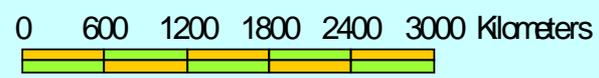


Geographical Extent of Population Decline

What about the neighboring Commander Islands?

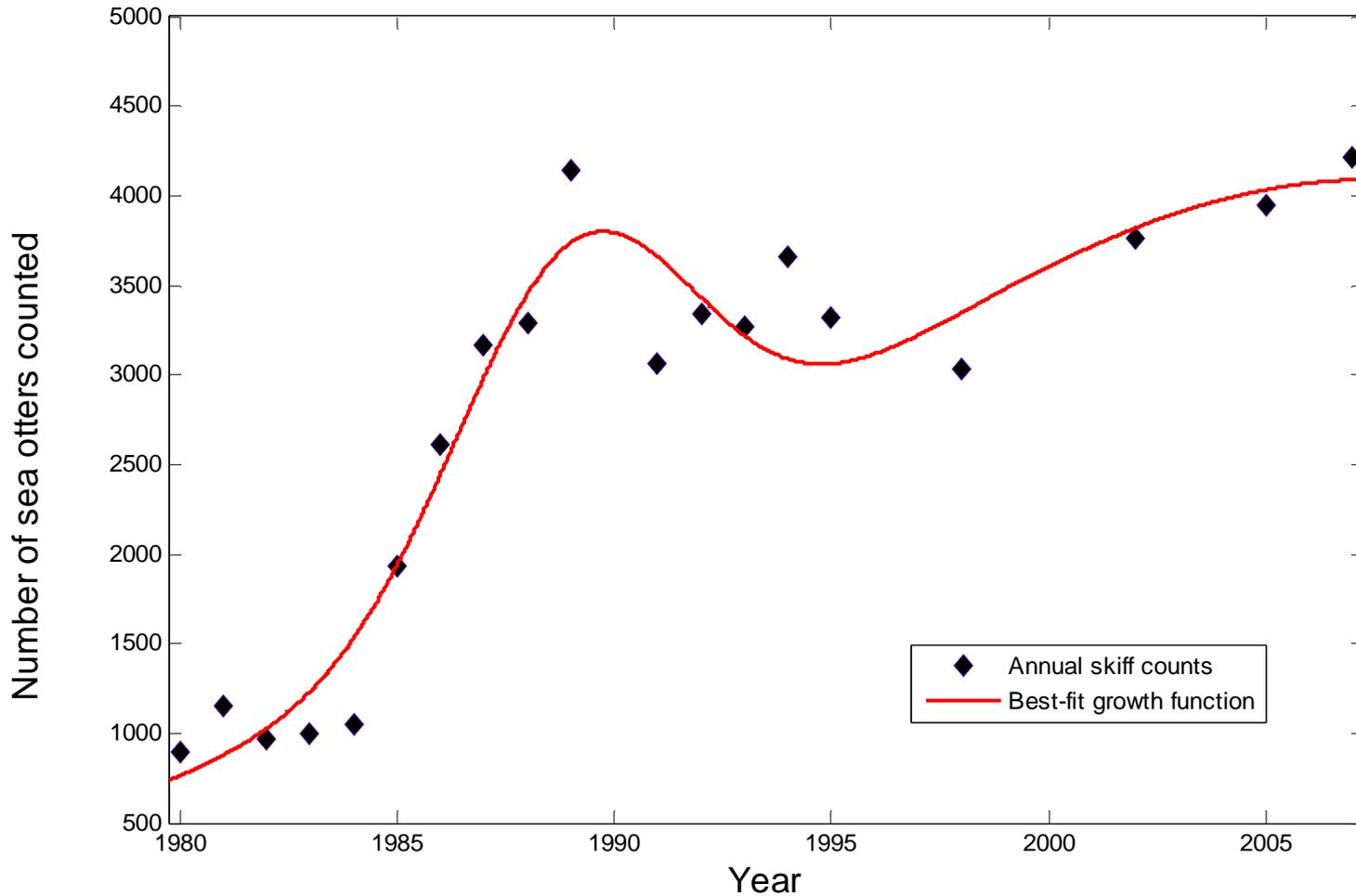
//// Current sea otter range
■ Historical sea otter range



