CAN OXYGEN LEVELS HAVE AN EFFECT ON GROWTH?

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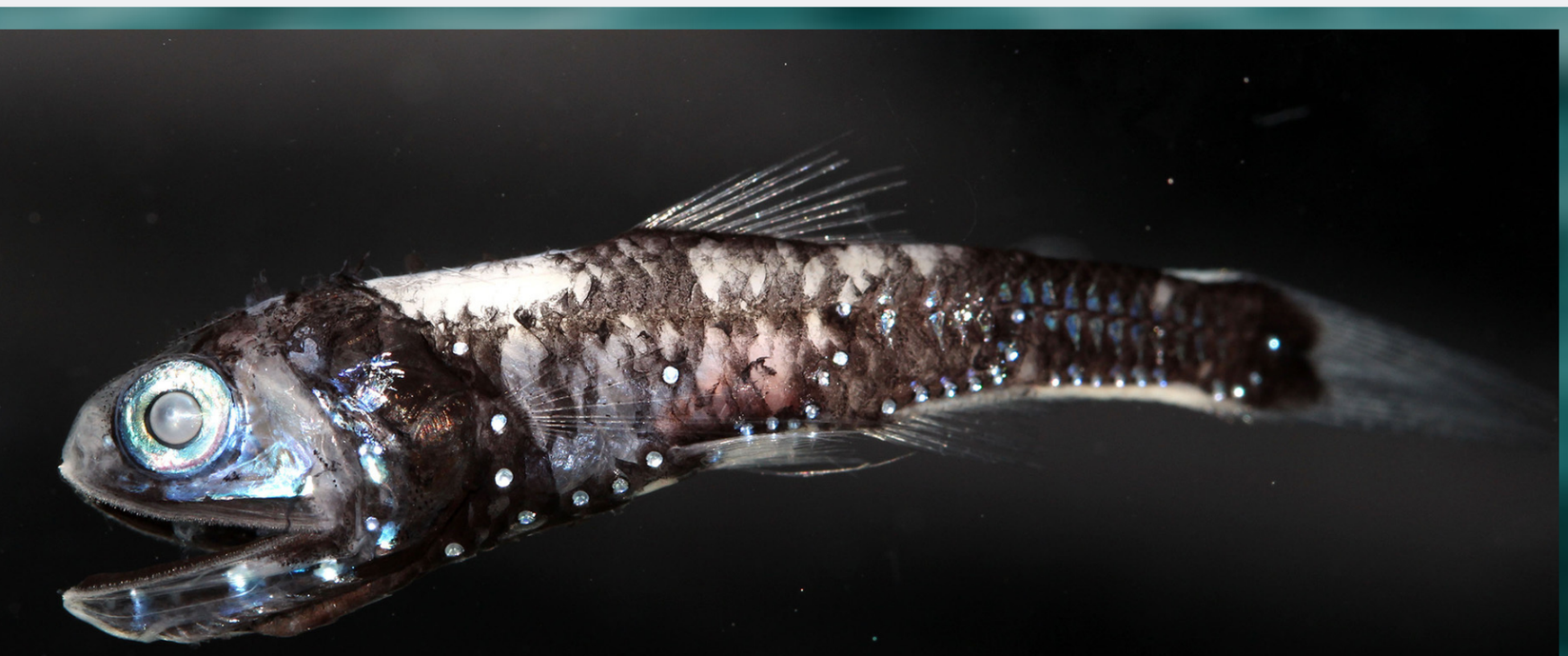


Glacier lanternfish (Zuzana Musilova/Charles University/TNS).

METHODS

To collect the glacier lanternfish we trawled in one fjord with low oxygen levels and one well-oxyginated fjord. The individuals were weighed, standard length measured and the otoliths were dissected out for further size analyzes in ImageJ.

