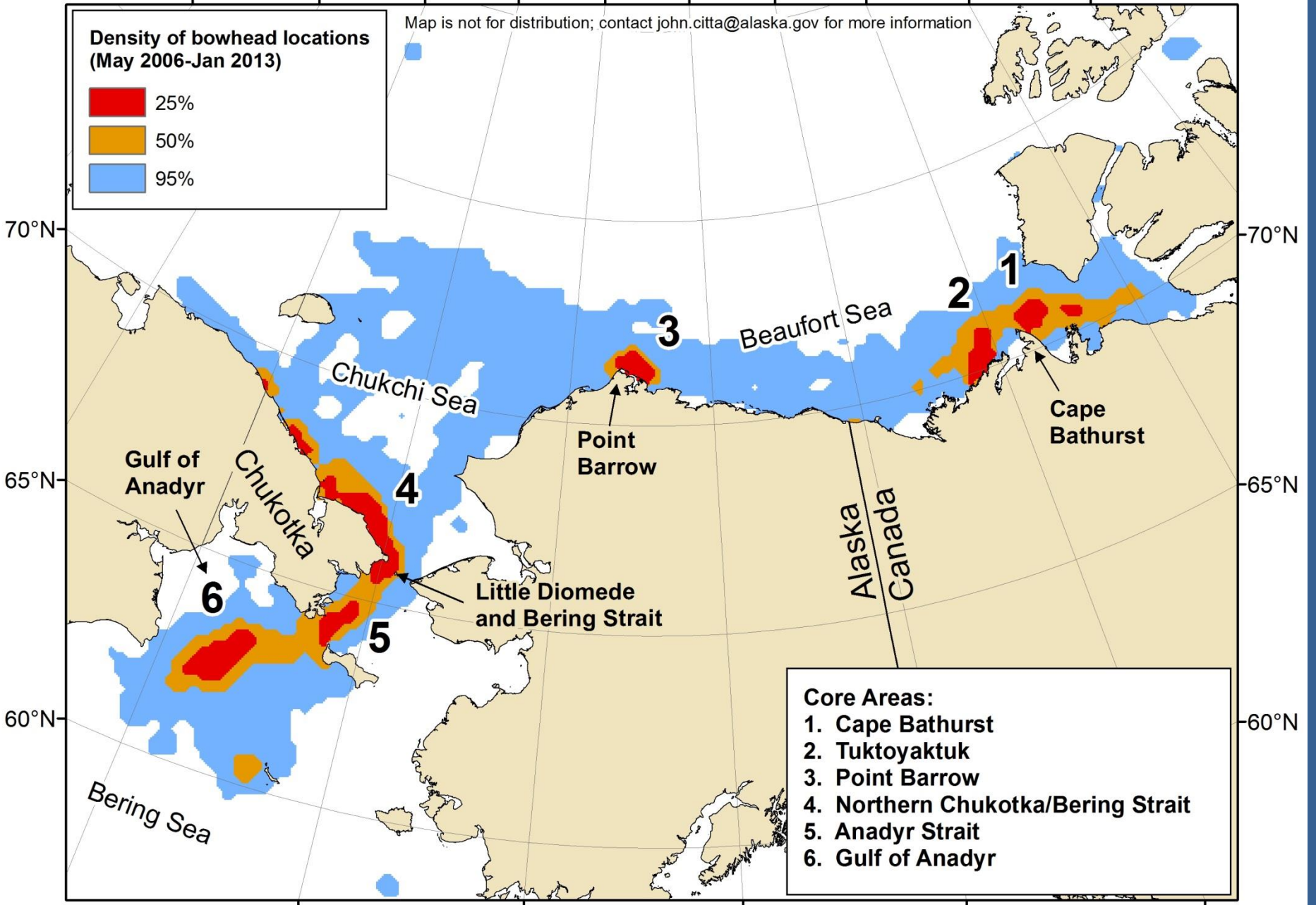
JCGEORGE

160°E 170°E 180° 170°W 160°W 150°W 140°W 130°W 120°W 110°W

**Density of bowhead locations  
(May 2006-Jan 2013)**



Map is not for distribution; contact [john.citta@alaska.gov](mailto:john.citta@alaska.gov) for more information



