

Geometric morphometrics analysis: a complement to the revision of whelk taxonomy in the Arctic

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Ice cover, food availability, light intensity, limited dispersal capacity, presence of predators and reproduction mode are just a few of the drivers that influence benthic community dynamics, especially in the Arctic. Benthic organisms can respond to such drivers through morphologic variations, referred to as phenotypic plasticity. These variations are however hard to observe on Arctic whelk (genus *Buccinum*) and their diversity and extensive distribution increase the complexity of their identification. While genetics analyses can address this problem, they are not broadly accessible. More accessible are landmark-based geometric morphometrics which analytically identifies morphologic variations. This technique aims at identifying shape variations and could be used to identify intra- and inter-species morphologic variability in the genus *Buccinum*. The main objective of this project is to verify whether landmark-based geometric morphometrics, particularly 3-dimensional, could be used on whelk species. If this proof of concept proves successful, the next step will be to identify new morphologic traits to differentiate species and compare this technique to genetics analyses on multiple *Buccinum* species. This project could allow researchers to efficiently differentiate between whelk species on the basis of morphologic traits rather than through more demanding genetics analyses.

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