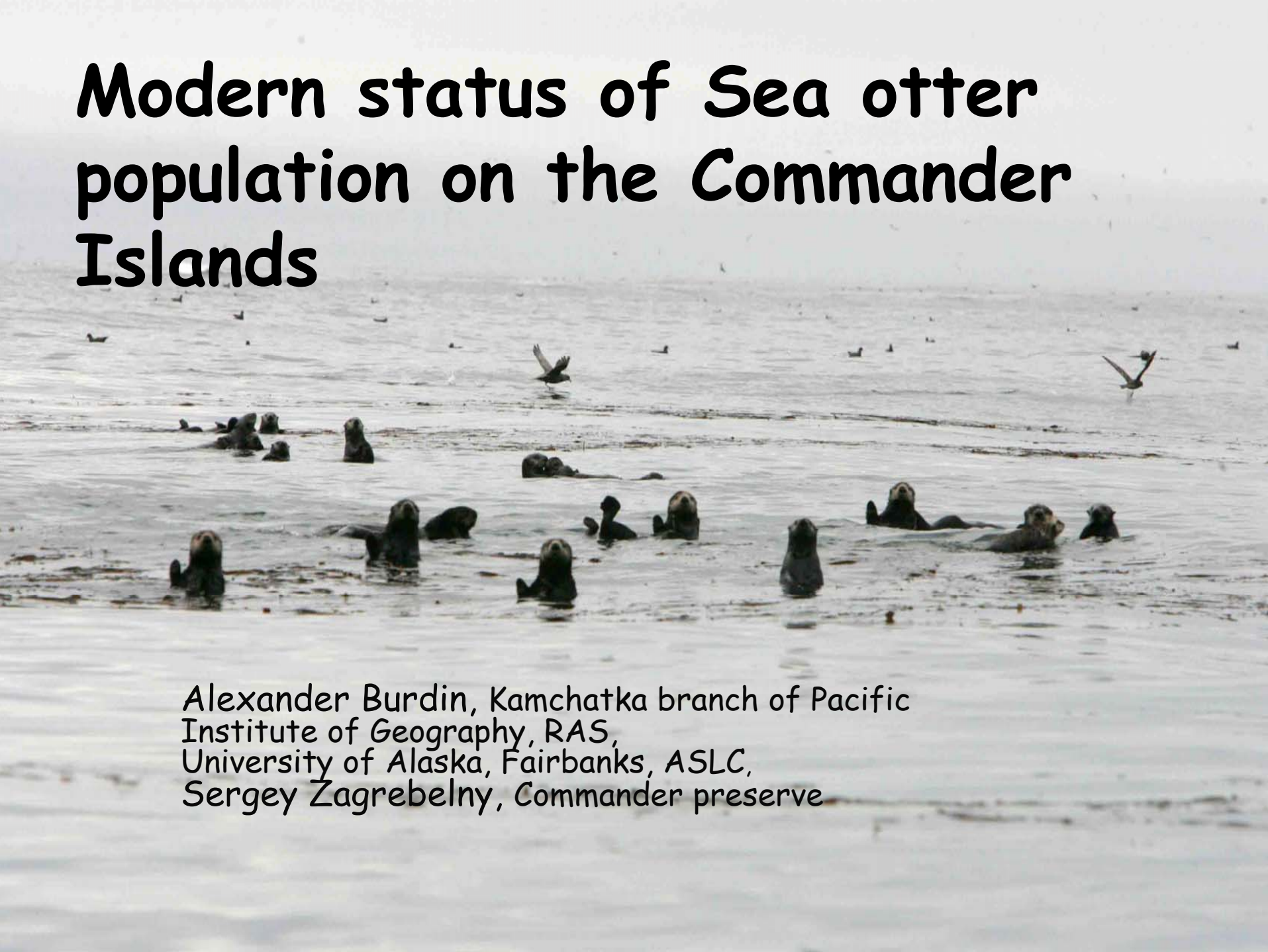
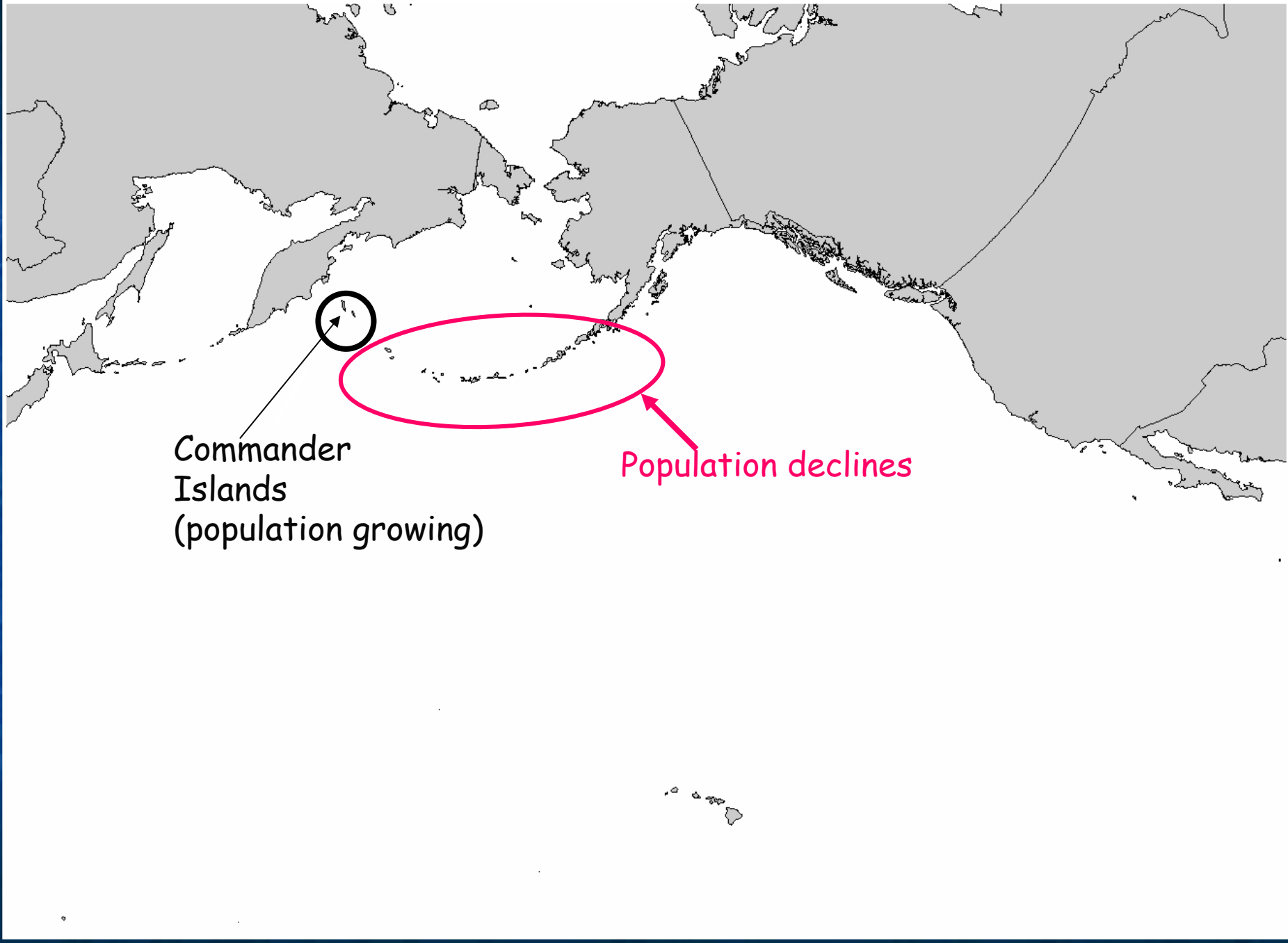
Modern status of Sea otter population on the Commander Islands