**Core Areas:**

1. Cape Bathurst
2. Tuktoyaktuk
3. Point Barrow
4. Northern Chukotka/Bering Strait
5. Anadyr Strait
6. Gulf of Anadyr

# Beluga Tagging



## Partners:

Alaska Beluga Whale Committee, North Slope Borough,  
Shedd Aquarium, Mystic Aquarium, and National Marine  
Fisheries Service

# Tom Gray tagging a beluga caught in his subsistence net at Cape Nome in 2013



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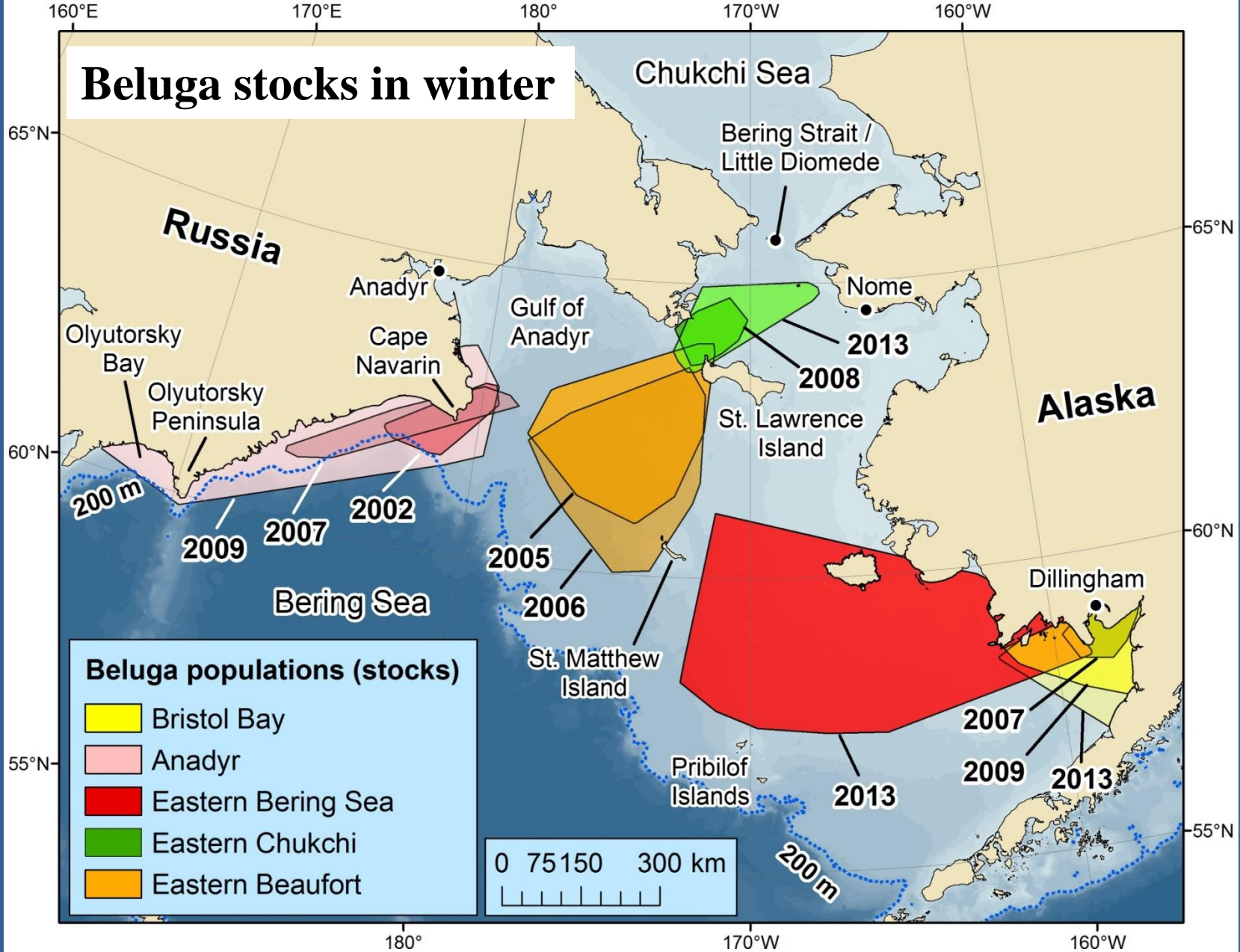


