BIO299: Hitchhiker or Hellraiser? -Distribution and Relationship of the nemertine *Malacobdella grossa* in Ocean Quahog *Arctica Islandica*

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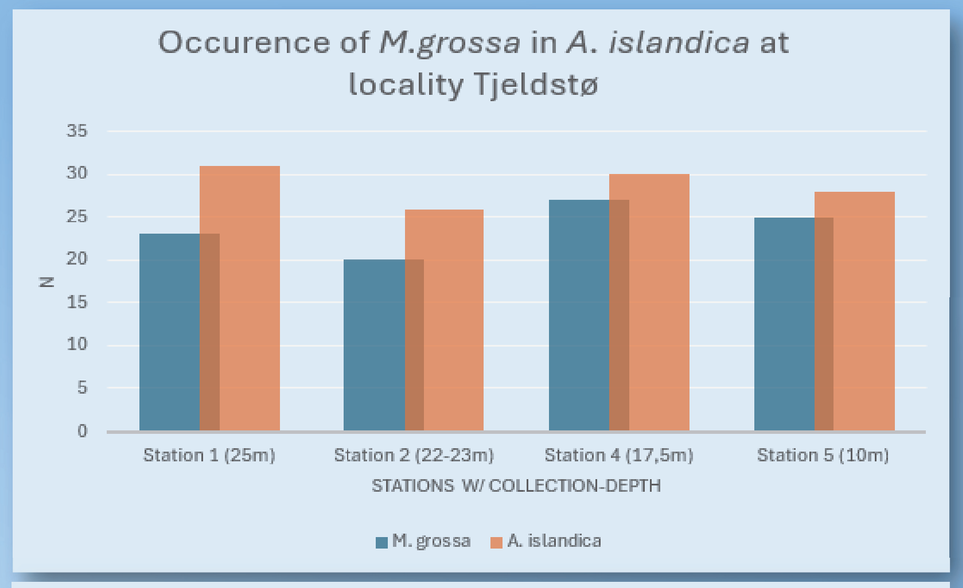
Poster nr 299-2

