

# Sound Conservation: Acoustic monitoring of beluga whales in Cook Inlet, Alaska

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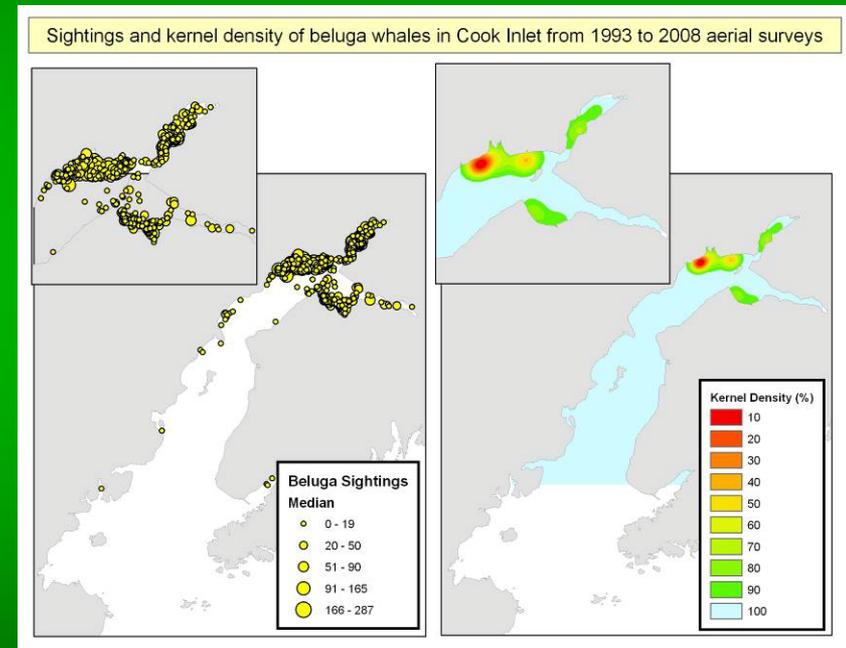
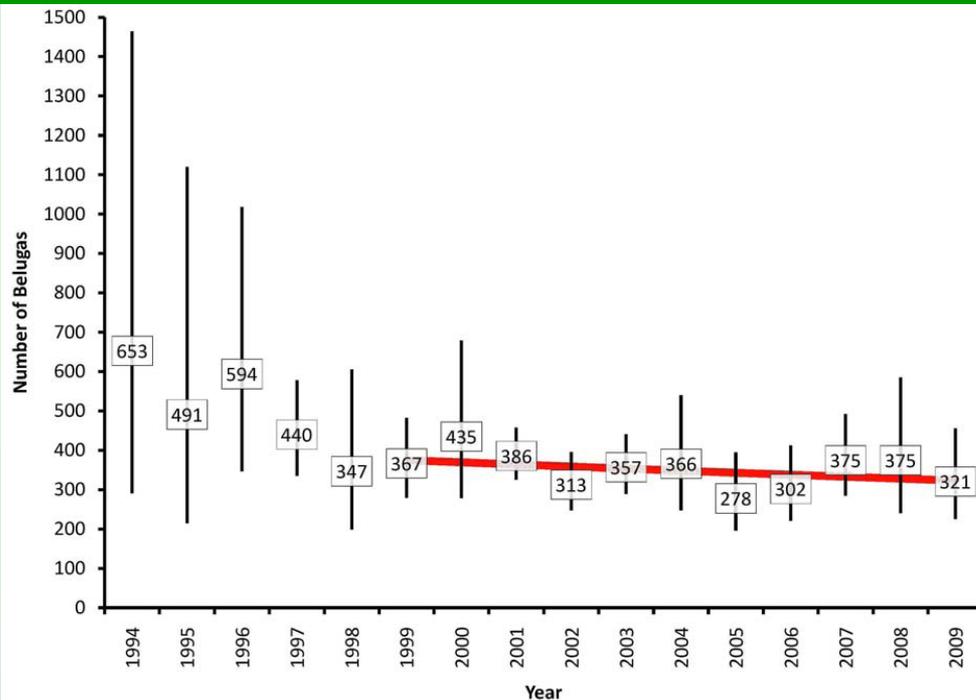
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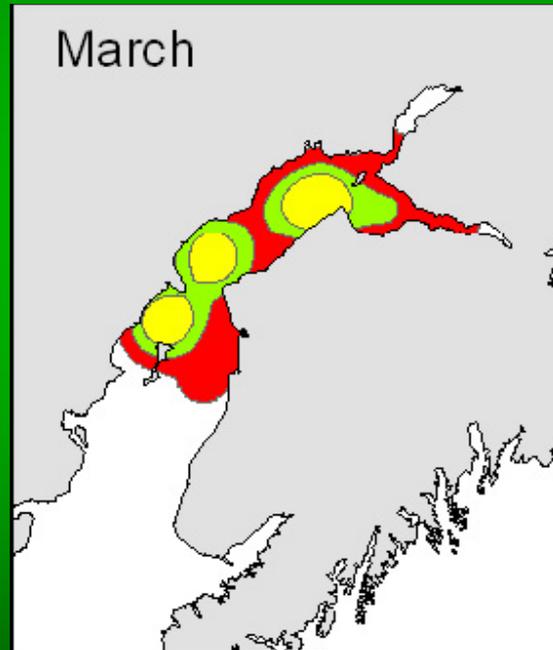
# BACKGROUND:

➤ Counts of CIB obtained during a ~10-day aerial survey in June are used to estimate population abundance, and summer distribution



# BACKGROUND:

- **Locations of satellite tagged CIB have provided limited information on seasonal distribution and habitat use**



# BACKGROUND:

➤ **The factors impeding the population recovery of CIB are unknown, and knowledge of their biology, ecology, and essential habitats are quite limited**



# OBJECTIVES:

Using passive acoustic monitoring...

1. Detect CIB calls to improve the understanding of their seasonal presence in the upper, mid, and lower regions of CI
2. Detect calls from killer whales, a known predator of CIB, to improve the understanding of their seasonal presence in CI
3. Provide a record of seasonal ambient noise levels, both natural and anthropogenic.

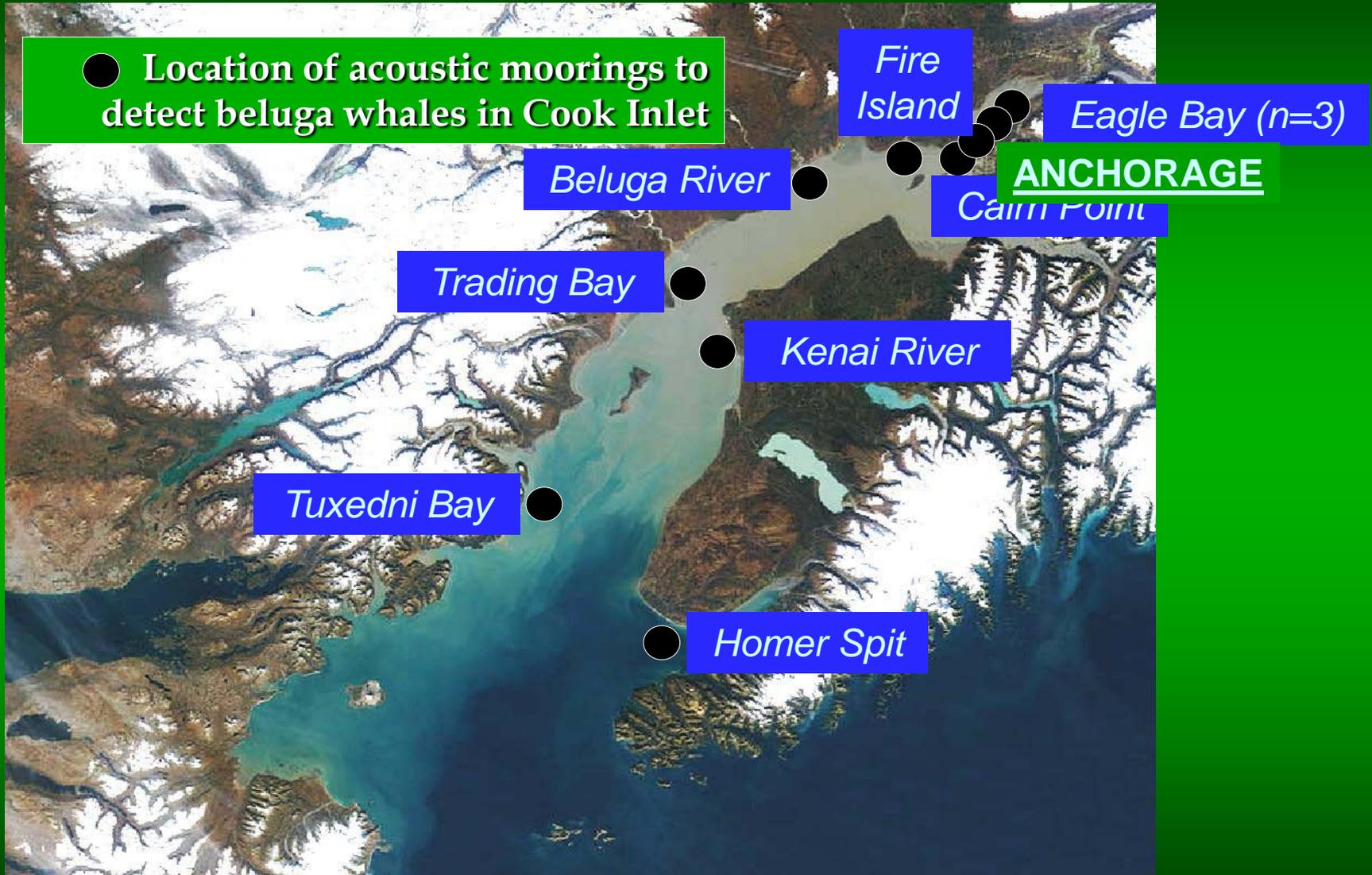
# **OBJECTIVES:**

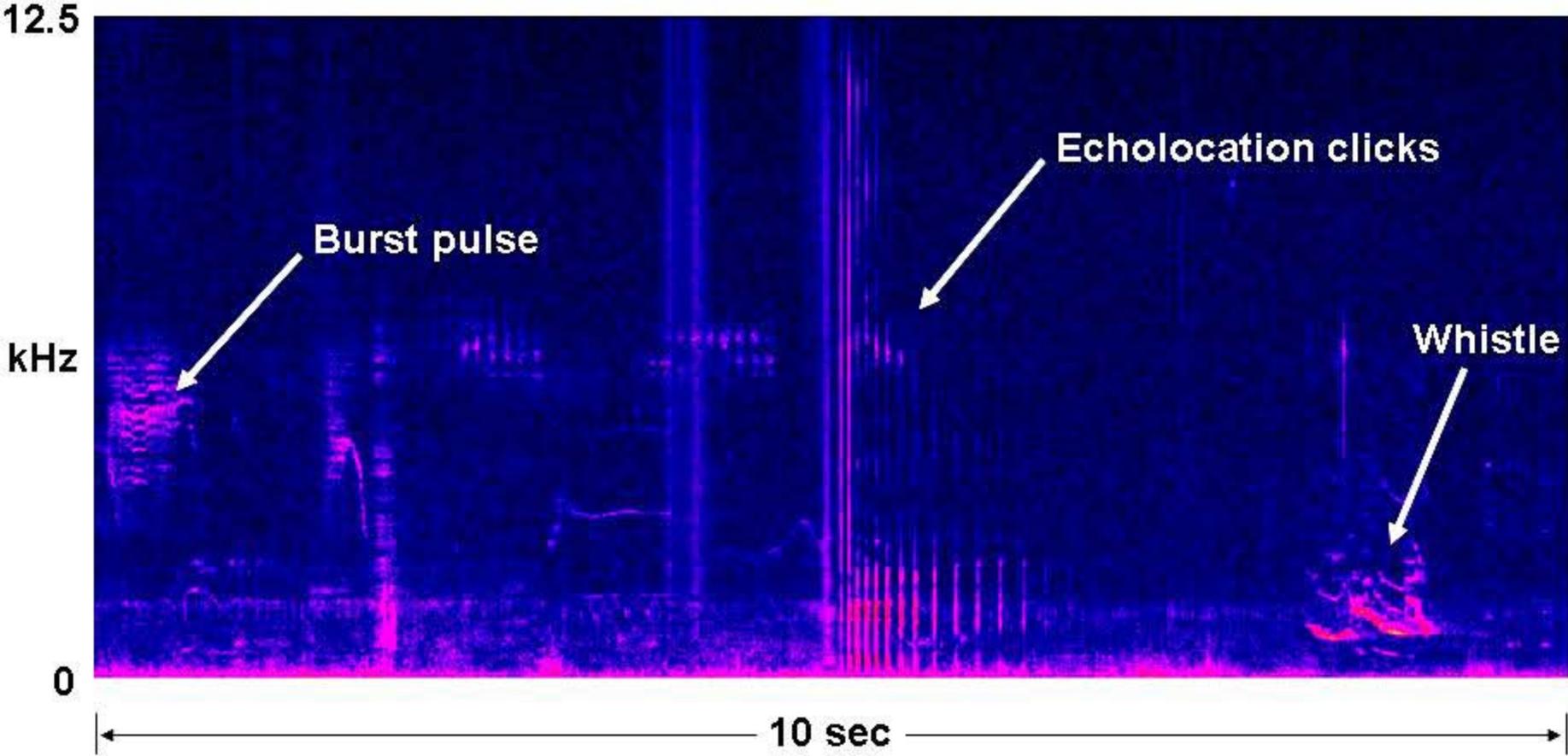
**Using passive acoustic monitoring...**