Figure 4 from Citta et al. 2016. Satellite telemetry reveals population specific winter ranges of beluga whales in the Bering Sea. *Marine Mammal Science*. DOI:10.1111/mms.12357

# Village-Based Walrus Habitat Use Studies



USFWS Permit #MA220876

## Partners:

Eskimo Walrus Commission,  
U.S. Fish and Wildlife Service,  
U.S. Geological Survey, Native  
Villages of Pt. Lay, Gambell,  
and Savoonga



USFWS Permit #MA220876



# Haulout Monitoring and Carcass Surveys

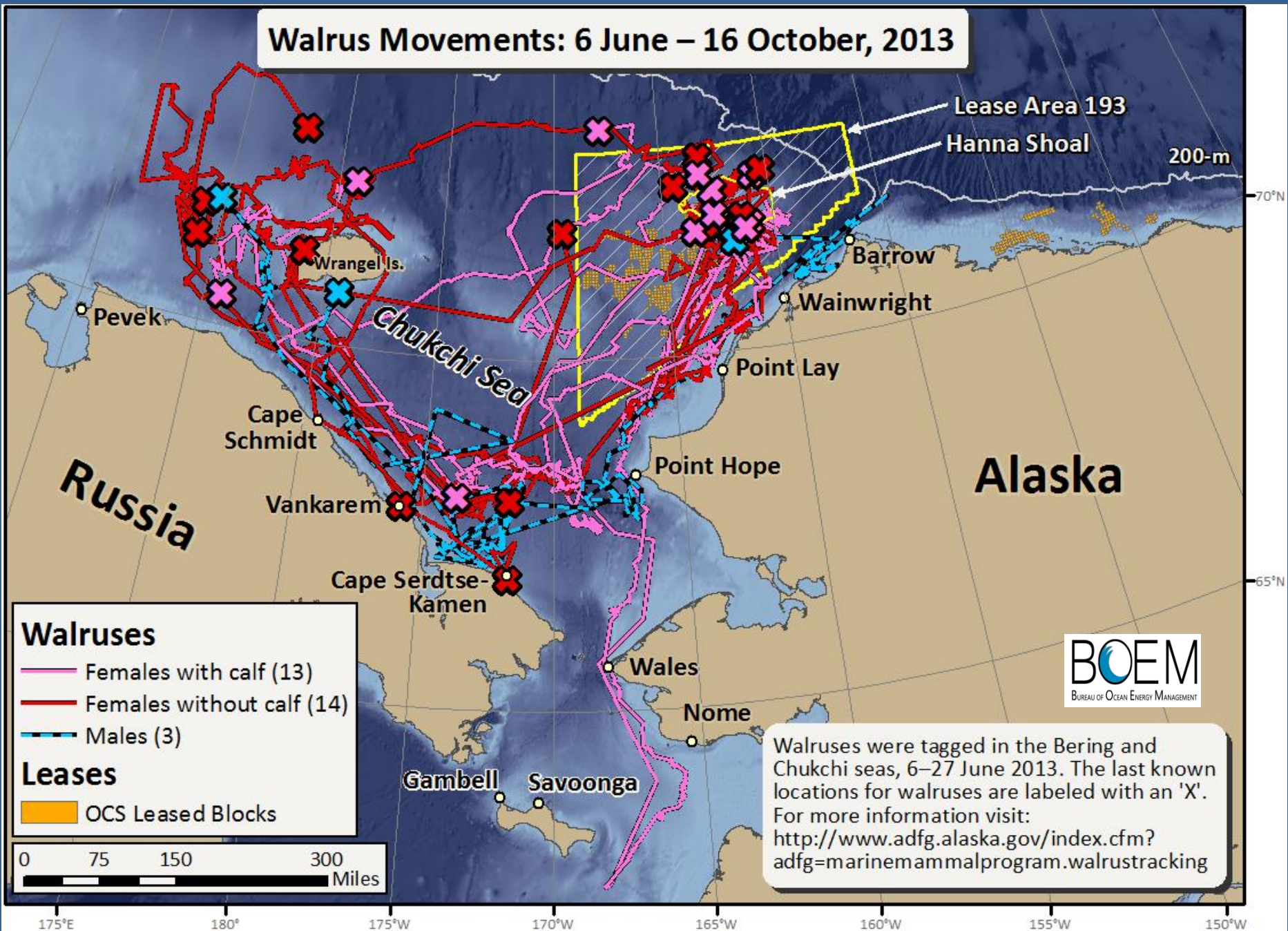


# Walrus Tagging



USFWS Permit #MA220876

# Walrus Movements: 6 June – 16 October, 2013



Lease Area 193  
Hanna Shoal  
200-m

**Walruses**

- Females with calf (13)
- Females without calf (14)
- Males (3)

**Leases**

- OCS Leased Blocks

