

Marine Algae Belt In The Norwegian Seas

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WHAT DID WE DO?

We travelled to Austevoll and Tromsø to collect marine invertebrates from different regions within the Norwegian marine algae belt to document their diversity and spread. This project was in conjunction with Oslo Naturhistorisk Museum and the Artsdatabanken initiative. We were interested in polychaetes, ascidians, nemerteans, caprellids, and entoprocts.

WHAT DID WE FIND?

In general, there seemed to be more species in Austevoll than in Tromsø. This may be because of the lack of macroalgae in Tromsø, which might be a result of the presence of many sea urchins. Across both locations, there seemed to be a lack of entoprocts - we found eight of the same species of entoprocts in Austevoll, and none in Tromsø. This could be because of their small size compared to the other animal groups. Samples of different species for the other groups of interest were covered well. We found multiple specimens of the same species, as well as a broad variety of species across the same phylum. Some invasive species were observed in both Austevoll and Tromsø, such as the *Caprella mutica*. There was also the potential of finding new species, but this cannot be confirmed before the next step in the process – DNA barcoding.

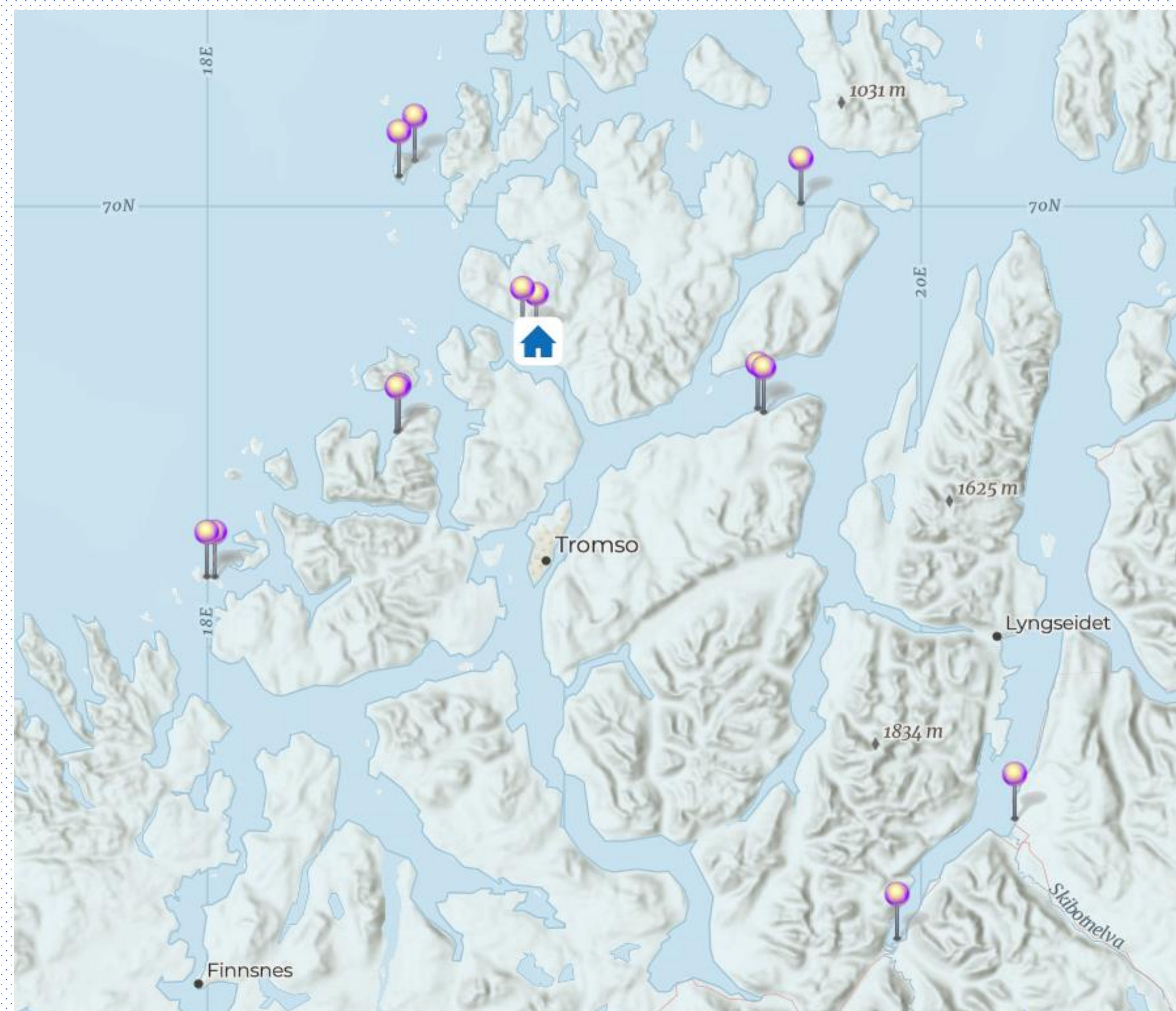
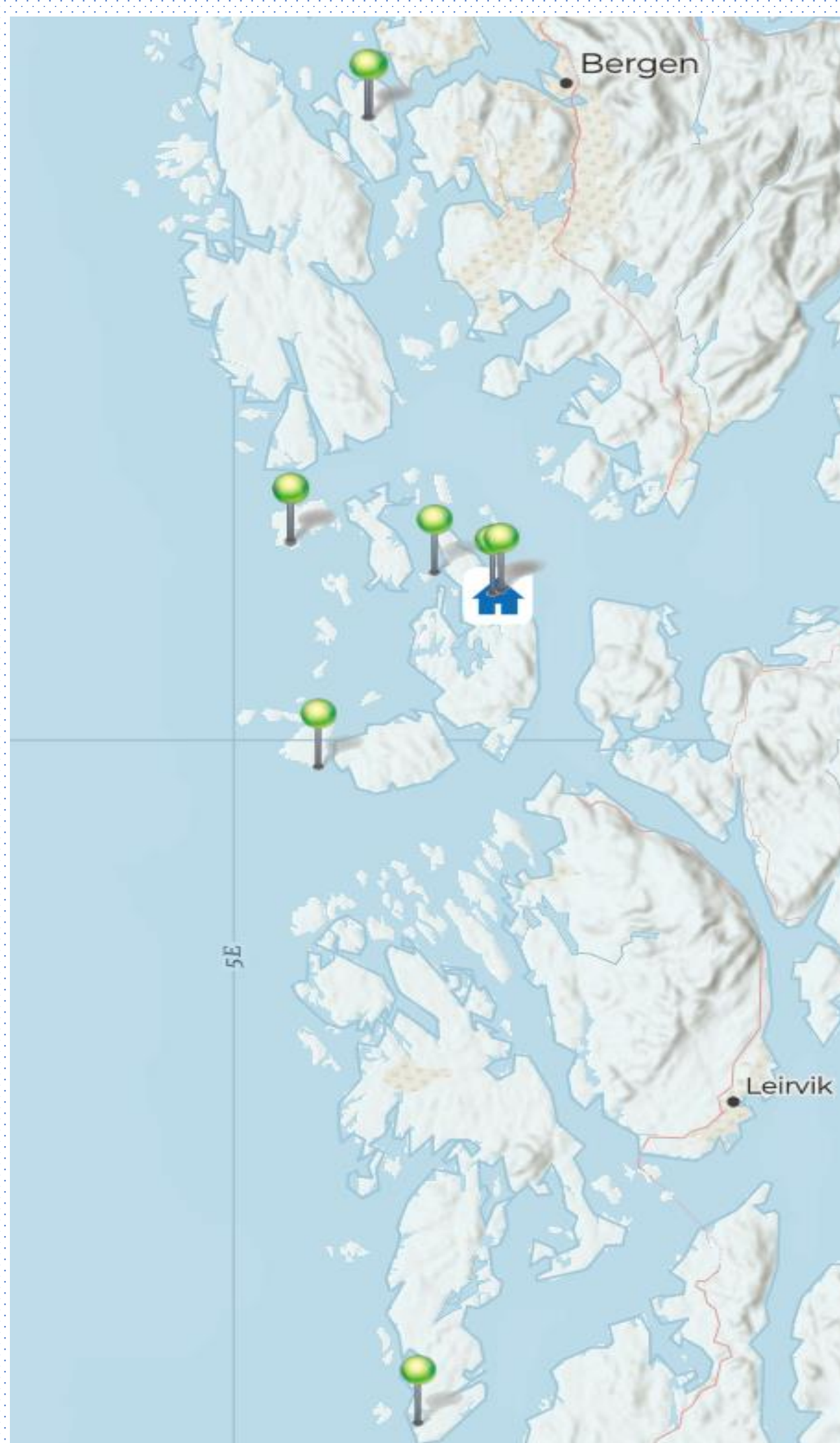


Figure 1
Regions in Vestland (left) and Troms og Finnmark (right) where we collected samples. House symbol represents research stations. Sampling locations marked by pins.



POLYCHAETES

Polychaeta is a large paraphyletic group of animals, the common name being “bristle worms”. Polychaetes are a diverse group of segmented worms, which vary in form and lifestyle. We were focused on the polychaete families Serpulidae and Spionidae. Serpulidae are tube dwelling worms with a ring of feeding tentacles, which they use to filter feed. Spionidae are free living worms living in the sediment, with a characteristic pair of feeding tentacles.