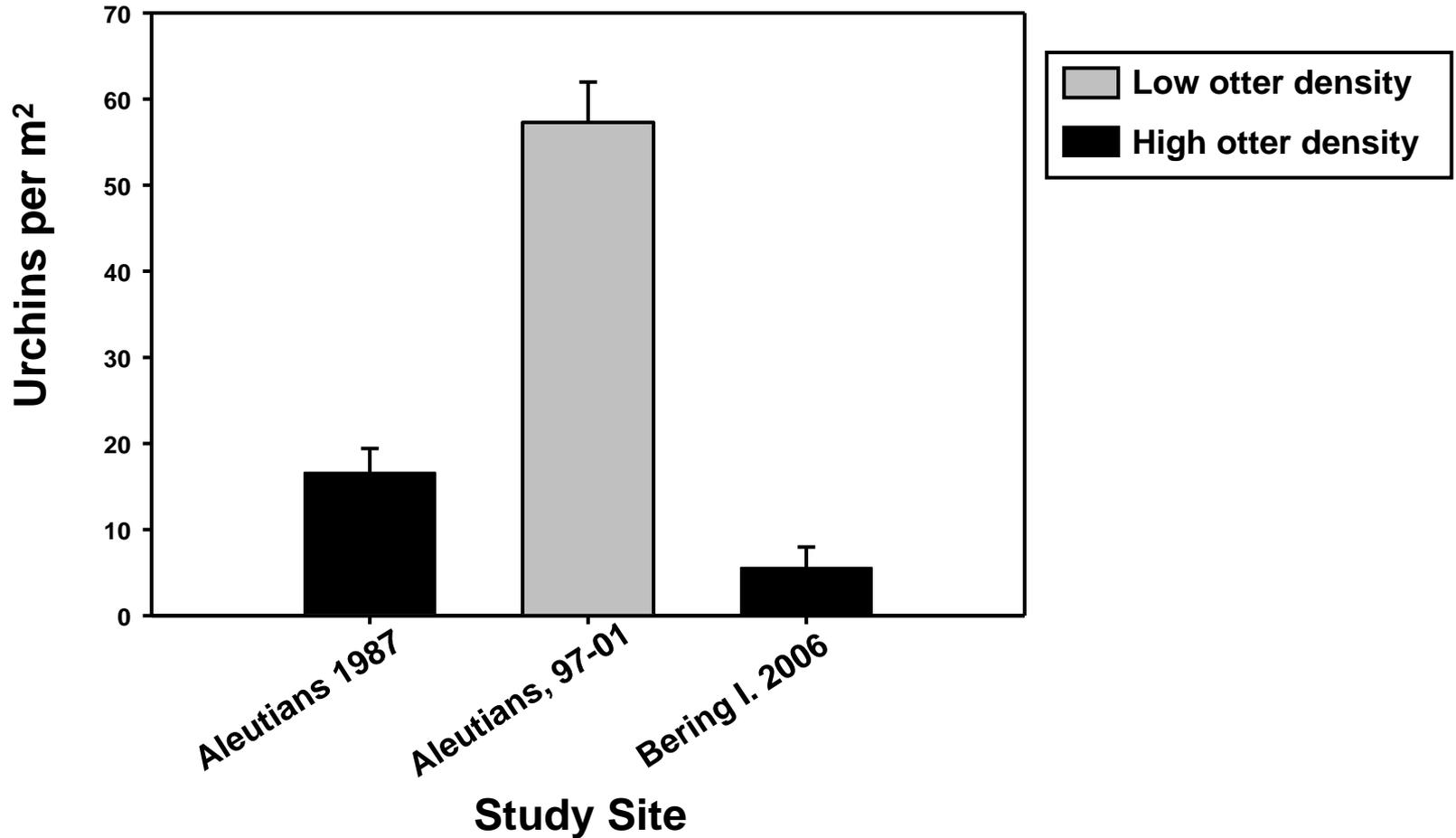
Results

- Population numbers
- Sub-tidal community structure
- Sea otter diet composition
- Body condition
- Habitat use patterns