Walruses were tagged in the Bering and Chukchi seas, 6–27 June 2013. The last known locations for walruses are labeled with an 'X'. For more information visit:  
<http://www.adfg.alaska.gov/index.cfm?adfg=marinemammalprogram.walrustracking>



# Pacific Walrus Harvest Sampling



## Partners:

Eskimo Walrus Commission, Native Villages and hunters of Gambell and Savoonga, and U.S. Fish and Wildlife Service.



# Samples/Information Collected

- Liver, kidney, blubber, muscle for contaminants
- Teeth for aging



- Stomach content for diet and toxic algae
- Blood for disease screening

# Ice Seal Tagging

## Partners:

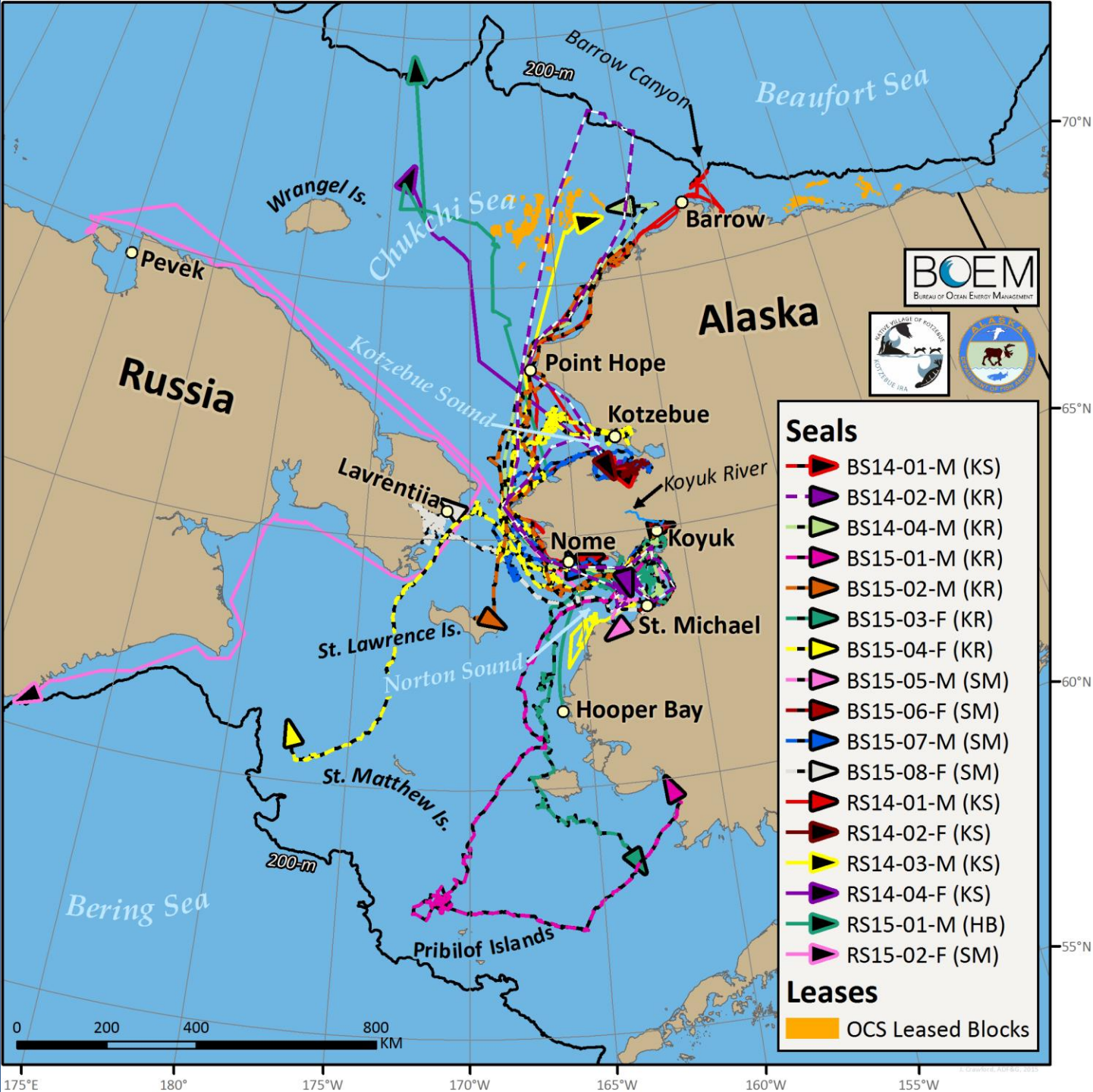
Ice Seal Committee,  
North Slope Borough,  
Marine Mammal Lab,  
Kathy Frost, and the  
Native Villages of  
Kotzebue, Paimiut,  
Koyuk, Scammon Bay,  
and Nuiqsut



