

### 3.3. Zoology and Parasitology

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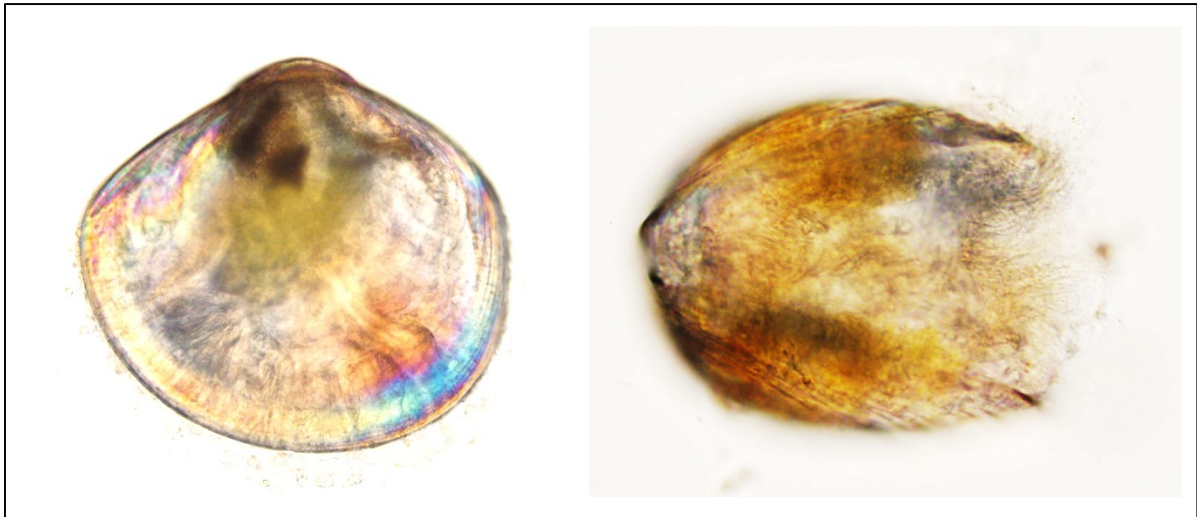
**Students:** *Tereza Hromádková, Martina Kubátová, Zuzana Literáková, Veronika Michálková, Kristýna Muchová, Anna Mynářová & Petr Přikryl*

The field part of the course was split into an introduction to animal diversity in the area of polar station and demonstration of various methods of sampling in the field. Several trips to remote localities were arranged to observe birds and their behaviour (Skansbukta, Fortet – Fig. 3.3.1.) or to dive in water with better visibility (Brucebyen). Great part of the course, students also worked on individual projects under our guidance. Representatives of a marine zooplankton (e.g., *Calanus* spp., Chaetognatha, and also veliger, planktonic larva of bivalves – see Fig. 3.3.2.) were collected by plankton net. For parasitological examination, gill nets were laid in littoral marine habitats and usual fish species were caught there (i.e., *Myoxocephalus scorpius*, *Gymnocanthus tricuspis*, *Clupea harengus*, *Mallotus villosus*, *Boreogadus saida*, *Lumpenus lampretaeformis*).

Great part of the course, students worked on their individual projects under our guidance. In this report, two student projects are introduced since they are not overlapping with other projects mentioned in the “Report on field activities of the Czech research group (2014)”.

