Results and Discussion:

Diet:
Differences in diet were observed among species and among size classes within species.

- Amphipods were important for all species
- Copepods were central to the diet of all sizes of Arctic cod
- Polar eelpout and stout eelblenny had very diverse diets
- MDS clusters show strong similarities within species, despite the differences observed in importance of prey taxa

Stable isotope ratios for selected fish and prey

Stable isotopes:
Differences were found among species in trophic level and feeding strategy (benthic vs. pelagic).

- Arctic cod consumed pelagic prey at the lowest trophic level, while polar eelpout fed on benthic prey at the highest trophic level.
- Bering flounder, Arctic staghorn sculpin, and stout eelblenny fell in between Arctic cod and polar eelpout in terms of trophic placement and feeding strategies.

What does this mean?
We observed differences between diets of fish species, size class, and the associated trophic level of the fish species. Some species relied almost exclusively on low-trophic, pelagic prey, while others had a diverse diet including high-trophic benthic prey. The fishes studied are prey for other Arctic predators. If climate change results in changes in the availability of prey of fishes, the trophic structure of the Arctic ecosystem could also shift.

Methods:
We analyzed diet and stable isotope signatures for four size classes of:

- 380 Arctic cod (Boreogadus saida)
- 123 Arctic staghorn sculpin (Gymnocalanus tricuspid)
- 203 stout eelblenny (Anisarchus medius)
- 181 polar eelpout (Lycodes polaris)
- 130 Bering flounder (Hippoglossoides robustus)

Diet: Index of Relative Importance (IRI) takes three diet factors into account:
- presence,
- Numbers
- weight.
Thus, smaller and more numerous prey, such as copepods, aren’t “worth” more to the index than heavier, less common prey, such as fish.

MDS plots show similarity of diets among species and size classes.

Stable isotopes:
δ15N and δ13C values can describe trophic structure and carbon source for fish and fish prey.

High %IRI = important prey item
High δ15N = higher trophic level
High δ13C = benthic source

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