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# Ice Seal Harvest Sampling



Ringed



Bearded



Ribbon



Spotted



# Samples/Information Collected

- Physical measurements for body condition
- Teeth for aging
- Stomachs for diet analysis
- Liver, kidney, blubber, muscle for contaminants
- Heart, lungs, liver, gall bladder, intestine for parasites
- Blood for disease
- Female reproductive tracts for productivity

# Traditional Knowledge



## Traditional Knowledge: Seals and Seal Hunting

Community: \_\_\_\_\_

Surveyor name: \_\_\_\_\_

Date: \_\_\_\_\_

Household name: \_\_\_\_\_

When (what year) did you first begin to hunt for seals? \_\_\_\_\_  
year,

When was the last time you tried to catch (hunted) seals? \_\_\_\_\_  
year, month

I want to ask you some questions about each of the different kinds of seals that you hunt.

### Ringed Seals

Has the number of ringed seals (population) changed from when you first started hunting?  
(Circle one) More now Less now Same Don't know

Are ringed seals found in the same areas or different areas now, compared to several years ago?  
\_\_\_\_\_

Which months are the best for hunting ringed seals? (Circle all that apply)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Are there certain months when you avoid catching ringed seals? (Circle all that apply)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Why? \_\_\_\_\_  
\_\_\_\_\_