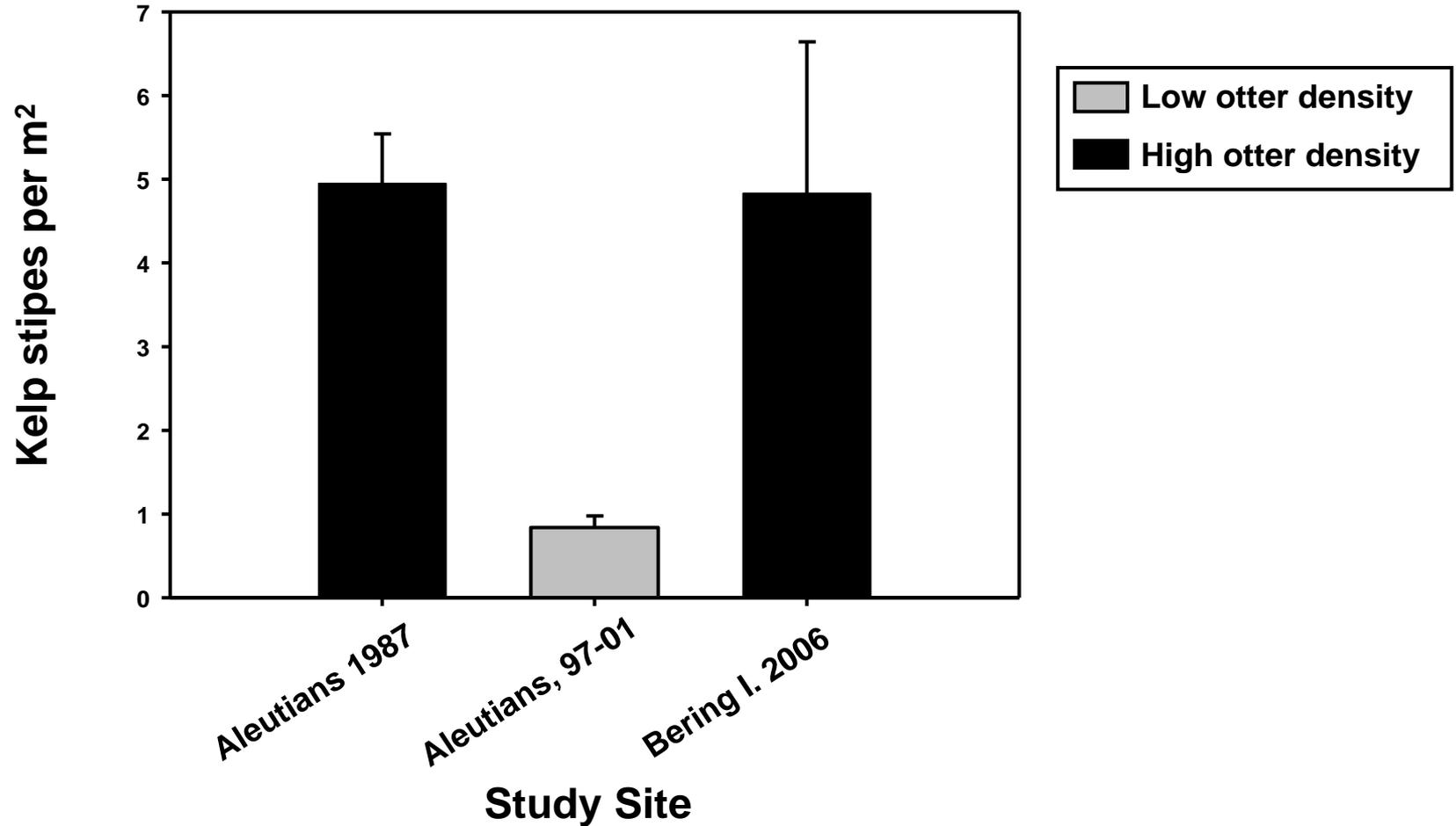
Bering Island population dynamics



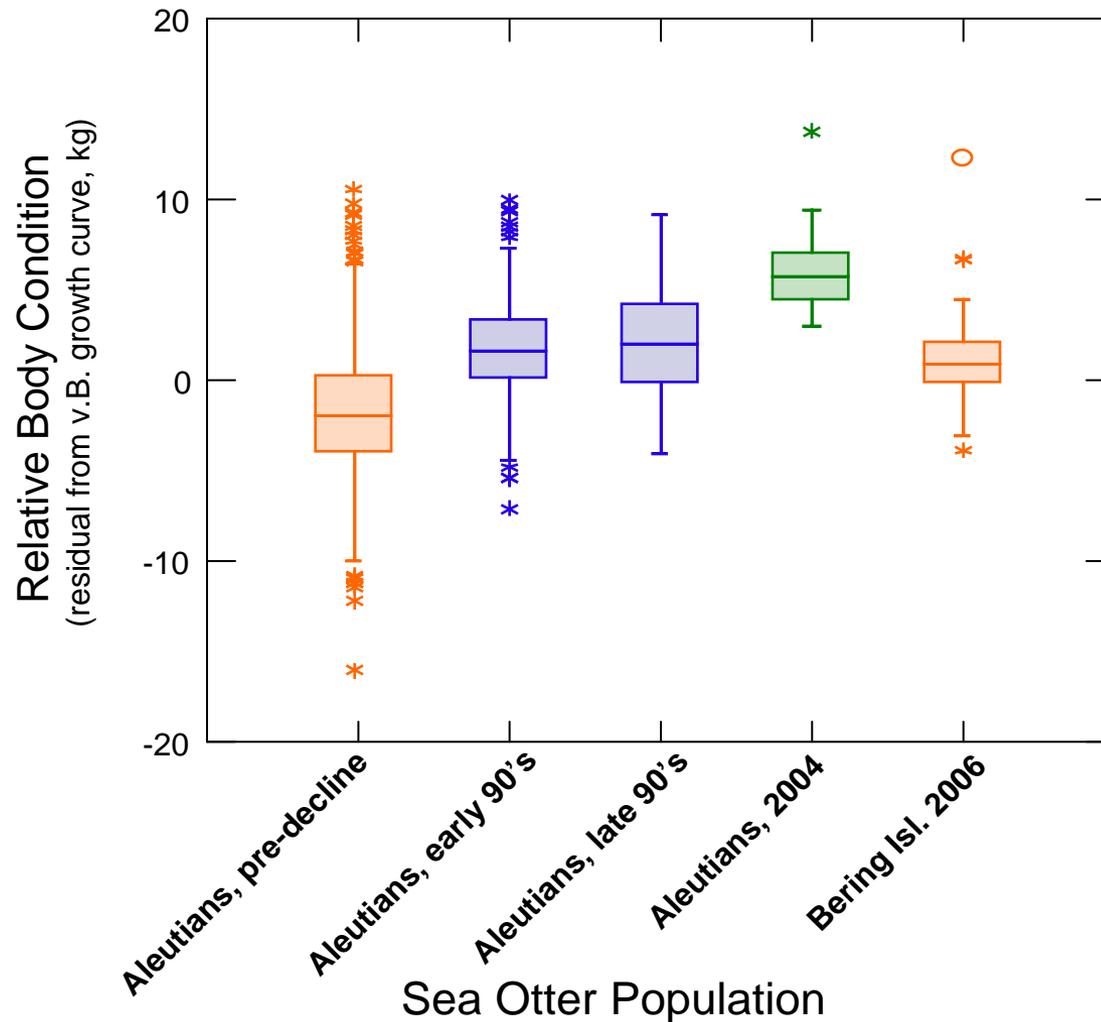
