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Adult Chinook salmon diets delineate regions with distinct forage assemblages in the Salish Sea

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Adult Chinook Salmon diets delineate Salish Sea forage communities

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Introduction

- **Forage species:** connect plankton to predators. e.g., forage fishes, planktonic crustaceans, squid
- **Question:** what is the distribution/regional importance of forage species in the Salish Sea?
- Previous research suggests adult Chinook Salmon diets reflect relative abundance of prey^{1,2}
Adult Chinook Salmon: piscivorous generalists
- **Can adult Chinook Salmon diets identify regions of the Salish Sea with distinct forage communities?**

Methods

- Chinook Salmon stomachs collected by recreational anglers, 2017 – present
Summer (Apr – Sep 2017-2020): n = 1035
Winter (Oct – Mar 2017-2021): n = 690
- **Mean % identified weight of diet as proxy for relative abundance of forage species**

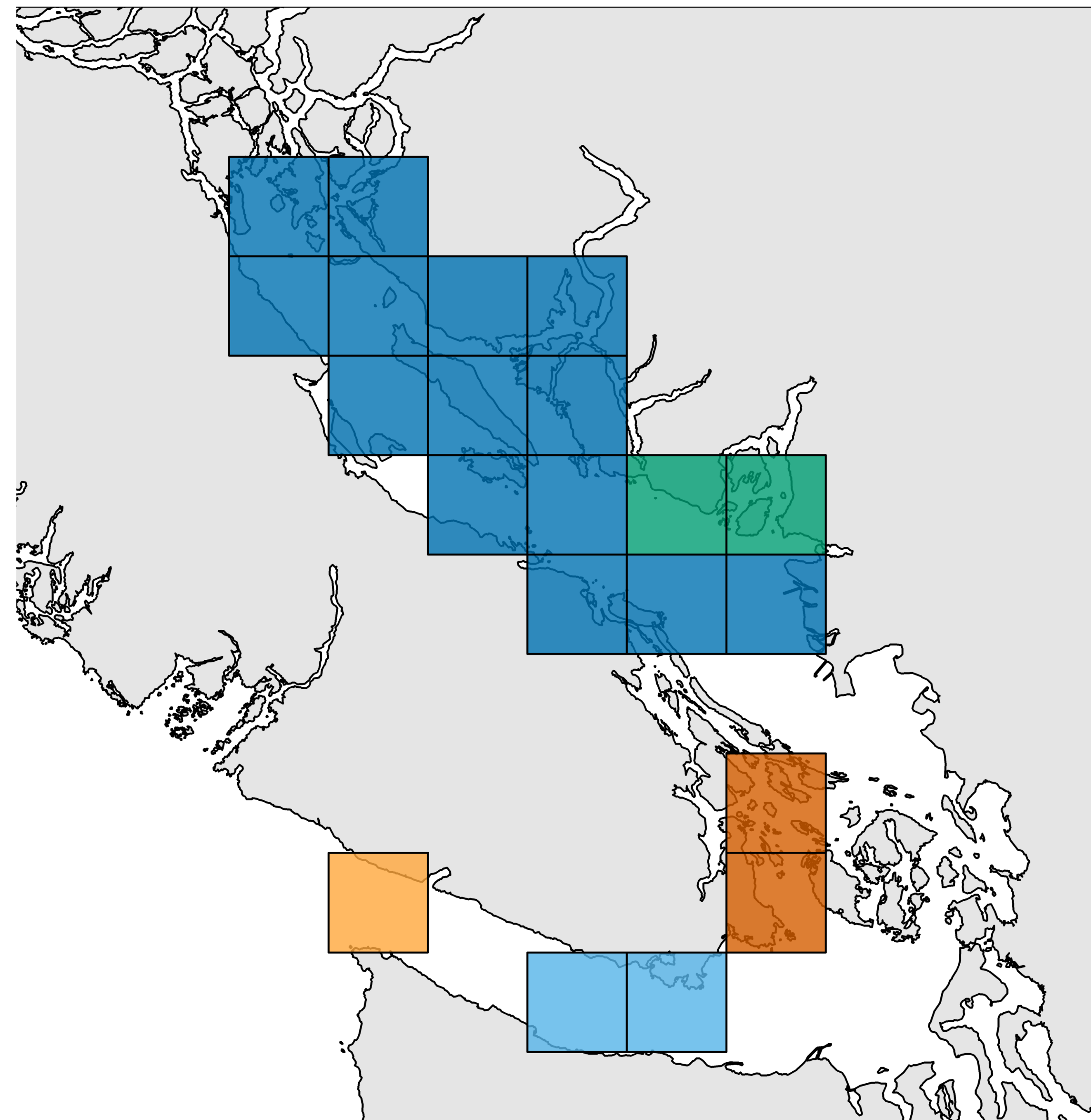
Data analysis

- Divided Salish Sea into 25 km x 25 km grid cells
- **Cluster analysis** to identify regions with distinct forage communities
- Indicator species analysis to identify species driving regional differences in forage community composition