Alexander Burdin, Kamchatka branch of Pacific Institute of Geography, RAS,
University of Alaska, Fairbanks, ASLC,
Sergey Zagrebelny, Commander preserve


Commander
Islands
(population growing)
Population declines

Background

- Only 200 nm strait between Commander Island and western Aleutian islands.
- Dramatic decline of sea otter populations (up to 90% and more reduction), and some other marine mammal species (harbor seal, SSL) across the Aleutian Archipelago and Alaska Peninsula during past several decades.
- Increasing (13%/year) sea otter population on the Commander Islands.

Research Objectives

Commander-Aleutian islands comparisons

- to better understand ultimate reasons for the decline
- to characterize physiology, behavior, and demography of sea otter population near K.
- to expand studies of sea otter-kelp forest interactions

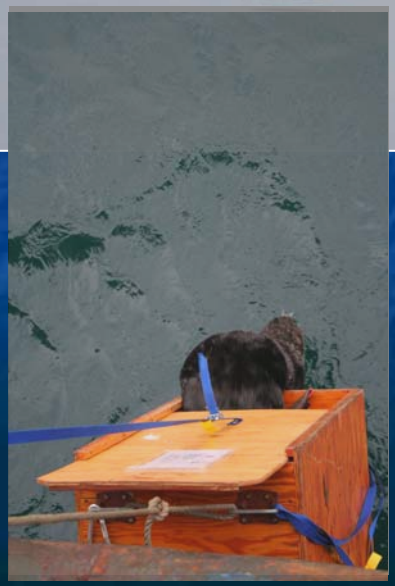
2004-2005 winter field work

Sea otter mortality, disease, physical conditions monitoring:

Carcasses collection / capture :

- Age/sex composition
- Necropsy: disease, causes of death, virology, female reproductive tracts, parasites, stomach contents
- Biosampling

2006 summer work on the Bering Island



Totally 33 sea otters were caught using nets and release.

2006 summer work on the Bering Island

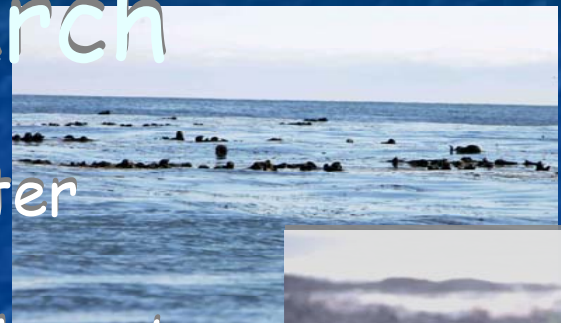
27 sea otters (22 females and 5 males) were instrumented with TDR and radio tag

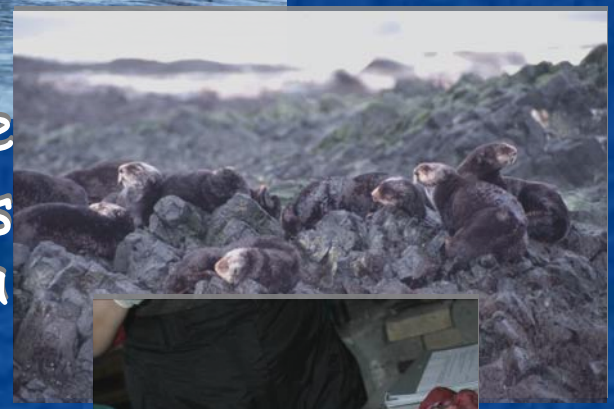
Ongoing investigation and future research

Goal 1. Ecosystem research:

- long-term changes in near shore communities under sea otter predation.
- availability and abundance of sea otter food recourses.
- analysis of TDR's data.
- direct observation on feeding sea otters.
- scat analysis.
- Retrospective analysis of sea otter feeding habits on the Commanders.