Photo: J. Turnbull © 2020



Photo: A. Nygren

ASCIDIANS

Ascidacea is an animal group commonly known as “sea squirts”, belonging to the subphylum Tunicata. Tunicata is the sister group to vertebrates, which means of the animal groups we were searching for, ascidians are the most closely related to us humans. Ascidians are sessile filter feeding organisms that can be found all over the world.



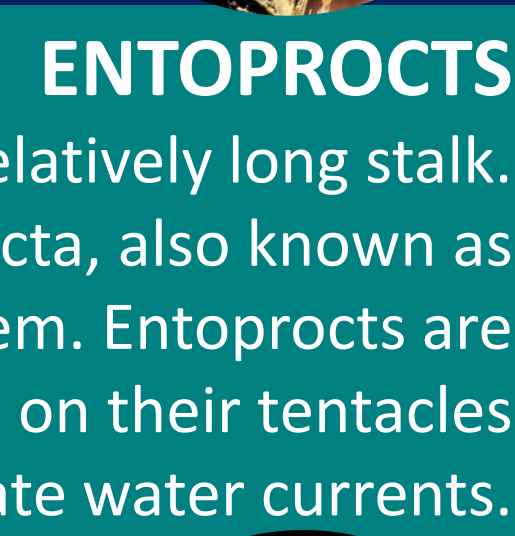
Photo: H. Hillewaert © 2010

CAPRELLIDS

Caprellidae, commonly known as “skeleton shrimp”, are a family of amphipods within the subphylum Crustacea. Caprellids use their appendages to grasp onto substrates with a force strong enough to withstand the water currents around them. As their common name suggest, they are quite skinny, which makes them hard to separate from filamentous algae.



Photo: J. Turnbull © 2017



ENTOPROCTS

Entoprocta is a phylum of goblet shaped animals. The goblet is connected to a relatively long stalk. Entoprocta means “anus inside”, which distinguishes them from Ectoprocta, also known as bryozoans. They are similar to cnidarian polyps, and can be easily mistaken for them. Entoprocts are small, ranging from 0.4 to 7mm. Entoprocts are filter feeders, using the cilia on their tentacles to generate water currents.

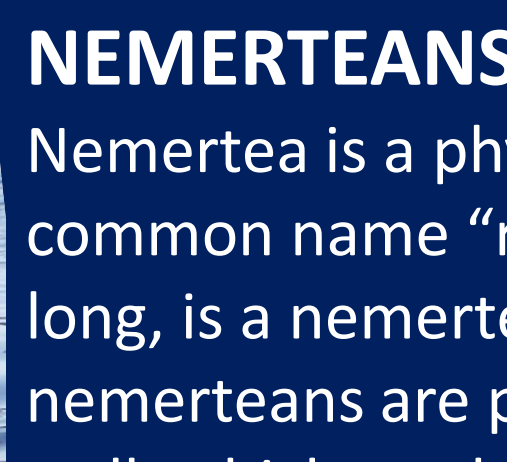


Photo: B. C. Vellutini © 2012

NEMERTEANS

Nemertea is a phylum of worm-like animals - they are usually long and slender, which explains their common name “ribbon worms”. The longest animal ever documented, at an astonishing 54 metres long, is a nemertean found in the Norwegian marine algae belt named *L. longissimus*. Most nemerteans are predators - using a proboscis to capture prey. The proboscis is an infolding of the body wall, which can be ejected and coiled around prey, or it can have a stylet which injects toxins.

Figure 2
A short description of the main animals we were hoping to find. Photo credit under each image.

WHAT'S IN A DAY'S WORK?

Our days usually started early – we went out into the sea, harvested kelp, stones and sediment, then took it back to the lab to sort and identify organisms under the scope, before fixing them in ethanol or formalin.

WHAT HAPPENS NEXT?

After collection, identification, photographing and fixing the specimens, small samples will be prepared at Oslo NHM to be sent for genetic barcoding. This provides genetic data which can be used by Oslo NHM and Artsdatabanken to further explore these species, differences within them, and their relationships to other animals.

ACKNOWLEDGEMENTS

We would like to thank Torunn Vistnes Espe and UiO:Life Science University of Oslo, for funding and coordinating the Life Science Summer Research Project 2022. Thanks to Artsdatabanken for funding, Oslo NHM for access to equipment and facilities, and thanks to our colleagues, M. Berggren, J. Fleming, S. Leidenberger, T. Stach, A. Valero-Gracia, and L. Willersrud, for support, education, and biological insight. Finally, we'd like to extend our thanks to Havforskningsinstituttet avdeling Austevoll and Havbruksstasjonen Tromsø AS for use of their facilities.