Do you hunt ringed seals the same months now as you used to? Yes No

If no, why? \_\_\_\_\_  
\_\_\_\_\_

Have you had to change anything about the way you hunt for ringed seals? Yes No

If yes, what? \_\_\_\_\_  
\_\_\_\_\_

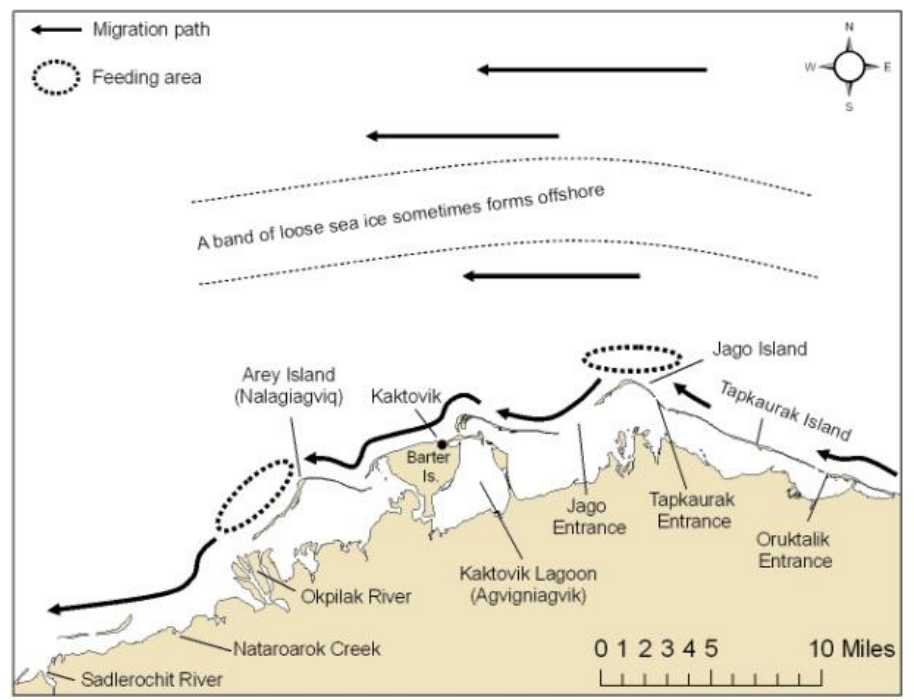
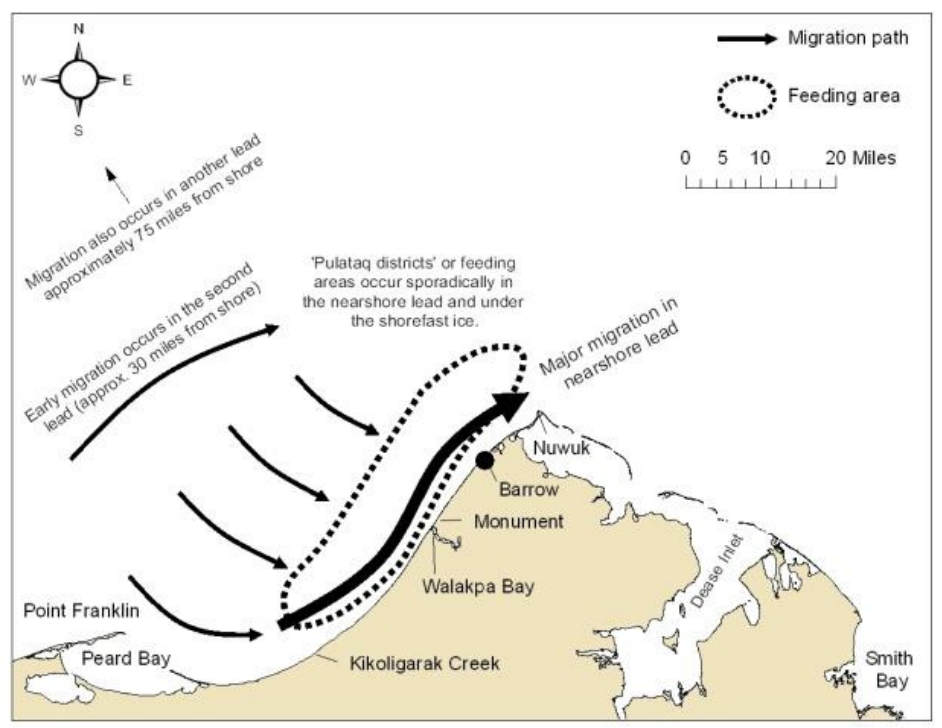
Do you try to catch certain types of ringed seals? Males Females Small Big Old Young

Why? \_\_\_\_\_  
\_\_\_\_\_

Have you noticed anything different about the ringed seals from when you first started hunting (such as amount of fat, condition of skin, types or number of sores or growths)? \_\_\_\_\_  
\_\_\_\_\_