Ongoing investigation and future research

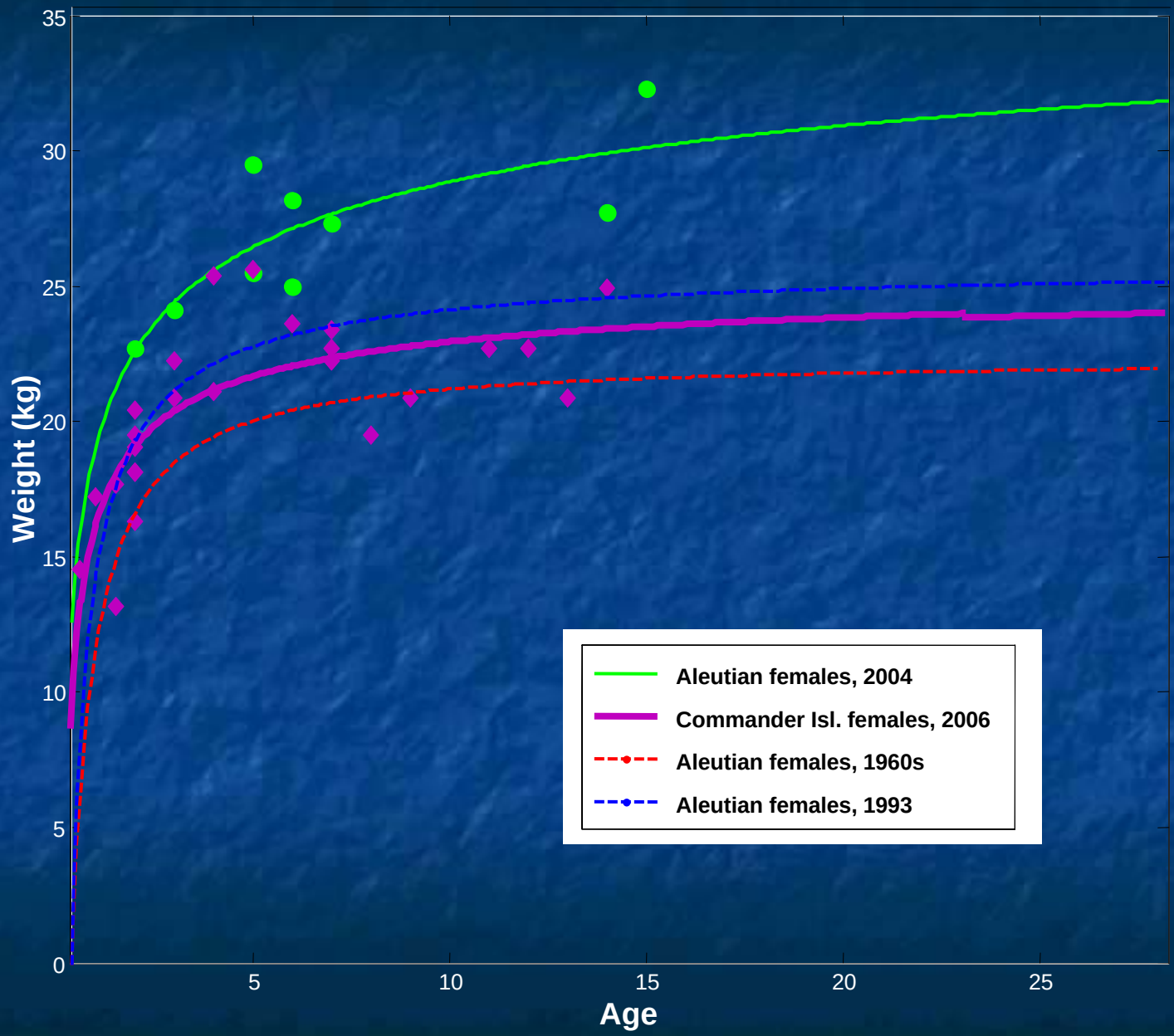




Goal II. Monitoring of sea otter population:

- annual survey (skiff and shore base
- tracking of radio tagged sea otters (movement and observation on foca feeding animals).
- mortality (sex/age composition. cause of mortality, disease monitoring).
- birthrate and survival of young sea otters.