**4. In combination with visual observations of CIB to examine relationships between CIB acoustics and CIB behavior.**

***That is – are specific acoustic signals associated with specific behaviors?***

# METHODS:



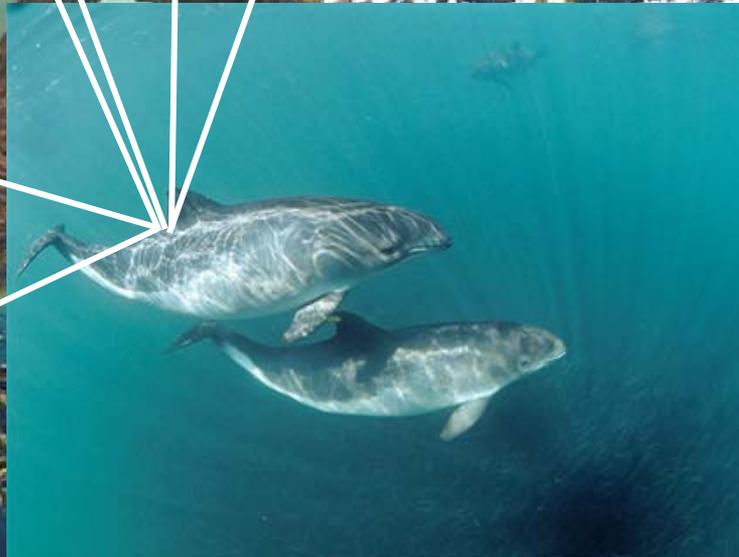
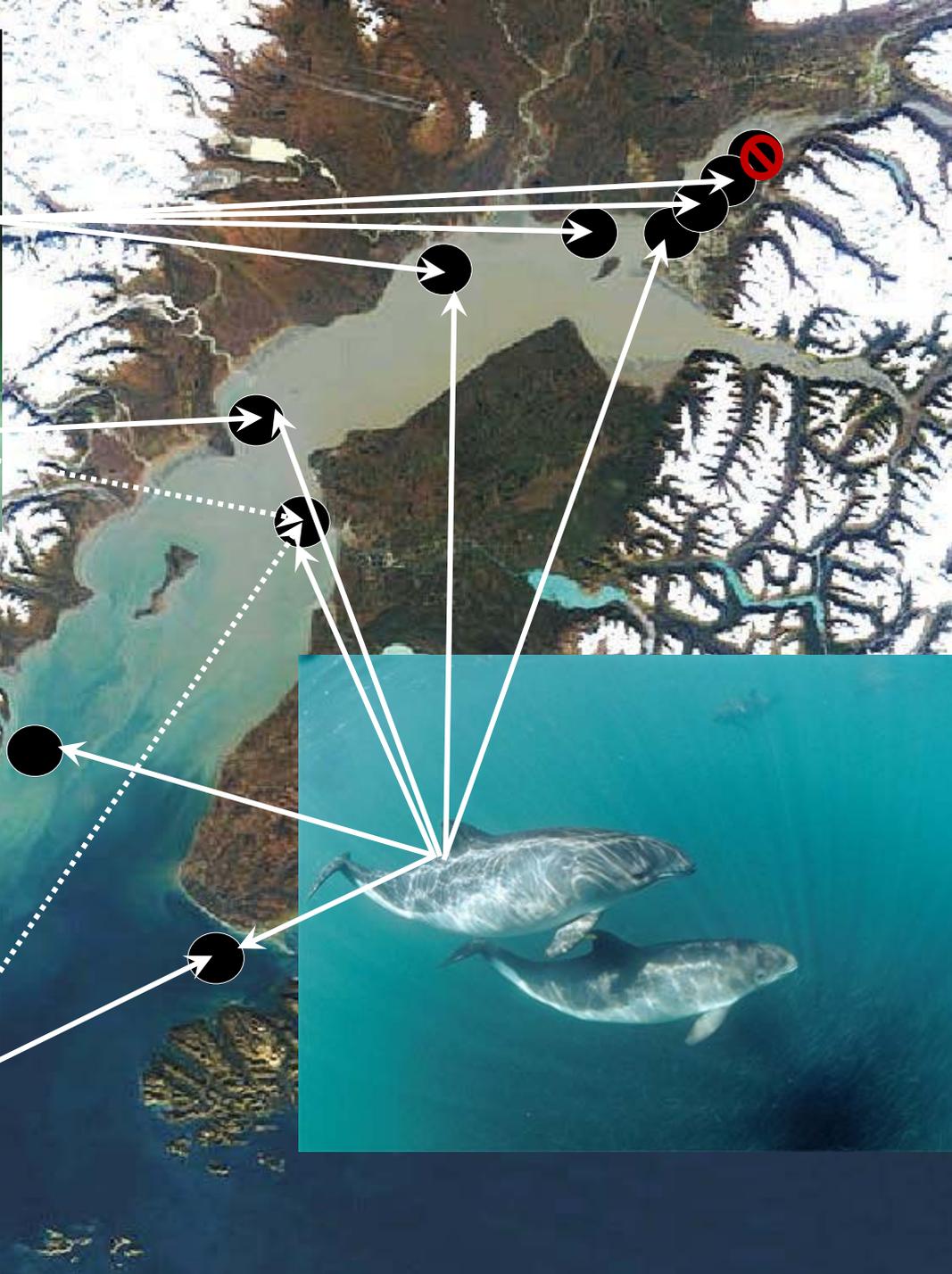