Urchin Density vs. Otter Density



Kelp Density vs. Otter Density

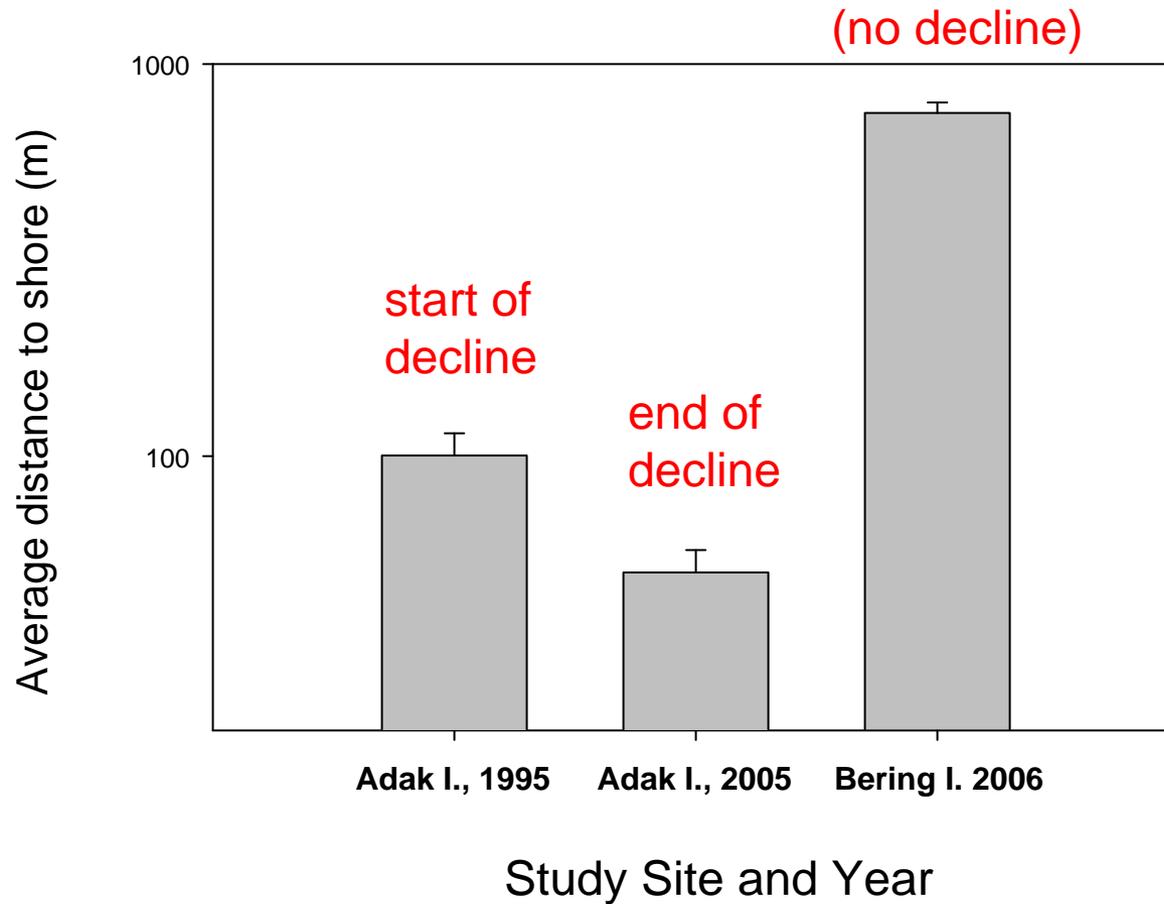


Sea otter body condition