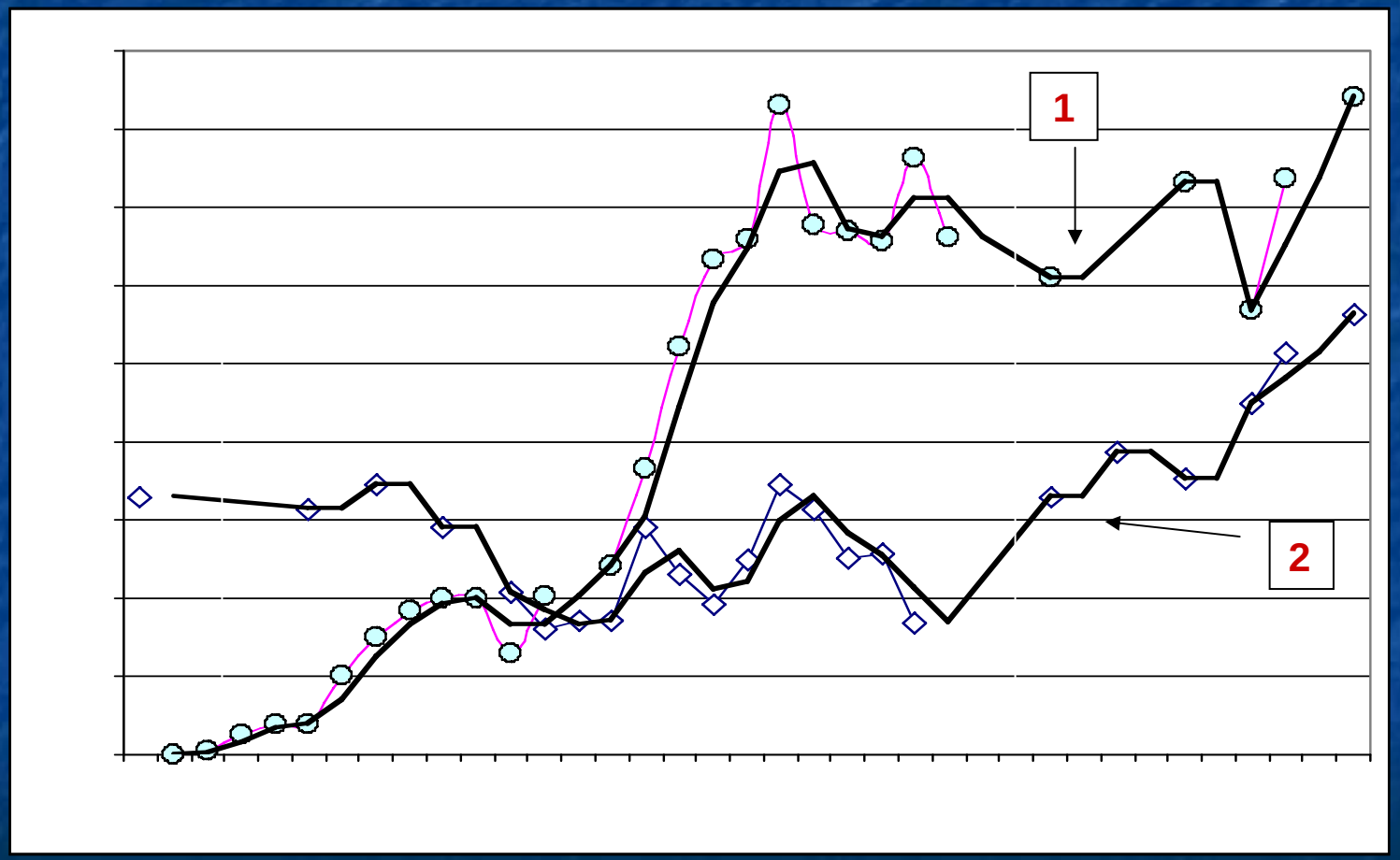
Sea Otter Body Condition Comparison



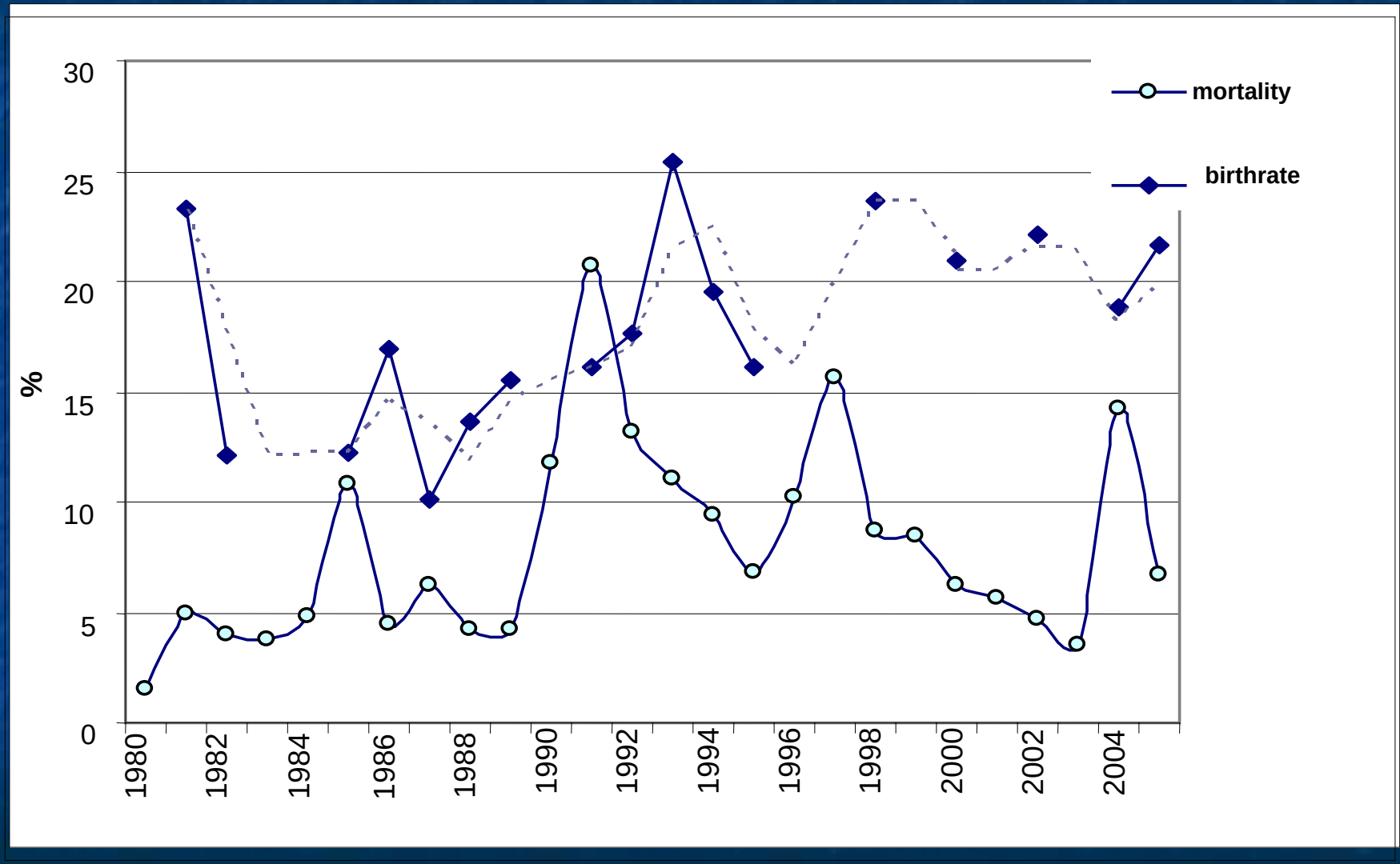
Results of sea otter survey on the Commander Islands in 2005 and 2007

