SHELFZ project: benthic invertebrates from nearshore to offshore in and around Barrow Canyon in the northeastern Chukchi Sea

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Why

The SHELFZ survey was the first **near**shore (< 20 m) to **off**shore (> 20 m) comprehensive sampling effort in the northeast Chukchi sea (fish, zooplankton, oceanography, and **invertebrates**).

How

Bottom sampling **off**shore used an 83-112 otter trawl net (34 m footrope). Bottom sampling **near**shore used a plumb staff beam trawl (5 m footrope) (beach seine data not shown). CTD casts were taken at all stations. Data exploration: ArcGIS was used for species composition, correspondence analysis on pre/abs, cluster analysis, and basic site oceanography.

Offshore vessel

Inshore vessel

What

Offshore: 17 species of invertebrates made up 90% of the biomass j(kg/ha) and was dominated by sea stars (*Gorgonocephalus arcticus*) and sea cucumbers (*Psolus peroni*) (Fig A). Clustering was done on the first 2 comp from the CA analysis for pre/abs of inverts reveals some species (or groups) were not present in Barrow Canyon (Figs B and C). The 3 species furthest on the axis in the CA analysis were plotted by CPUE (Fig D). In general, the greatest portion of biomass for all 3 species occurs less than 80 m (*Psolus* doesn't occur >60m). The spatial distribution of all 3 species does not overlap in space (Figs B and E). The temperature and salinity profiles for the western most transect shows a stable bottom temp and salinity during this time period (Fig F). The nearshore invertebrates were dominated by shrimps and sea stars (Fig G).

Next

Continuing to explore the offshore invertebrate community (CPUE) and begin analysis on the nearshore community (distribution, CPUE?) along with oceanographic variables.

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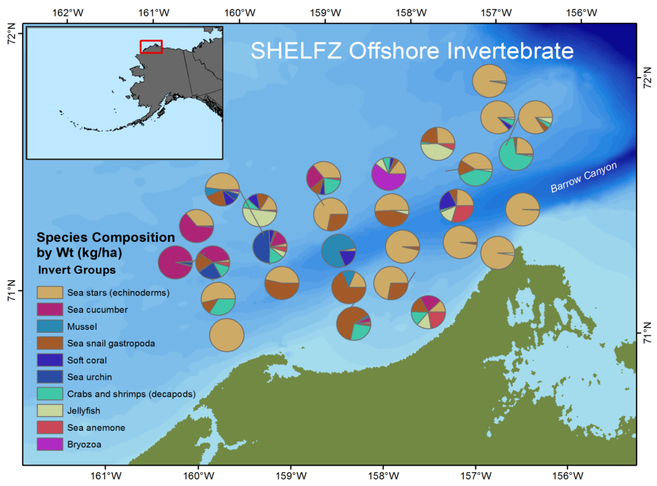

Fig A Species composition for the offshore bottom trawls.

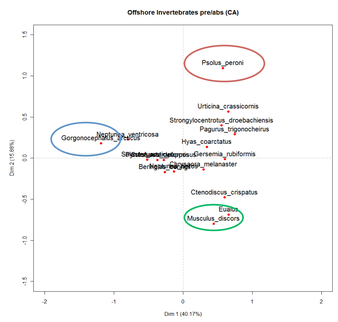

Fig B CA analysis results for the offshore presence/ absence of the dominant 17 species groups.

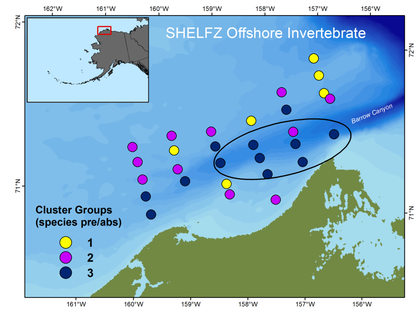

Fig C Results of the clustering on the 2 comp from the CA analysis. Cluster's 1 and 2, in general, are not found in the canyon.