# METHODS:



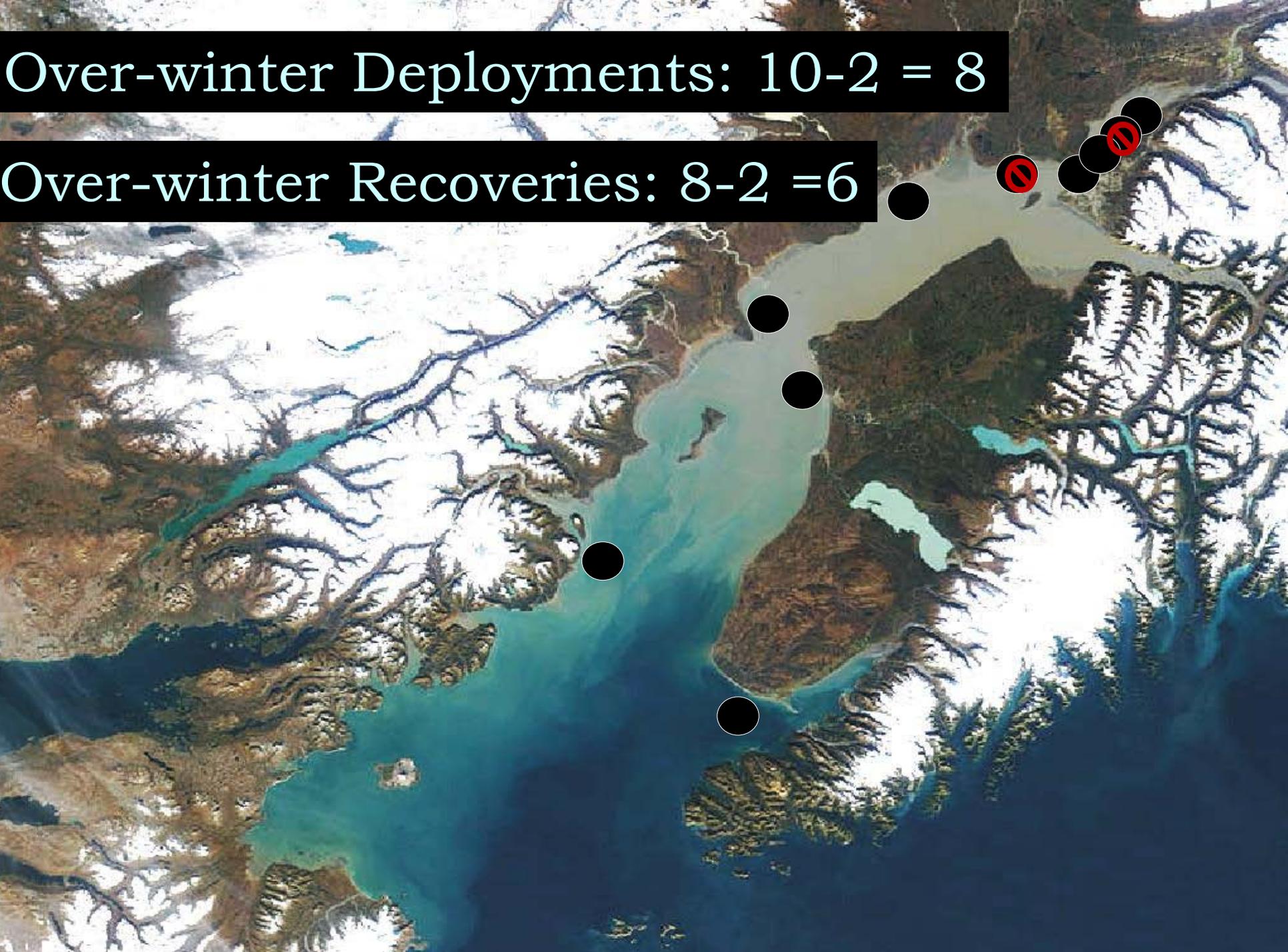
**“Wood  
Sandwich”**

# Preliminary Results for