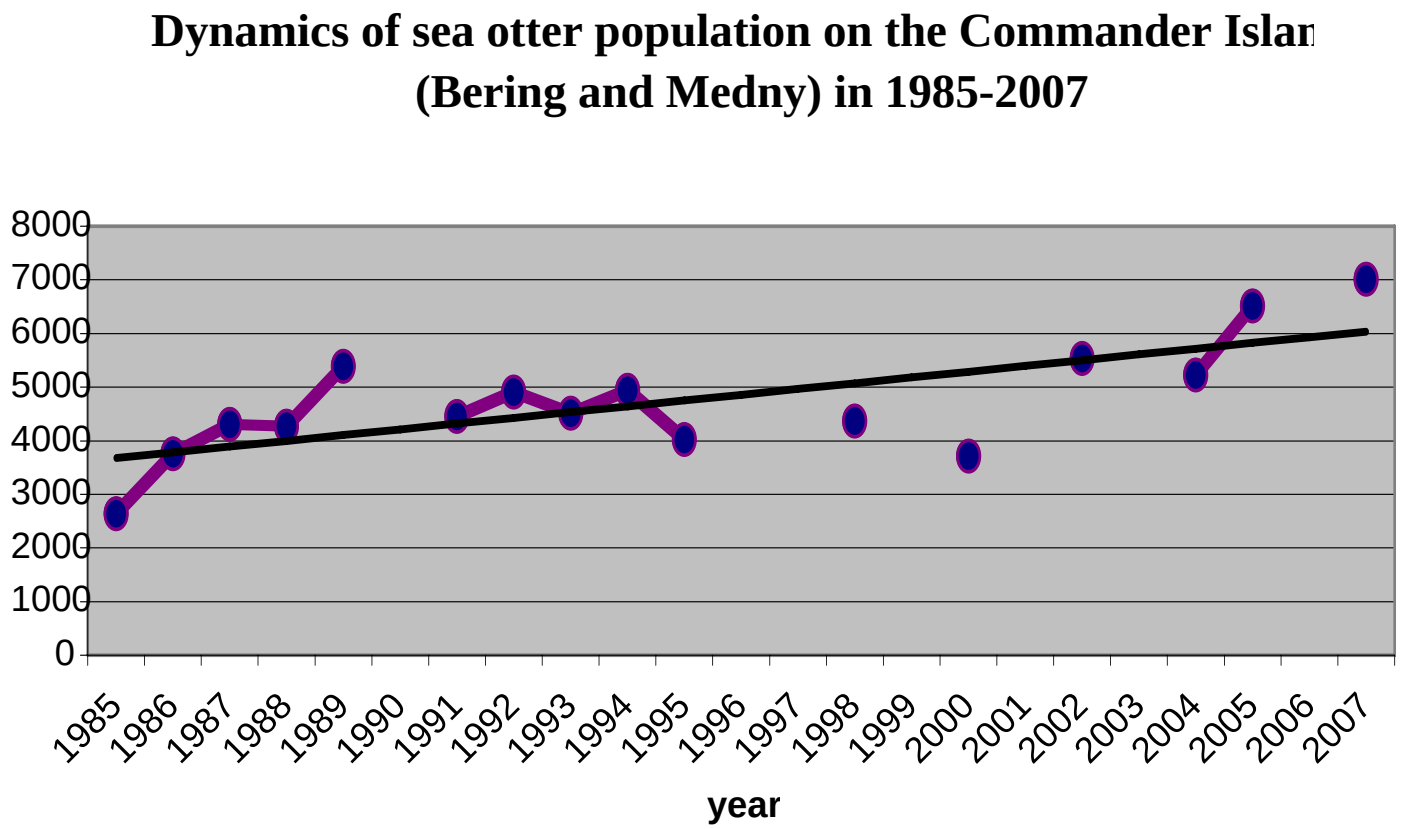
	2005		2007	
	Total number (with pups)	Pups	Total number (with pups)	Pups
Bering	3948	783	4218	996
Medny	2502	665	2813	779
Total on the Commanders	*6450*	*1448*	*7031*	*1775*