References

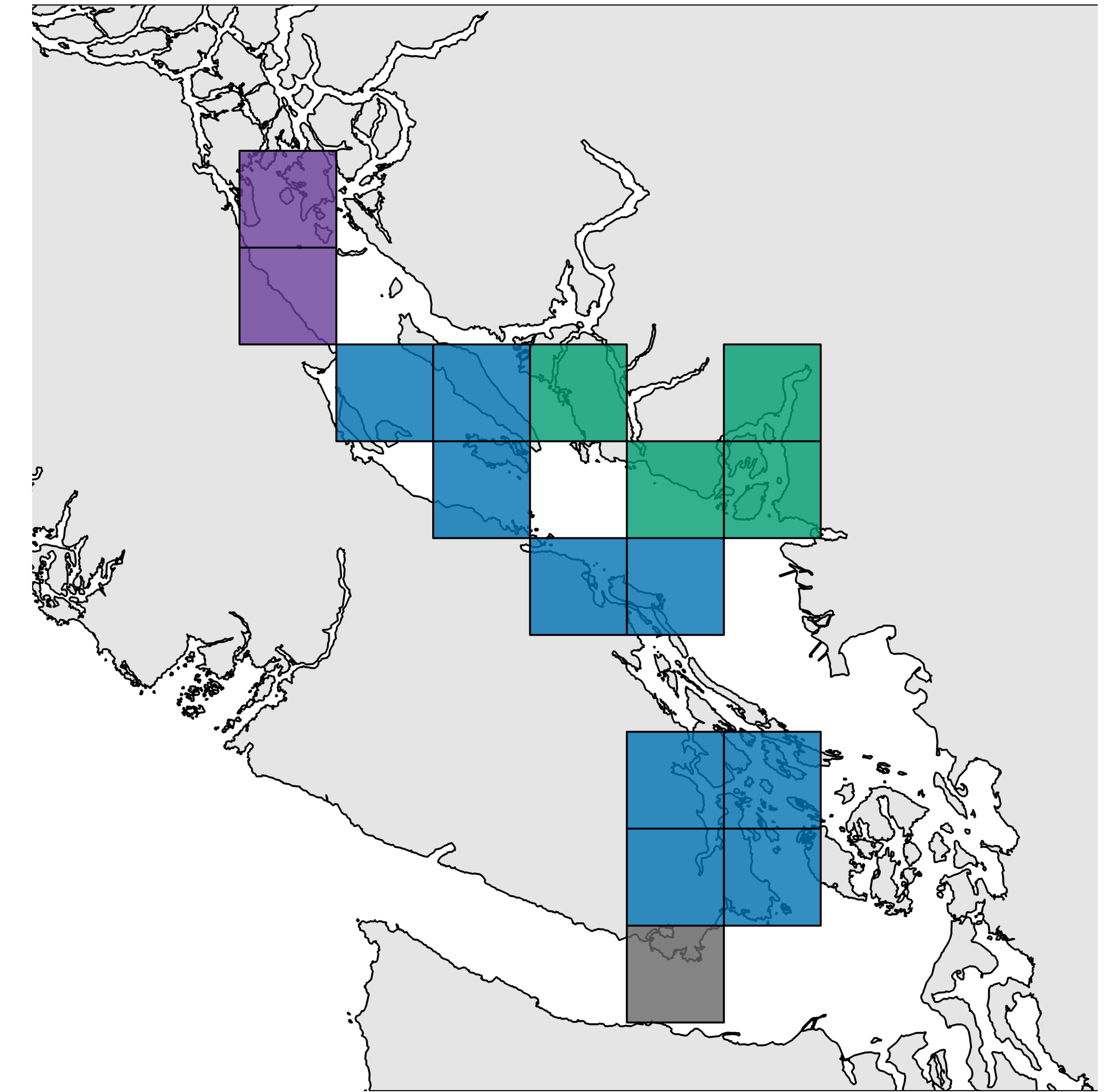
1. Mills *et al.* 2007. *Fish. Oceanogr.* 16.
2. Thayer *et al.* 2014. *MEPS* 498.

Summer forage communities



Herring > 40% in all regions
Strait of Georgia 87% Herring
Howe Sound 38% Anchovy
Southern Gulf Islands 44% Sand Lance
Sooke 80% Herring
Port Renfrew 18% Sand Lance

Winter forage communities



Herring > 50% in all regions
Northern Strait of Georgia 15% myctophid
Western Strait of Georgia 82% Herring
Howe Sound 16% anchovy, 15% surfperch
Sooke 20% mysid shrimp



Chinook Salmon (*Oncorhynchus tshawytscha*)

Discussion

- Forage communities vary over space and time
- Herring importance shifts south in winter
- **Chinook Salmon are a useful sampler of forage communities**

Acknowledgements

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