June-October 2009

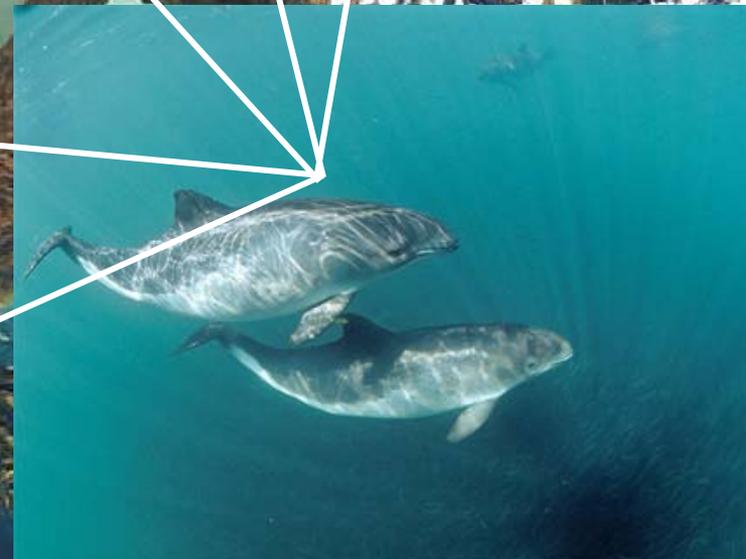
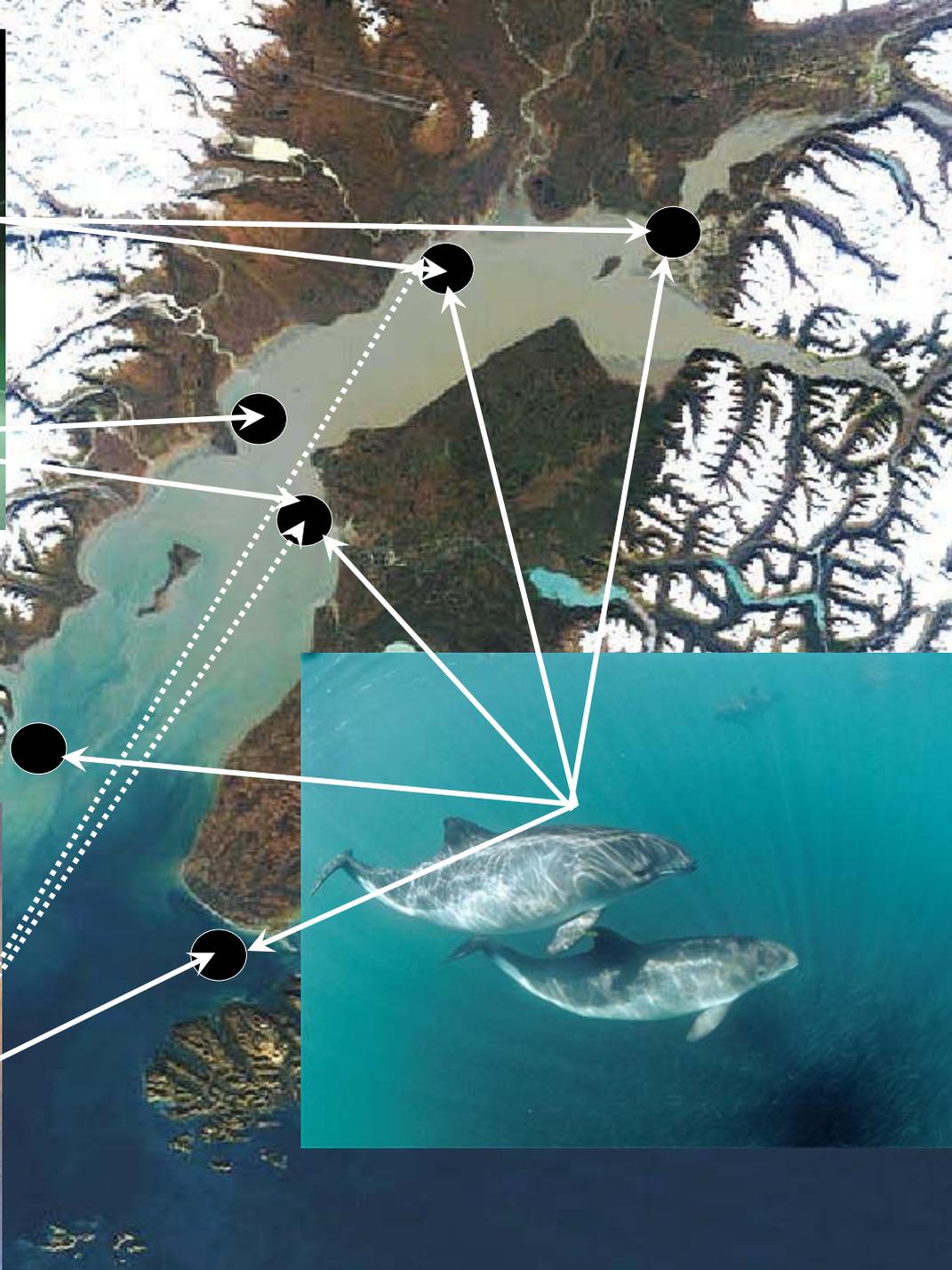