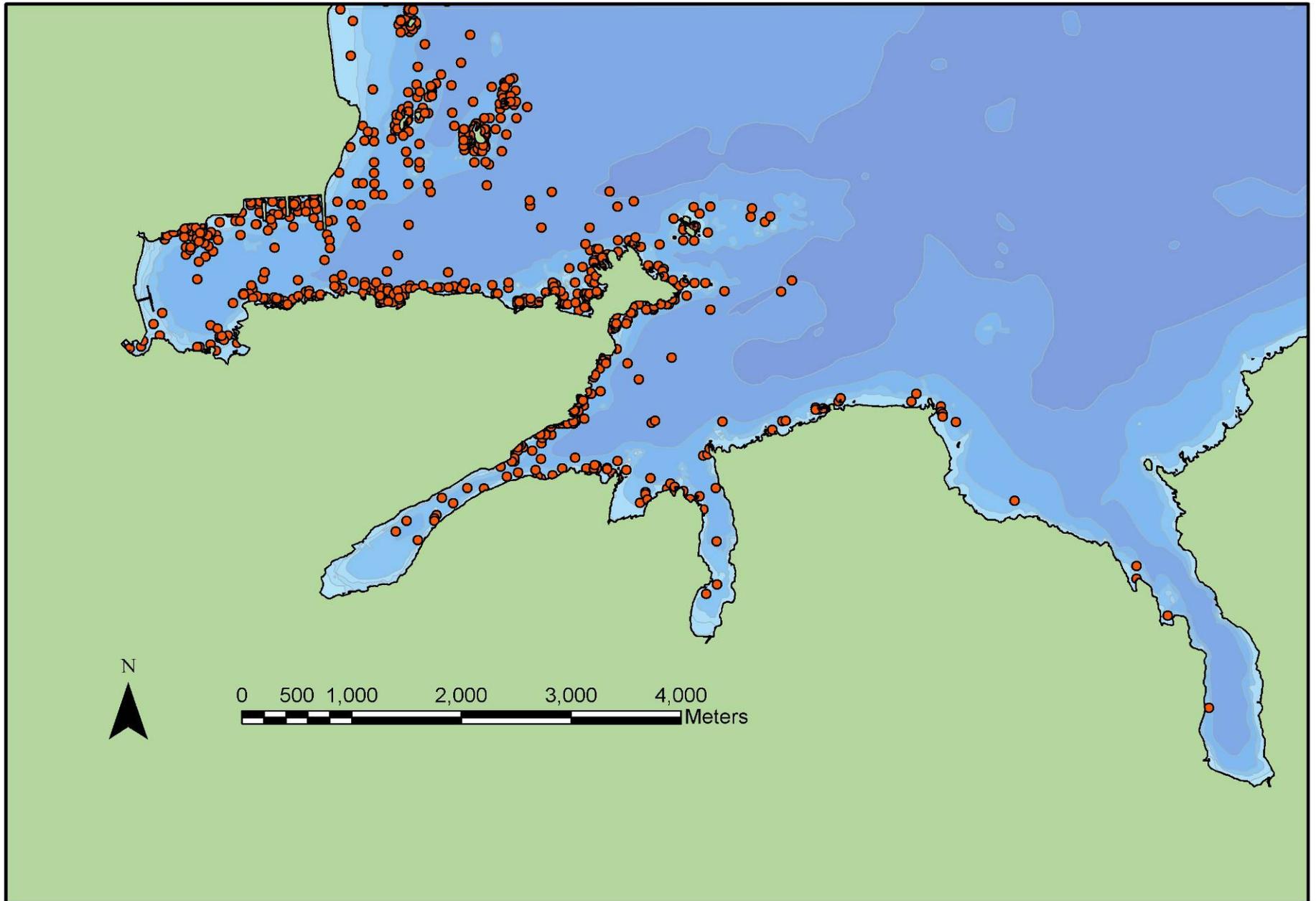


- High Density (at K)
- Med. Density (decline)
- Low Density (post-decline)