Sea otter numbers on the Commander Islands. Bering (1) and Medny (2) Islands

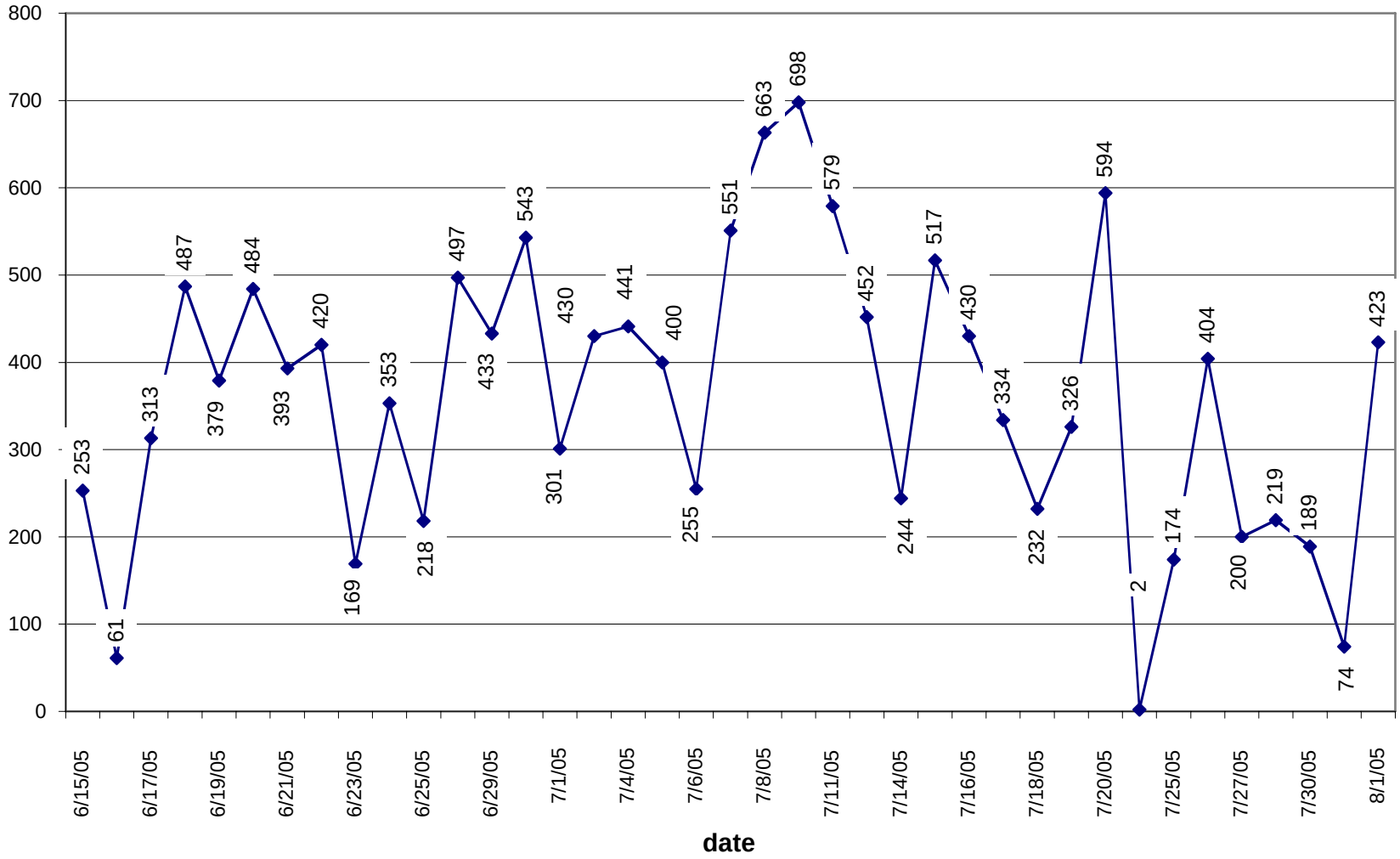


Sea otter mortality and birthrate (%%) on the Bering Island 1980- 2005




Dynamics of sea otter population on the Commander Islan
(Bering and Medny) in 1985-2007
8000
7000
6000
5000
4000
3000
2000
1000
0
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
year

Daily sea otter dynamics on the NW cape (Bering Isl.) in summer 2005.