Over-winter Deployments:  $10 - 2 = 8$

Over-winter Recoveries:  $8 - 2 = 6$



# Preliminary Results for October 2009-May 2010

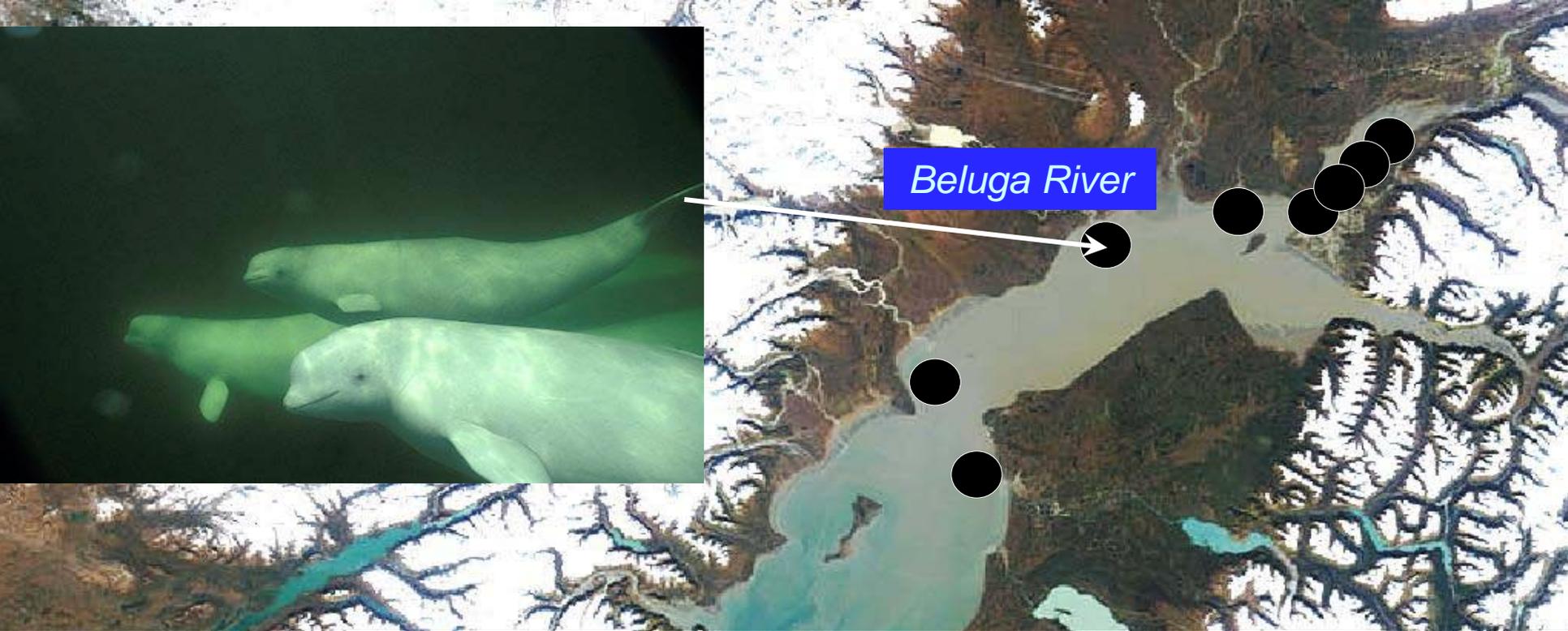






## *Current Analyses ...*

- 1. Comparison between EAR and POD detections**
- 2. Comparison of acoustic and visual detection patterns**



Click rate (clicks x second)

Click rate variation over ~10 seconds indicative of a 'feeding click train' from the Beluga River mooring

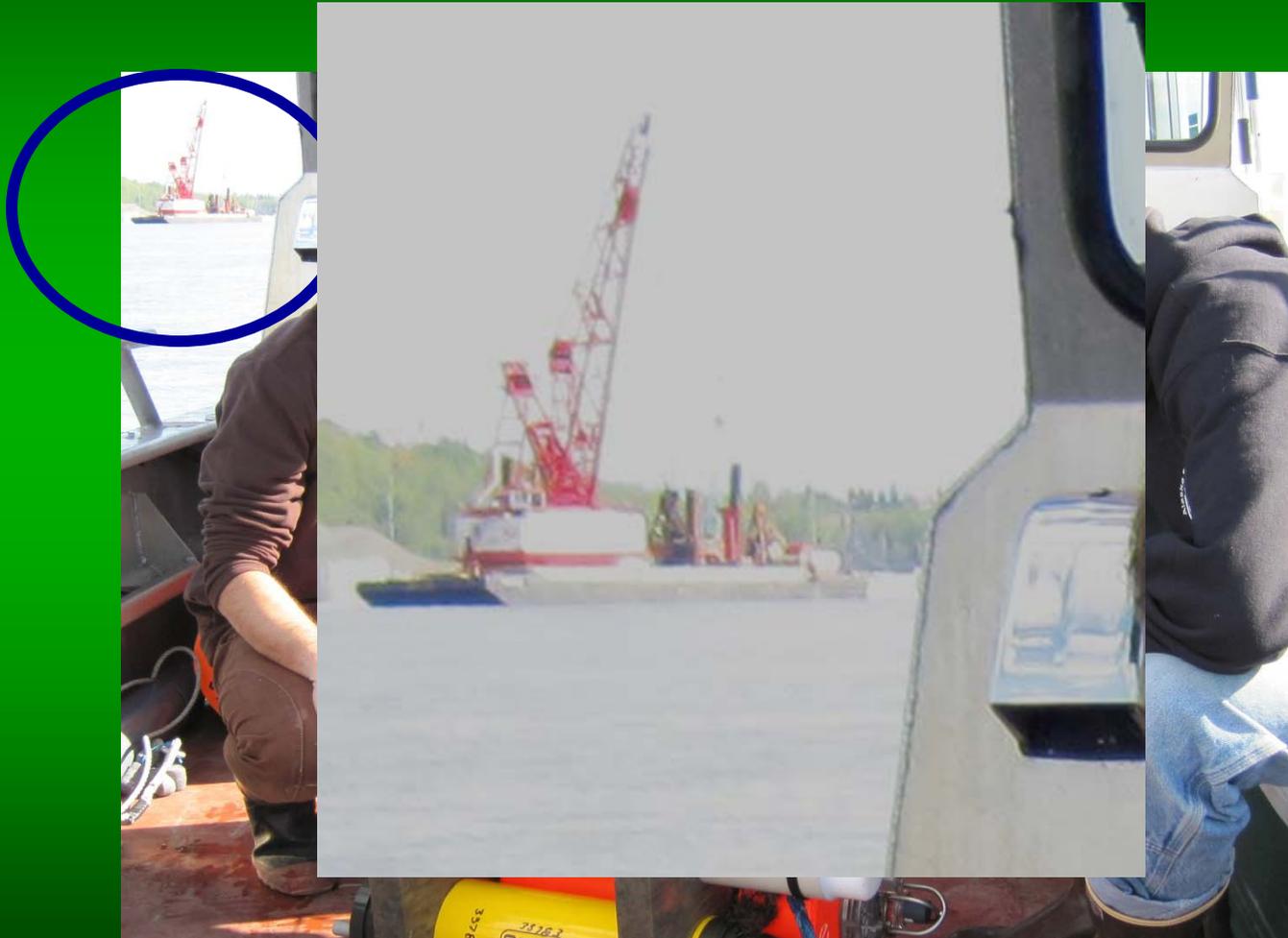
Terminal buzzes are an acoustic behavior indicative of foraging behavior