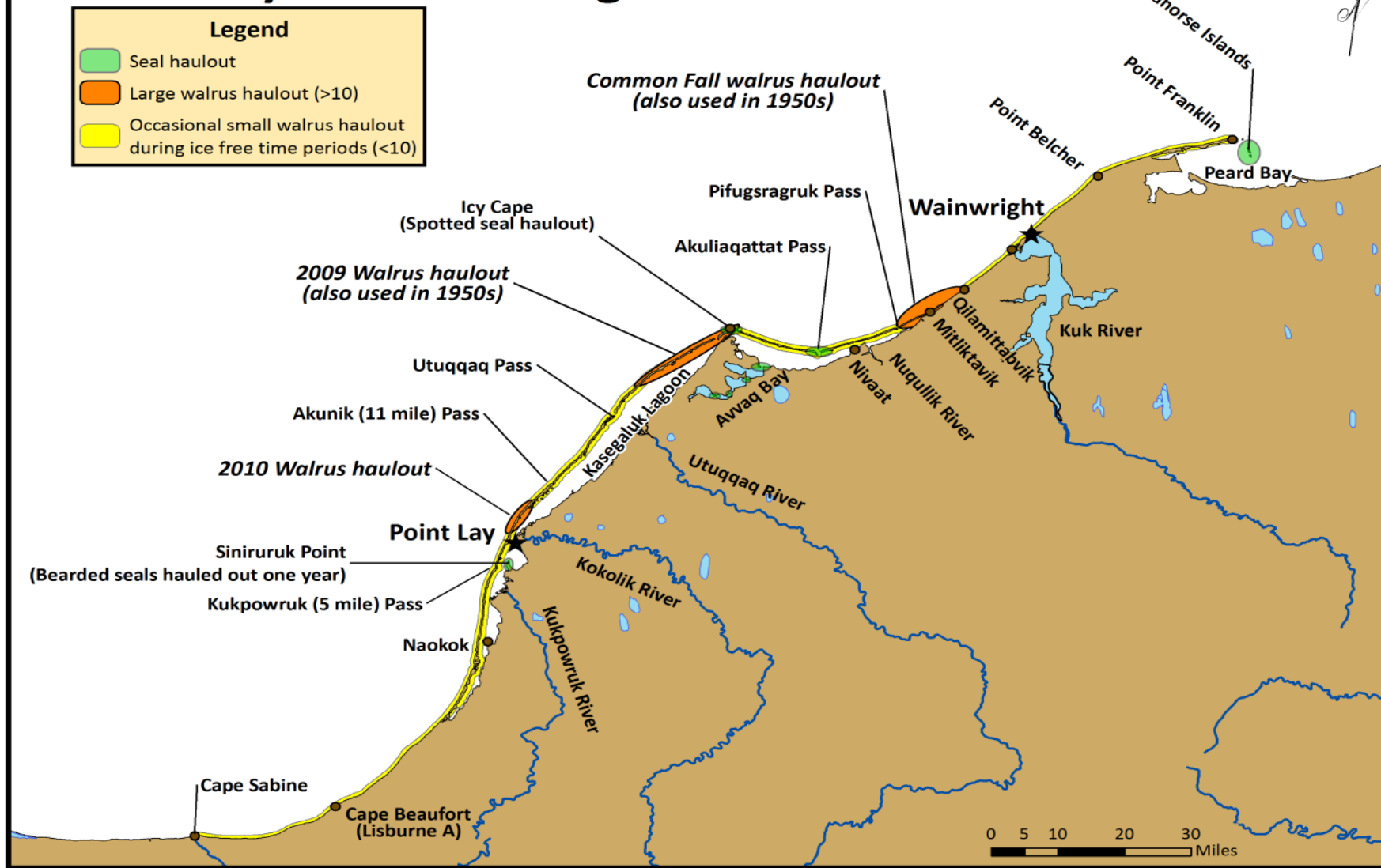
Is there anything else you want to tell me about ringed seals? \_\_\_\_\_

# Traditional Knowledge of Bowhead Whale Migratory Patterns near Point Barrow and Kaktovik



# Traditional Knowledge Regarding Walrus

## Point Lay and Wainwright Area





**Cite this article:** Huntington HP, Quakenbush LT, Nelson M. 2016 Effects of changing sea ice on marine mammals and subsistence hunters in northern Alaska from traditional knowledge interviews. *Biol. Lett.* **12**: 20160198.

<http://dx.doi.org/10.1098/rsbl.2016.0198>

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**Subject Areas:**

ecology

**Keywords:**

Arctic marine mammals, sea ice, Alaska, indigenous communities, traditional knowledge

## Global change biology

# Effects of changing sea ice on marine mammals and subsistence hunters in northern Alaska from traditional knowledge interviews

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Marine mammals are important sources of food for indigenous residents of northern Alaska. Changing sea ice patterns affect the animals themselves as



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# Evaluating the Effects of Climate Change on Indigenous Marine Mammal Hunting in Northern and Western Alaska Using Traditional Knowledge

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