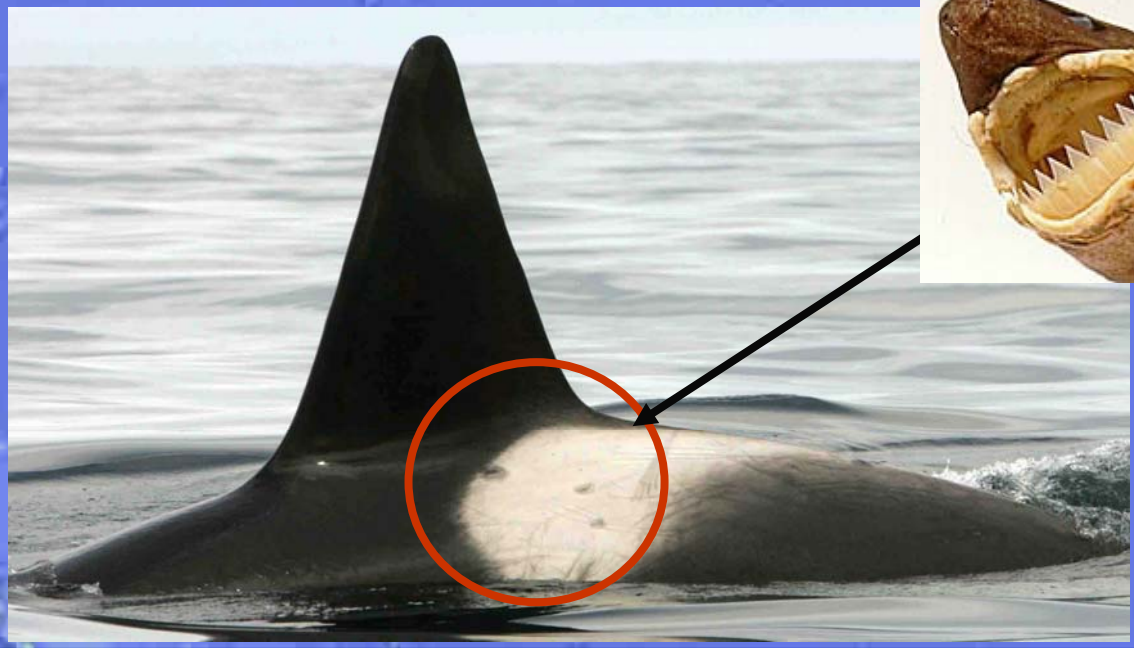
Some factors effecting to the sea otter population status on the Commanders vs. Aleutian.

	Commanders	Aleutian
Human activity	Low	Low
Over/Underestimation of sea otter population abundance in previous years?	Negative	Negative
High survival and birthrate in the past years?	Positive	Negative
Low mortality rate?	Positive	Negative
Immigration?	??	Negative
Killer whales pressure as a predator?	Negative	Positive

Hypotheses

- **"Availability, not selectivity"**
  - All observed transient killer whale attacks happened in specific place and for specific prey.
- **"Shield"**
  - Northern fur seal - is the most common prey of killer whales on the Commander Islands (>200,000).
  - All recorded KW attacks on the Commander Islands happened close to the northern fur seal rookeries and almost all attacks were on Northern Fur Seals.

Approximate northern boarder of cookie-cutter shark distribution



Commander Islands

Aleutian Islands

Conclusion

- The data we have presented shows that the population dynamics of the sea otter populations is different even in the nearby area (Aleutians/Commander Islands).
- 2007 Complete Sea otter survey on the Commander Islands showed that the sea otter population was over 7,000 animals.

Conclusion

- We consider northern fur seal to be the most important prey for transient killer whale predation near the Commander Islands, and other areas where this species is present, protecting other marine mammals species from killer whale predation.
- In areas where fur seals are not abundant or absent, mammal eating Killer whales can be a significant factor of marine mammal declines.


Thank you!
Photo by R. Davis