Predators and persistent prey in the southeastern Bering Sea

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OBJECTIVES

- Quantify prey distributions
- Determine whether marine predators are associated with persistent prey locations
- Determine whether interspecific differences in predator foraging mode (dive ability and travel cost) and tie to a location (central place forager or not) affect this association

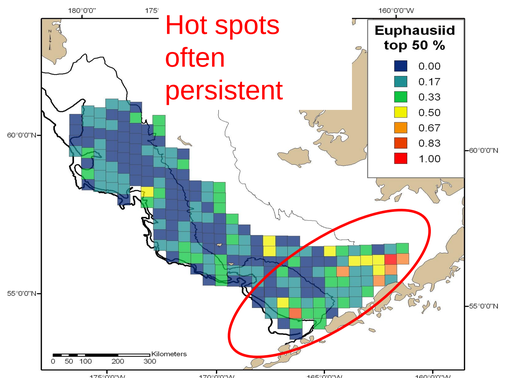
METHODS

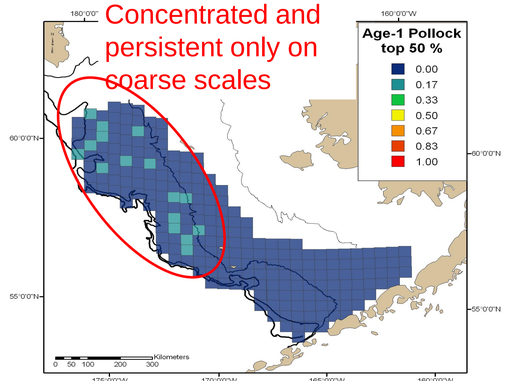
Visual survey

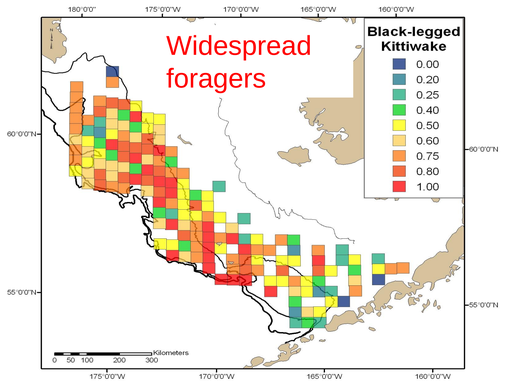
Surface feeder

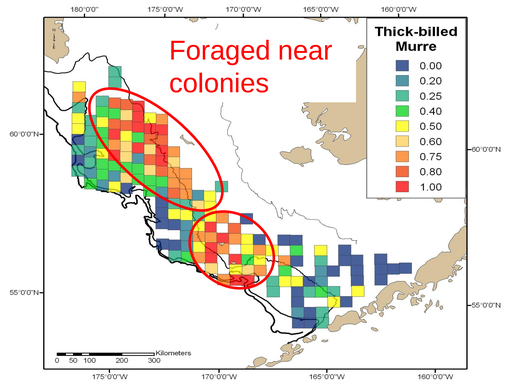
Diver

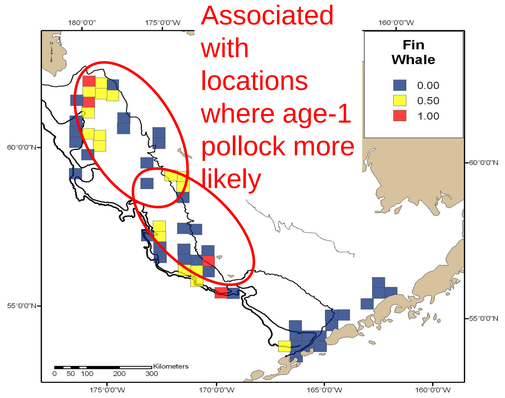
Acoustic survey

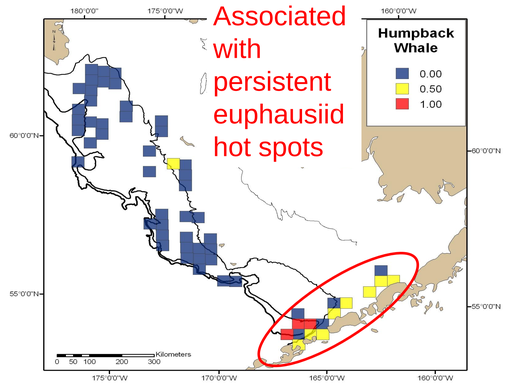












Proportion of years a block (37x37 km) contained top 50% of prey abundance or a predator was present. Prey (2004, 2006-2010); seabird (2006-2010); whale (2008, 2010) surveys.

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CONCLUSIONS

Both seabird species, regardless of foraging mode, were associated with age-1 pollock but not with euphausiids, even though age-1 pollock were less persistent than euphausiids. The higher travel cost central place foragers, thick-billed murres, foraged at prey concentrations nearer their island colonies than black-legged kittiwakes, which were more widespread foragers. Humpback whales were not tied to a central place and mostly were located only where euphausiids were concentrated, and further, often in locations where these concentrations were persistent. Fin whales were associated with locations where age-1 pollock were more likely, similar to black-legged kittiwakes and thick-billed murres, but their association with euphausiids was unclear. Our results suggest that a predator's foraging mode and their restrictions during breeding affect their response to prey persistence.