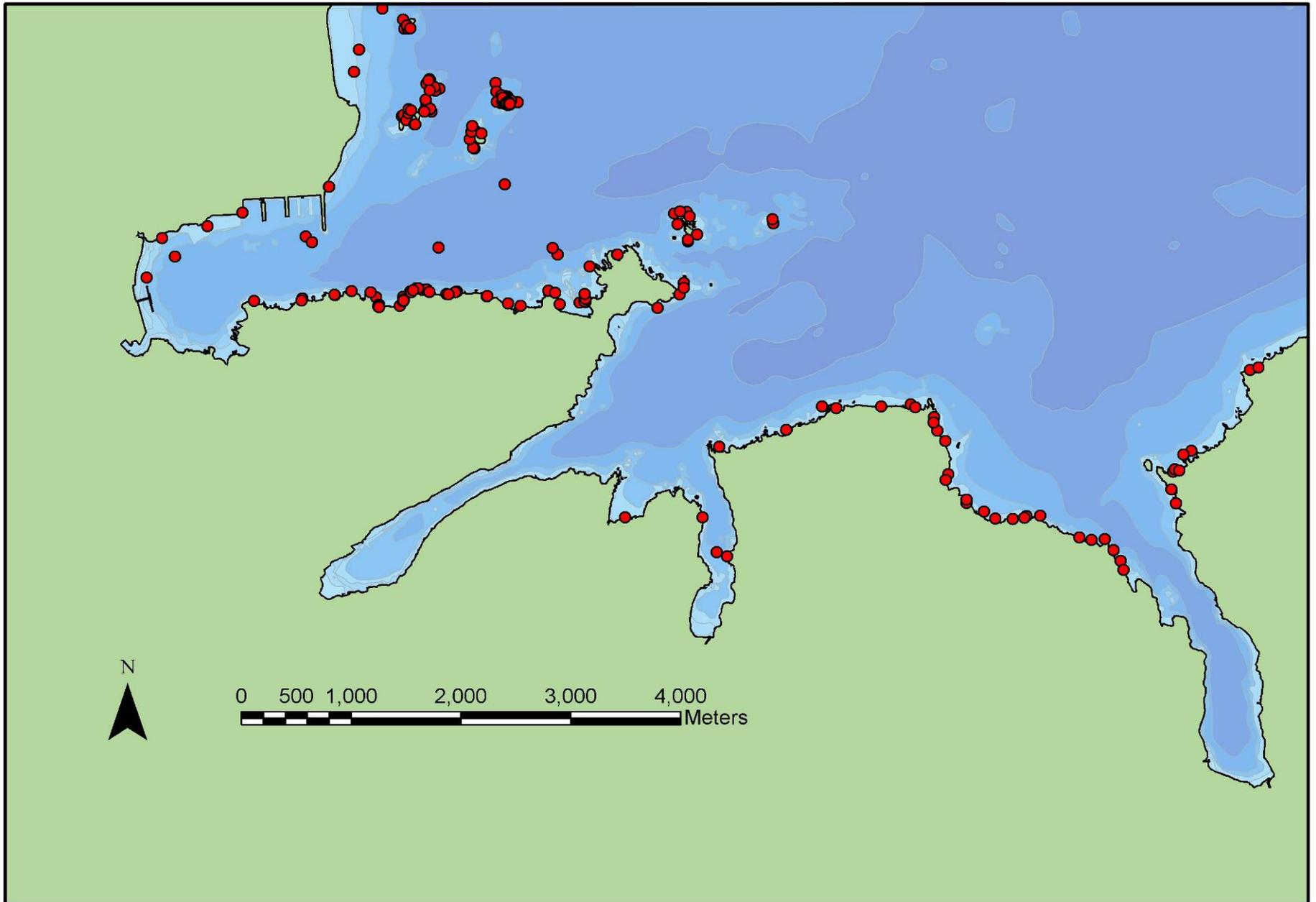
Sea otter habitat use



Adak otter distribution, early decline



Adak otter distribution, post decline

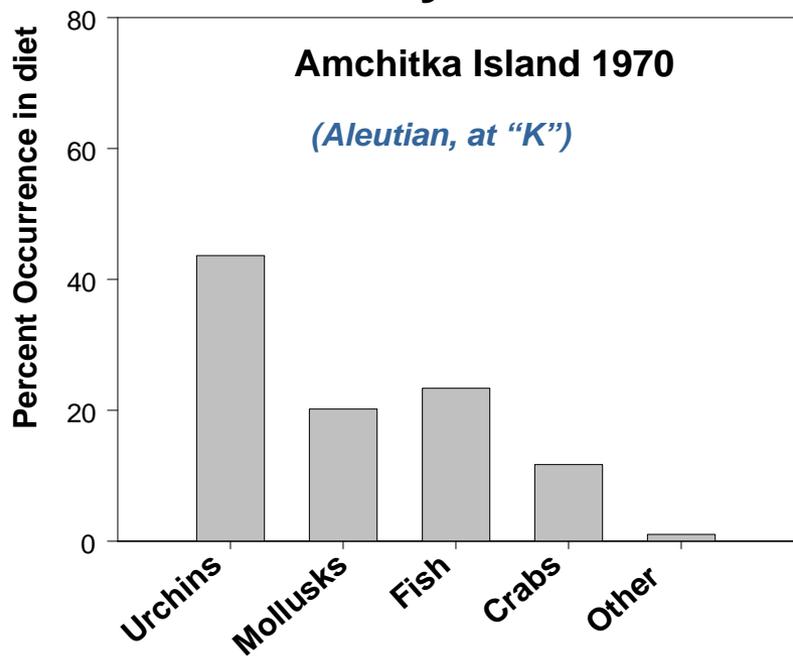


Sea otter foraging ecology

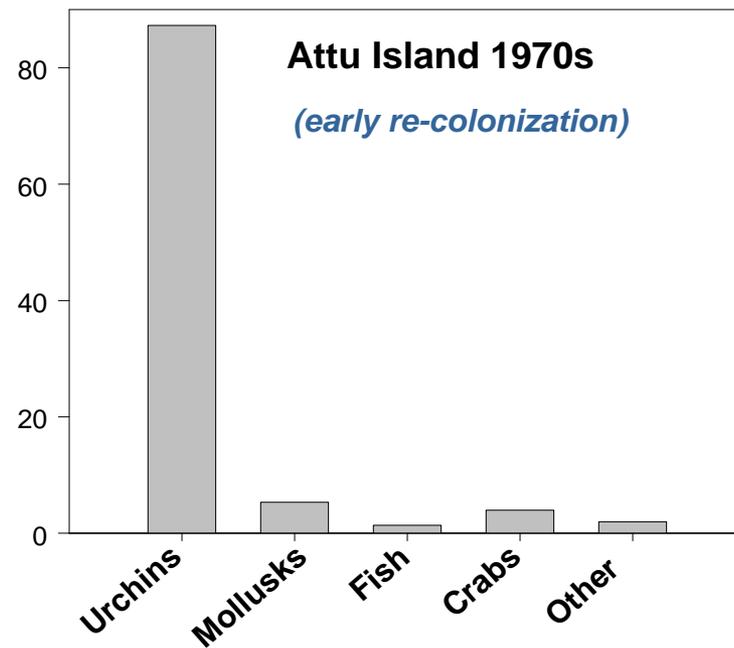
- Prey selection tends to vary as a function of population status
- At **low population density**, diet is dominated by a few species → **URCHINS**
- At **high densities**, preferred prey are reduced and diet becomes more diverse (other invertebrates, **FISH**)

Then....

