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Life history of *Leptagonus decagonus* (Atlantic poacher) in Svalbard waters

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Introduction

In this study we examined the demersal fish species *Leptagonus decagonus* (Atlantic poacher). It is circumpolar species occurring in the North Pacific, North Atlantic and Arctic Ocean. Commonly associated with muddy and gravely bottoms at depths of 120 to 350 m. It has a fidelity towards cold water with relatively high salinity. *L. decagonus* has a maximum length of 21 cm. *L. decagonus* is found to have low fecundity of 480-1750 eggs depending on location and with spawning reported to be between May-July. Ripe eggs have a diameter of 2 mm. With low ecundity and large eggs it is likely that the Atlantic poacher exhibit some form of parental care. The life history of *L. decagonus* is still largely unknown.

The aim of this study is to increase our knowledge of life history aspects of *Leptagonus decagonus* that has remained unknown.

Leptagonus decagonus picture is taken from "Den Norske Nordhavs-expedition 1876 – 1878, H. Mohn and G. O. Sars, Grøndahl og søns bogtrykkeri; 1880"

Figure 1. Map showing the stations sampled during the Beringa-05 expedition August – September 2005.

Methods

- Adult specimens were collected by a Campelen 1800 shrimp trawl, from soft bottoms (mud, clay or silt) for ~ 20 min at depths 157 – 323 m
- A total of 82 specimens were analysed: Gutted weight (accurate 0.1 g) and the caudal length (CL, mm) were measured. Sex was determined from macroscopic analysis of the gonads (37 females and 45 males)
- Stomachs were dissected and the contents was analysed down to most accurate possible taxa and expressed as frequency of occurrence (FOC, % of total number of stomachs)
- Age was determined by surface reading of otoliths
- All statistical treatments and graphical presentation of the data were done in SYSTAT12 (2007)

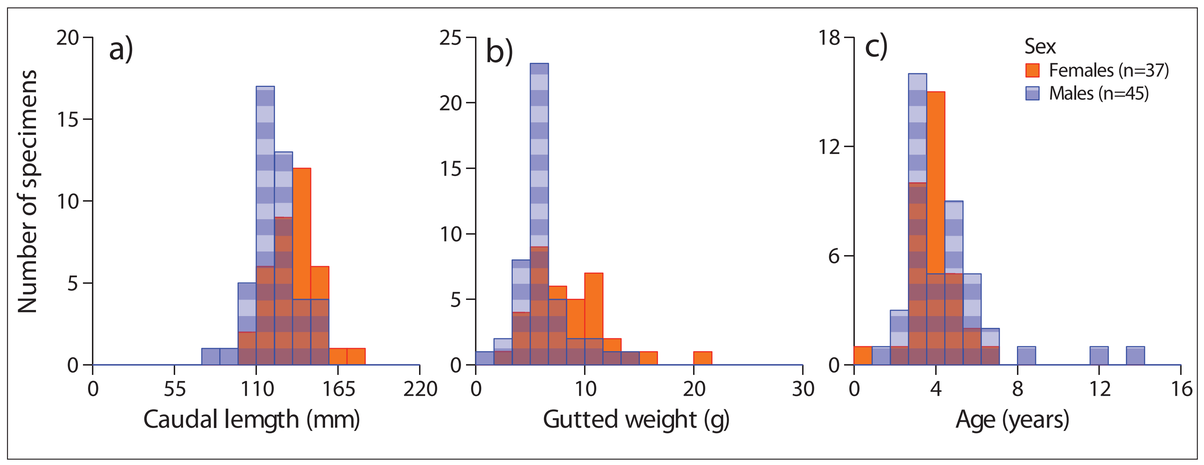

Figure 2. Sex, size and age distribution of *L. decagonus* females and males. a) length distribution: females have a mean length of 135.8 mm ± 16.1 and males 122.2 mm ± 14.7. b) weight distribution: females have a mean weight of 8.47 g ± 3.6 and males 6.22 g ± 2.4. c) age distribution: females have a mean age of 3.9 years ± 1.2 and males 4.5 years ± 2.4. There is no significant difference in age distribution between the sexes, although males grow somewhat older than females.