## *Current Analyses ...*

- 1. Comparison between EAR and POD detections**
- 2. Comparison of acoustic and visual detection patterns**
- 3. Relationships between detections and ambient noise; e.g., Cairn Point**

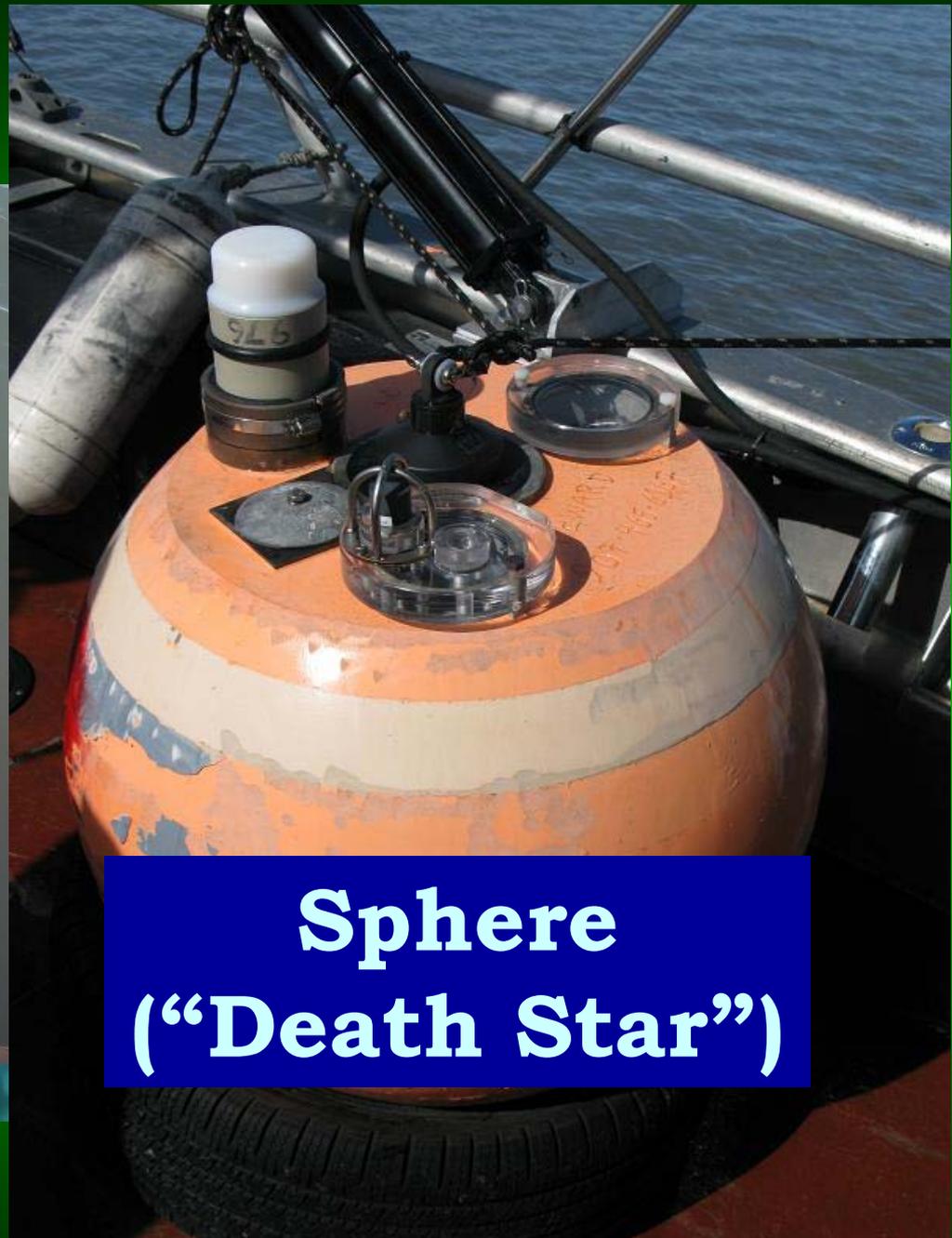
# Relationships between detections and ambient noise; e.g., Cairn Point







**“Foam  
Sandwich”**



**Sphere  
 (“Death Star”)**



**Cook Inlet Belugas**  
*Greatest Hits, Volume 1* 📢