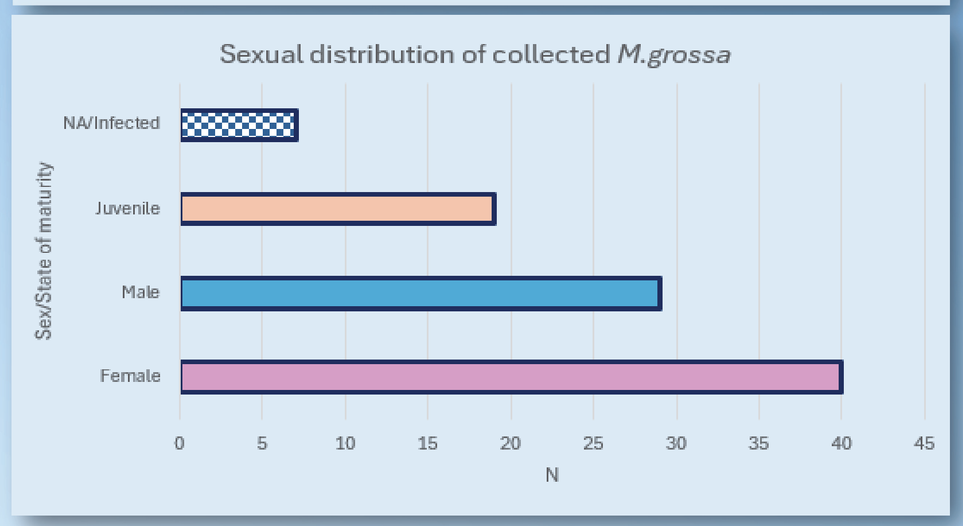
1. The species: What we know

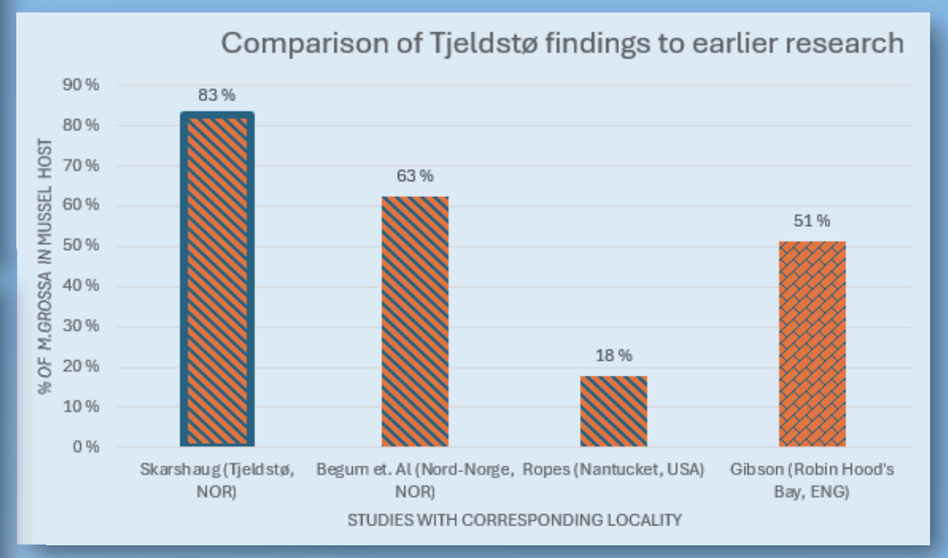
The nemertine *Malacobdella grossa* is a common guest in the Ocean Quahog *Arctica islandica*, a benthic mussel increasingly commercially used in fine dining. The relationship between *M. grossa* and its hosts has been deemed **commensal** by some authors(Gibson, 1968), **parasitic** by others (Hookabe et.al, 2024), and the nemertines' physiological effects on it's host is scarcely studied. Even less known is the local distribution, sex ratio, size etc. etc.

2. What we want to know

What is the occurance, sizes and sexual distribution of *M. grossa* in a population of *A. islandica,* does it affect growth, and can a certain symbiosis be determined?







Figures 1-3 : From left to right: **Main results of research**. Bar furthest right in *fig. 2* show occurence of *M. grossa* in *Zirfaea crispata,* the rest is in *A.islandica*

Figure 4: Ventral view of a female *Malacobdella grossa. Note the posterior suction cup*

Figure 5: In situ view of *M. grossa* in *A. islandica* stuck on the mussels mantle.

3. Methods

-Fieldwork at Tjeldstø by boat:
A. islandica collected at 5 stations.
-Processing at Espegrend:
Measuring, weighing, checking for *M. grossa* in all mussels
-Labwork at UiB:
Dissection of *M. grossa,* light microscopy of stomach contents.
-Statistic Analysis
Manual calculations and Excel
-Litterature study:
Finding other sources regarding *M. grossa* occurence in *A. islandica* and others hosts.

4. Findings

-118 *A. islandica* found, only larger specimens (180 g +)
-Occurrence of *M. grossa* at Tjeldstø is **the highest on record (!)** (83%).
-Mean weight (g) fairly constant across stations: 0,43 g mean in total
-No other macroscopic organisms found in *A. islandica*
-More female than males, juveniles rarely occur together, infected nemertines hard to determine sex.
-Stomach contents: largely fragmented algae, microorganisms and plastic.

5.Discussion

- Higher occurance of nemertines at shallower stations: depth preferance?
- Might outcompete other potential nemertines and competitors.
- Weight: no obvious patterns across stations or genders: final result pending.
- *A. islandica* size affected by nemertine? Results pending.
- Nemertine diet: food theif or «guard dog»? Microscopy inconclusive.
- *A. islandica* burrowing behavoir: anoxic conditions might act as «detox». Little to no evidence of other symbionts in either nemertine or mussel.
- Specialised physiology of genus *Malacobdella* thrives in benthic mussels.
- Methods and analysis: interesting results, but methods surface level and too simple. More research needed.
- **Conclusion? Inconclusive!**