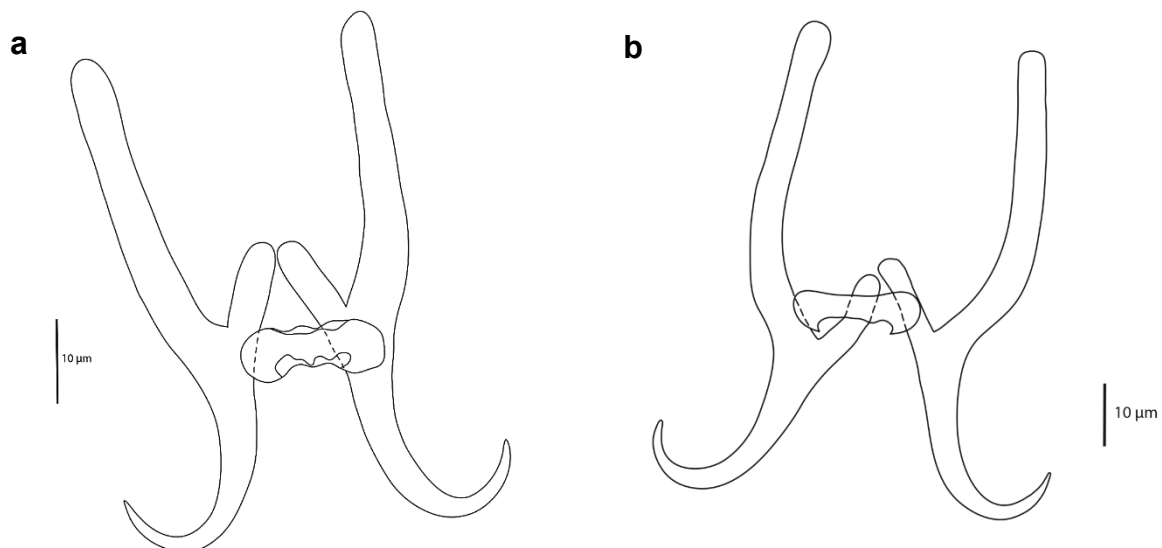


**Fig. 3.3.1.** Part of zoological group on the top of Fortet.



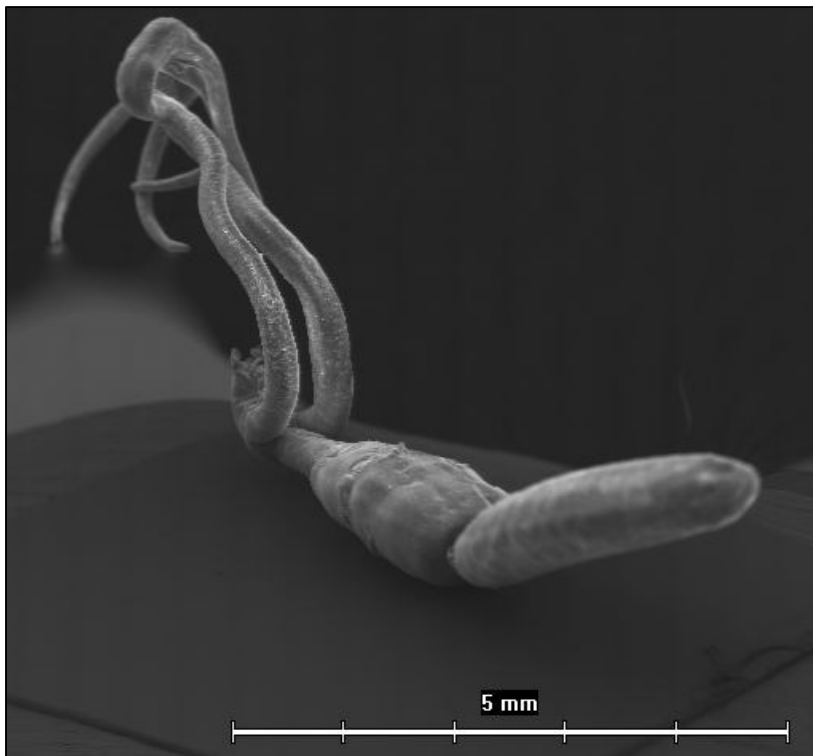
**Fig. 3.3.2.** Veliger, a planktonic larva of some bivalve species. Billefjorden.

Veronika Micháľková focused her activity on screening gills and fins of various fish species. She looked for monogenean, a metazoan group of ectoparasites with direct life-cycle that are typical for fish. She succeeded and obtained enough material for a subsequent processing. In total, 61 specimens of Gyrodactylidae family were fixed, measured, and drawn. Four fish species were infected: Capelin (*Mallotus villosus*), Atlantic herring (*Clupea harengus*), Snake blenny (*Lumpenus lampretaeformis*), and Arctic staghorn sculpin (*Gymnacanthus tricuspis*). The highest prevalence was observed on capelins where three species were identified: *Gyrodactyloides andriashewi* (Fig. 3.3.3a.), *G. petrushewskii* (Fig. 3.3.3b.), *Laminiscus gussevi*.



**Fig. 3.3.3.** Sclerotized part of haptors of **(a)** *Gyrodactyloides andriashewi* and **(b)** *Gyrodactyloides petrushewskii*.

Petr Příklad has been focused to marine crustaceans, particularly to “cryptic species” of spider crabs *Hyas araneus* and *Hyas coarctatus* that are known from Svalbard. Petr looked for their endoparasites with aim to assess if there are some differences. He will continue on this topic in future and add also samples from Longyearbyen. Another group of crustaceans has become his interest - ectoparasitic copepod strongly modified bodies (Fig. 3.3.4.). He has identified species that were collected during last expeditions as well this year around Longyearbyen. He has



started with their morphological and molecular characterization. For us, the topical issue is comparing of Polar cod (*Boreogadus saida*) and Atlantic cod (*Gadus morhua*) since they are competing species and Atlantic cod is a newcomer there.

**Fig. 3.3.4.** Ektoparasitic copepod, *Schistobranchia ramosa* found on gills of Thorny skate (*Amblyraja radiata*). Scanning electron microscope.

We have obtained permission for virological examination of 100 specimens of Black-legged kittiwakes (*Rissa tridactyla*) in their colonies in Pyramiden. Once captured, they were examined for ectoparasites (Fig. 3.3.5.) and their fecal samples for parasites.

Zuzana Literáková found Gull head lice *Saemundssonía lari* in more than 70 % of kittiwakes.

**Fig. 3.3.5.** Adult Gull head lice *Saemundssonía lari*



Anna Mynářová recorded microsporidia *Enterocytozoon bieneusi* in 10 % and *Encephalitozoon* sp. in 8 % of kittiwakes (Fig. 3.3.6.).





Fig. 3.3.6. Examination of a kittiwake in abandoned building in Pyramiden.