Many otters

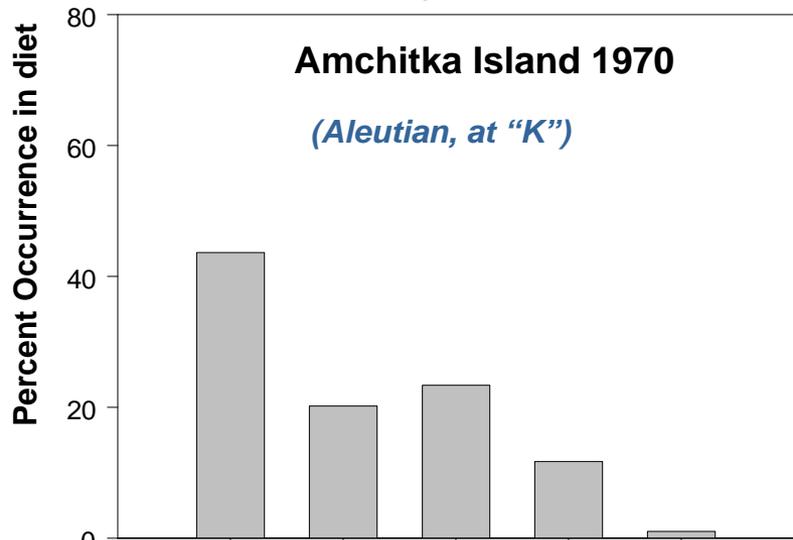


Few Otters

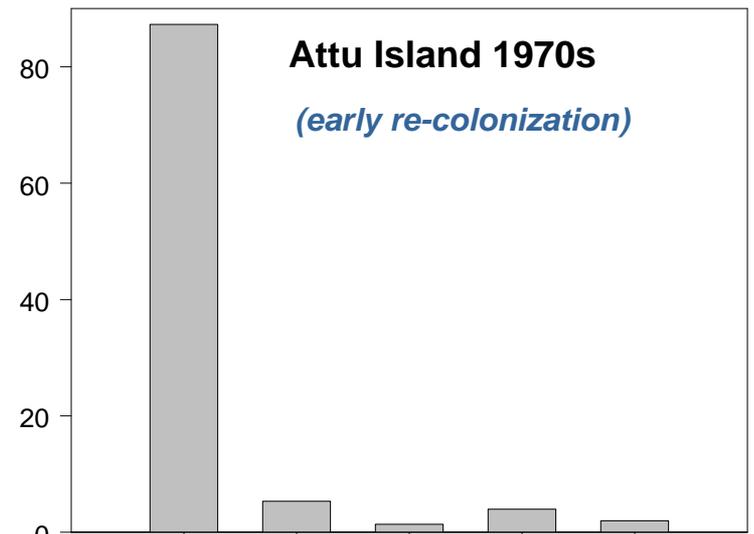


Then....

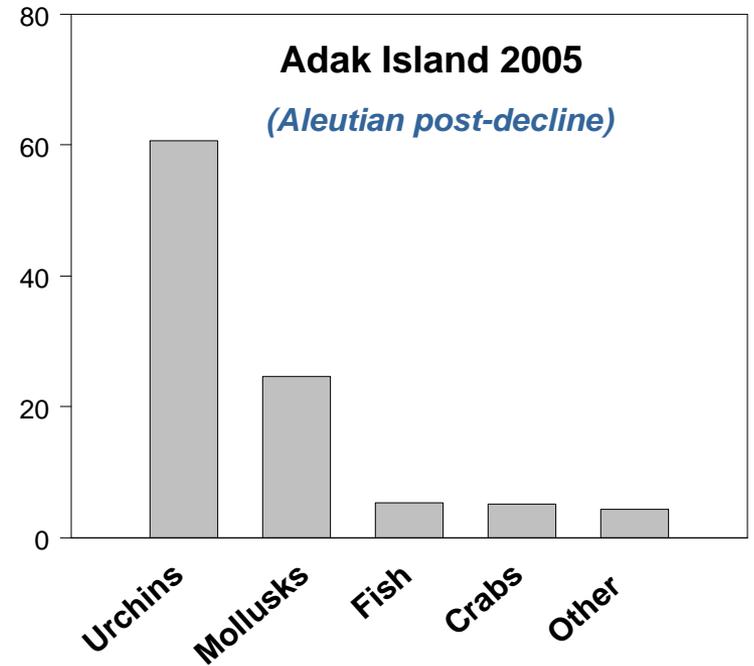
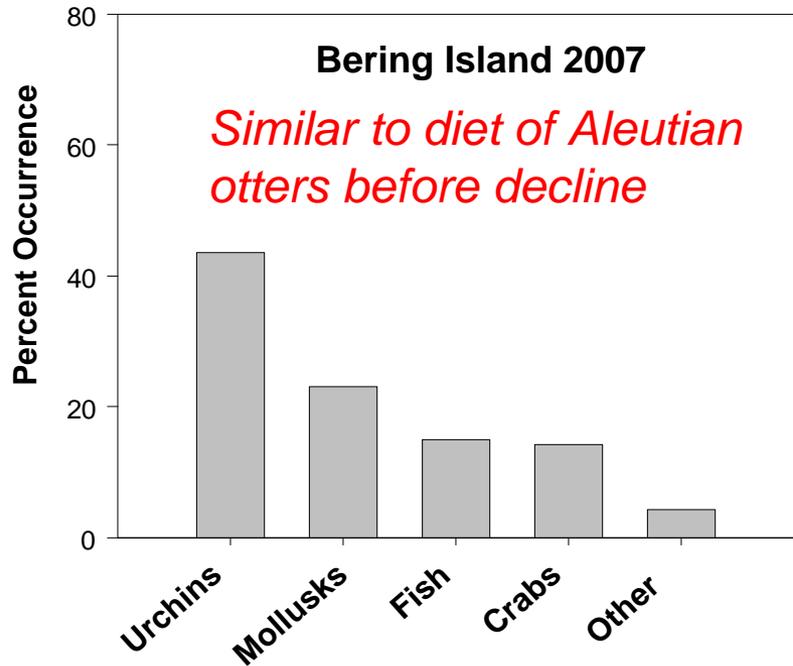
Many otters



Few Otters



Now....



Conclusions

- A change in trophic interactions caused a *dramatic divergence* between the Commander Islands and the Aleutian Islands with respect to:
 - sea otter abundance, condition, diet, behavior
 - community structure of near-shore ecosystems
- Illustrates need to better understand the patterns and dynamic processes of species interactions in natural communities