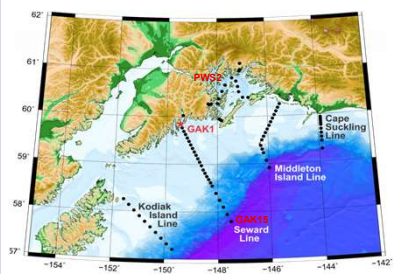


Purpose

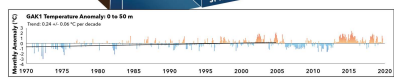
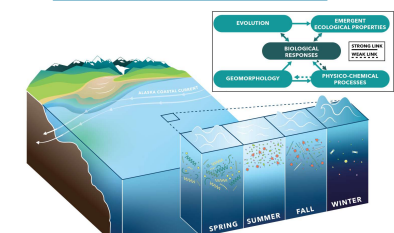
- Pelagic tunicates and pelagic snails in the Northern Gulf of Alaska (NGA) are under-appreciated groups of gelatinous zooplankton
- We will create a twenty year time series to explore how community composition is influenced by abiotic and biotic factors



Background Information

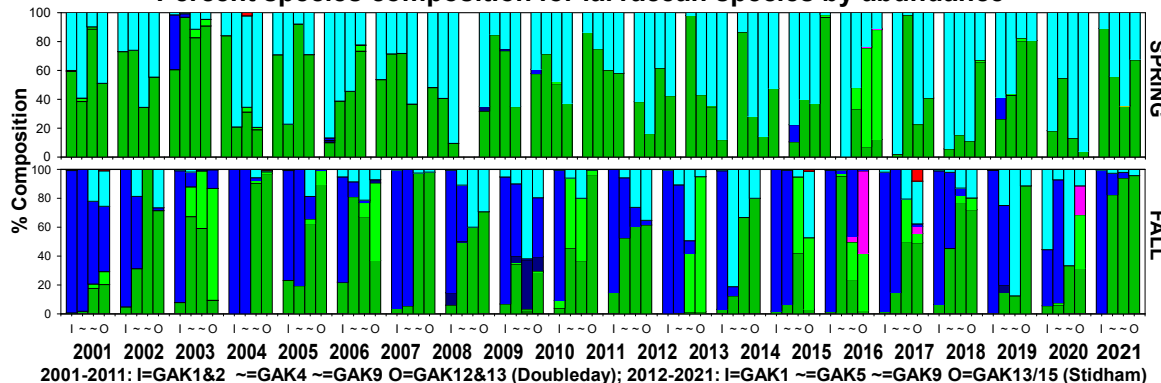
- Tunicates (larvaceans, salps, doliolids) and pteropods are efficient grazers that use mucosal nets to feed, often on very small particles
- Mucus-net feeders contribute to the biological pump, the marine carbon pump, through their fecal pellets, houses, and shells
- They are important prey animals for higher trophic levels in NGA including salmon and seabirds
- Large community shifts were observed in their composition and abundance during 2001-2011, however linkages to the physical environment and seasonality were not well established

NGA LTER CONCEPTUAL MODEL



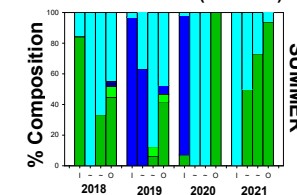
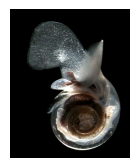
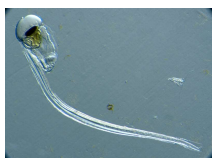
Results

Percent species composition for larvacean species by abundance

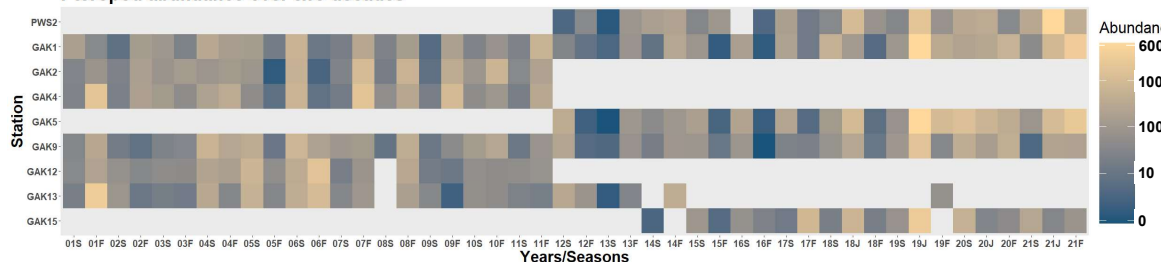


2001-2011: I=GAK1&2 ~GAK4 ~GAK9 O=GAK12&13 (Doubleday); 2012-2021: I=GAK1 ~GAK5 ~GAK9 O=GAK13/15 (Stidham)

■ Fritillaria spp. ■ F. borealis ■ F. pellucida ■ F. tenella ■ F. fraudax
■ Oikopleura spp. ■ O. dioica ■ O. labradoriensis ■ Appendicularia sicula



Pteropod abundance over two decades



Methods

- Samples were collected in the upper 100 m along the Seward line and in Prince William Sound from 2012-2021 using a 53 μ m modified CalVet plankton net
- Samples were identified to species and sizes measured to estimate biomass

Discussion & Next Steps

- Larvacean community shifts between season; response varies between inshore and offshore habitat
- "Summer" larvacean species appear earlier in warmer years, like 2019, and are more prominent during warmer years
- Pteropod abundance is variable between years, with stronger contributions in summers
- Size distributions of pteropods suggests high reproduction rates but low local recruitment
- Exotic species in both groups typically appear during warmer years
- Relationships to abiotic and biotic factors will be explored over a 20 year period once remaining sample analysis is completed

Acknowledgements

Thank you to the NGA-LTER and the NSF for funding.

Thank you to the Hopcroft Lab:

Caitlin Smoot, Cheryl Hopcroft, Elizabeth Stockmar, Jennifer Questel, Alex Poje, Ayla Doubleday, and Hannah Kepner

