



The distribution of blue mussels (*Mytilus edulis*) along the Norwegian coastline is declining ^[1]. This study aimed to explore some of the potential factors driving this phenomenon. By assessing diverse locations across a fjord, we investigated whether variations in salinity levels affect blue mussel distribution. While previous research has centered on the predatory role of sea stars, crabs and fish and their

impacting on blue mussel populations^[2], recent research focus on the snail specie dogwhelk, *Nucella lapillus*, which is a known predator on blue mussels^[1,3]. Considering the dogwhelks' low tolerance for freshwater, our hypothesis suggests they may influence the shifting distribution of blue mussels with rising salinity levels.

Sampling sites in Voldsfjorden and Austefjorden

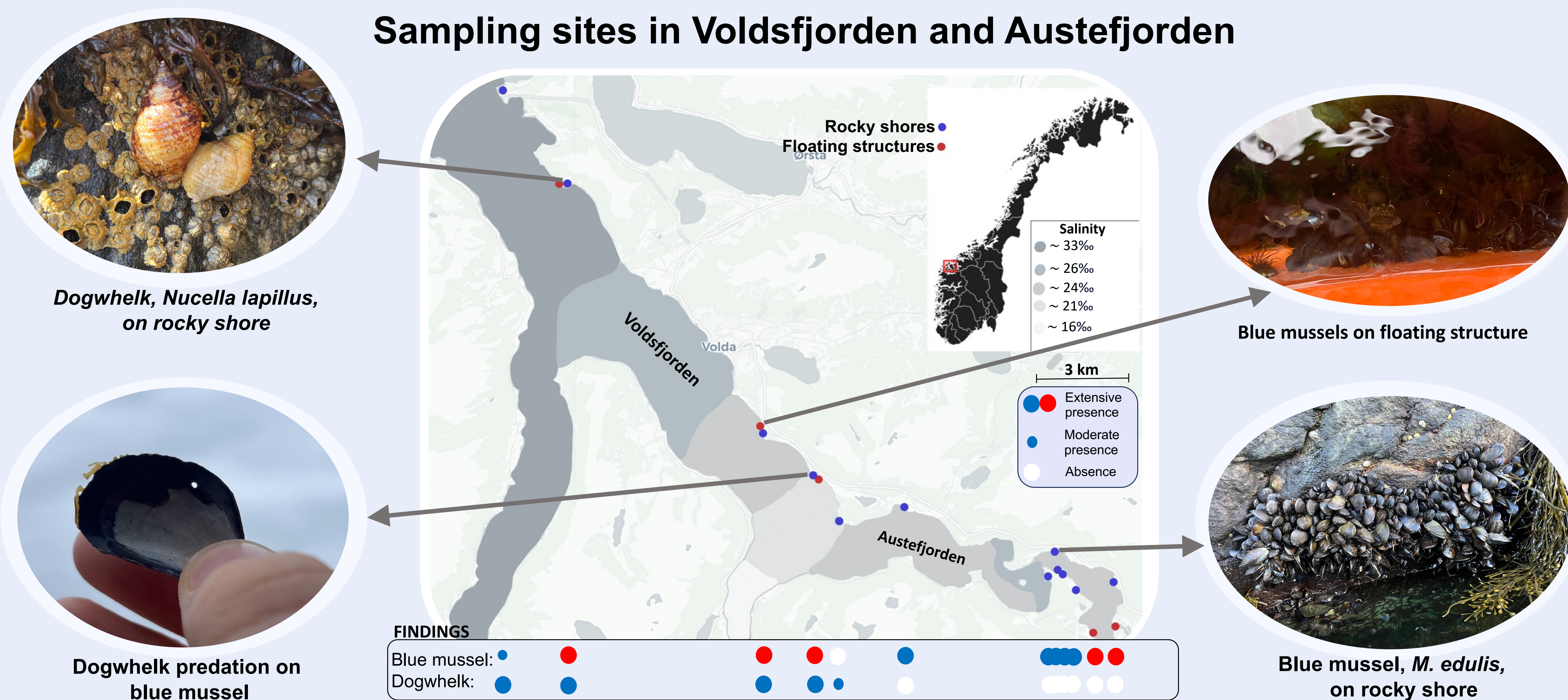


Figure 1: Map showing the study area, approximate salinity levels and sampling sites. The pictures shows dogwhelks, blue mussels and a blue mussel shell with signs of predation from a dogwhelk. The findings are categorized into extensive and moderate presence, and absence on rocky shores and floating structures.

Photos by Marte Rørstad

LOCATIONS AND METHODS

Locations were chosen for their accessibility from land, the availability of suitable aquatic environments and the possibility of floating structures. We recorded coordinates to ensure the experiment could be replicated. We carefully noted observations of various species, and photographic documentation was used to supplement our data recording.

KEY FINDINGS

- The first observation of dogwhelks occurred ca. 10 km from the innermost point of the fjord.
- Blue mussels were observed throughout the entire length of the fjord.
- At a distance exceeding 10 km, blue mussels were mainly sighted on floating structures.
- Our findings can indicate that the dogwhelk contributes to blue mussel distribution.

REFERENCES:

- [1] Mortensen et al. 2023. The surveillance and control programme for bonamiosis and marteiliosis in European flat oysters, *Ostrea edulis*, and blue mussels, *Mytilus* sp. in Norway in 2022.
- [2] Christie et al. 2020. Disappearing Blue Mussels – Can Mesopredators Be Blamed?
- [3] Tam et al. 2011. Mussel and dogwhelk distribution along the north-west Atlantic coast: testing predictions derived from the abundant-centre model

The ecological relationship between dogwhelks and blue mussels is just one part of the project. Read more about how some other species can affect the distribution of blue mussels in the complete report.