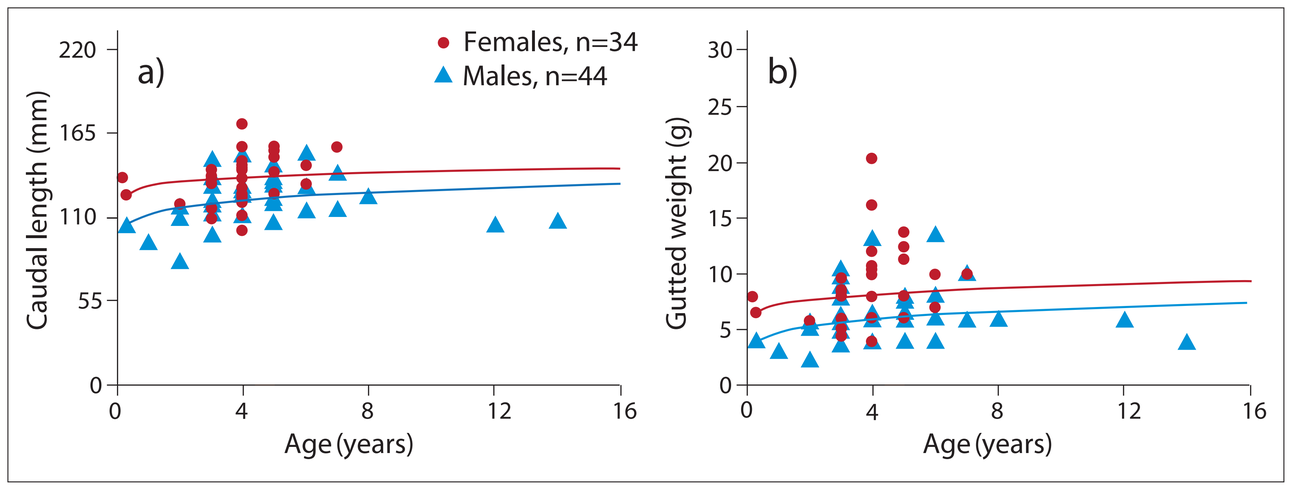

Figure 2.
a) length and b) weight with age of *L. decagonus* females and males. Females are significantly longer (ANOVA, $p<0.001$) and heavier (ANOVA, $p=0.001$) with age than males.