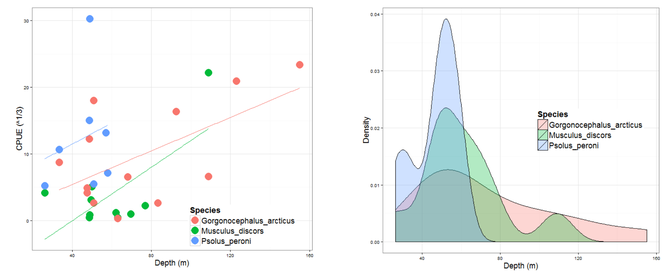

Fig D Scatter and density plot for CPUE of 3 species from the CA analysis. The highest CPUE occurring at depths less than 80 m.

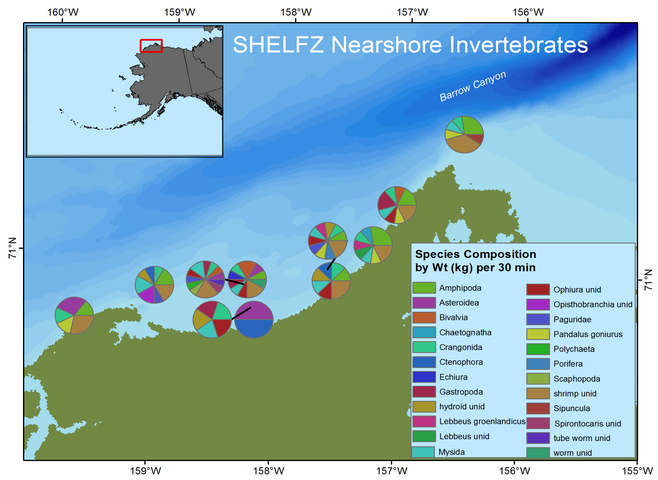

Fig G Species composition for the nearshore invertebrates, purse seine only.

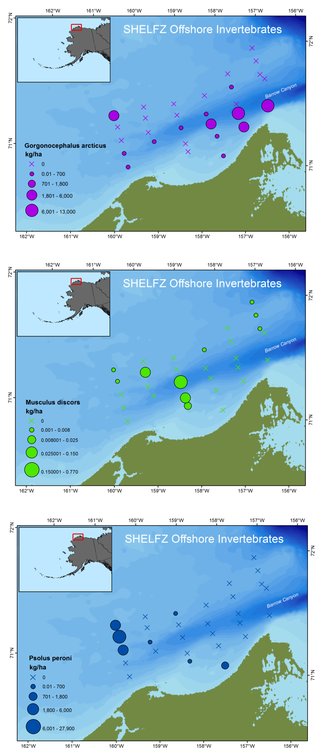

Fig E CPUE distribution maps of the 3 species from the CA analysis. In general, all 3 species only occur at depths less than 80 m, on the shelf.

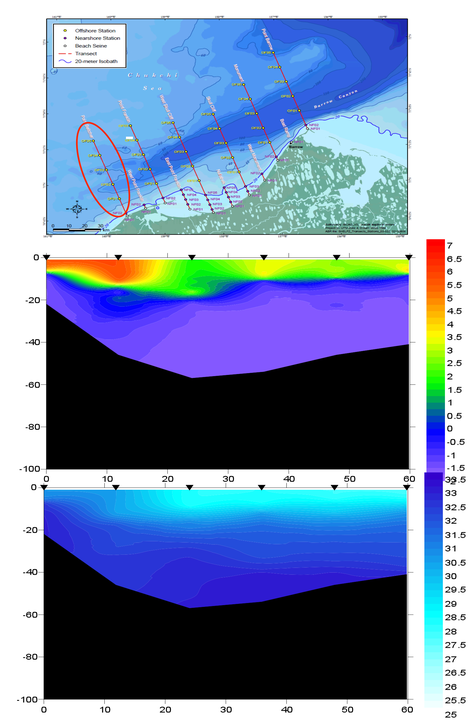

Fig F Temperature and Salinity profiles for the western most CTD transect (in red oval, top plot). CTD profiles by Seth Danielson.

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