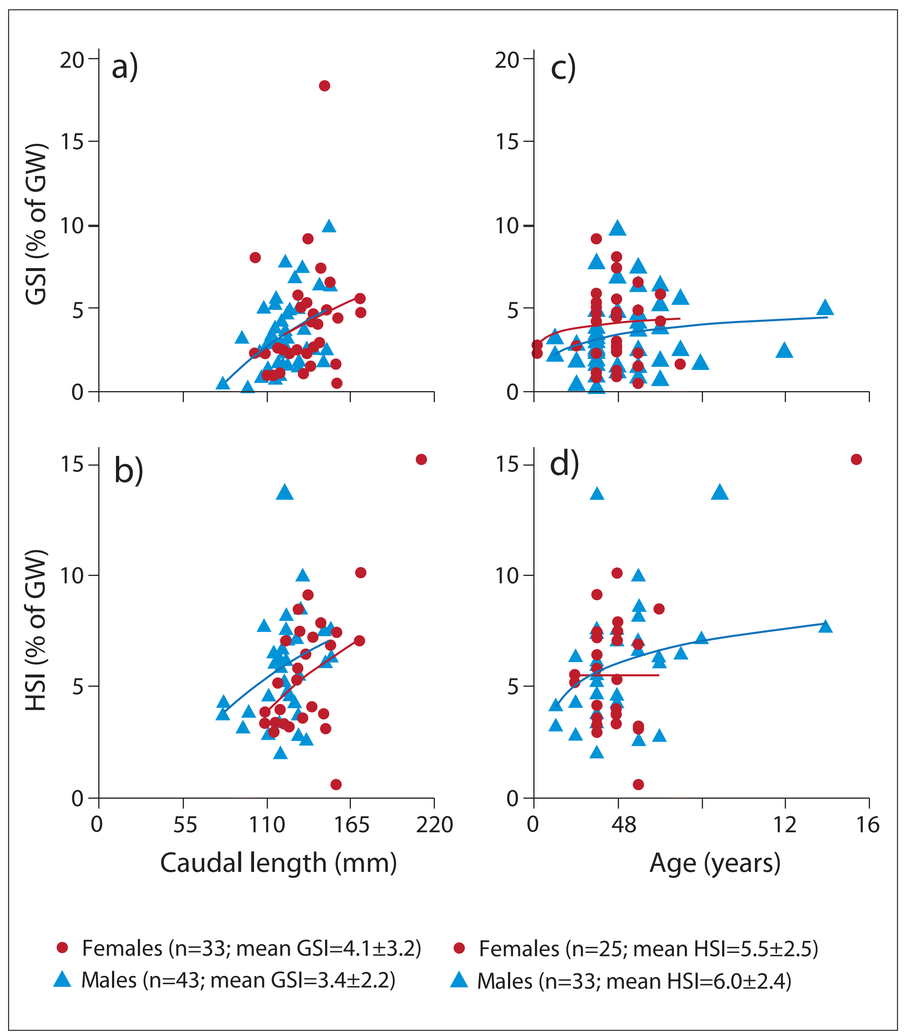

Figure 3. There is no significant difference in GSI or HSI with length and age between sexes in the samples. Both GSI and HSI increase with length for both sexes. GSI increases with age in both sexes while HSI only increase with age in males.

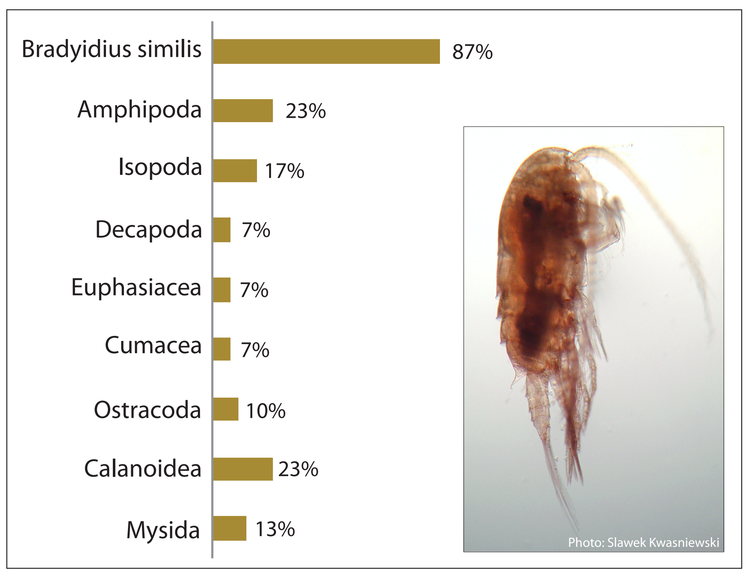

Figure 5. Frequency of occurrence (FOC, % of total) of each prey species or taxa in the diet of *Leptagonus decagonus*, The copepod *Bradyidius similis* was found in 87 % of the 30 stomachs that were examined. Taxa other than Ostracoda and *B. similis* have been identified down to order

Conclusion

- *L. decagonus* is sexual dimorphic in size distribution within the population with females being significantly larger than males.
- Both females and males have a negative allometric growth in weight with length when the condition < 3.
- There is no difference in GSI or HSI with length and age between sexes within the sample
- The Atlantic poacher seems to be a selective feeder on small crustaceans and the copepod *Bradyidius similis* in particular

Layout: Freydis Strand, UiT