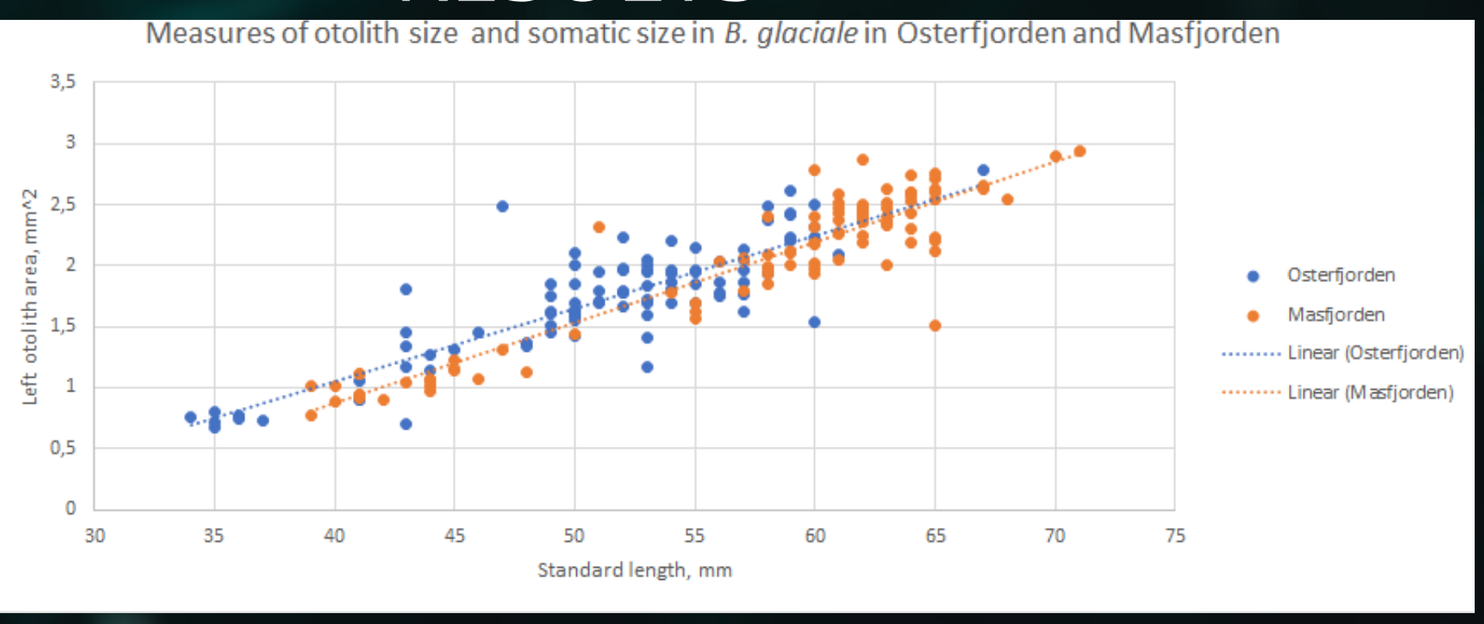
BACKGROUND

For this project I wanted to find out if the somatic growth of the glacier lanternfish is influenced by the oxygen levels in the water. To do this I compared the individuals relationship between somatic size and otolith size from two fjords with different oxygen levels, with the assumption that under otherwise identical conditions, fish with small otoliths have grown faster than fish with large otoliths at a given length (1).

My hypothesis is that fish from the fjord with low levels of oxygen grow slower than fish from the fjord with higher oxygen levels.

Otoliths from glacier lanternfish (Sofie Gjærløw/UiB)

RESULTS



The results indicate that the fish from the fjord with low oxygen levels (Masfjorden) grow faster than the fish in the well-oxygenated fjord (Osterfjorden), since the otoliths from fish at a given length from Osterfjorden were bigger than the otoliths from Masfjorden of the same length.

CONCLUSION

Based on my data we can conclude that the fish from the fjord with low oxygen levels grow faster than the fish from the well-oxygenated fjord, contradicting my hypothesis. There might have been other factors that could also affect growth who overpowered the expected effect of oxygen concentration, e.g. temperature and food availability.

(1): Hare, J. & Cowen, R. K. (1995). Effect of age, growth rate, and ontogeny on the otolith size - fish size relationship in bluefish, Pomatomus saltatrix , and the implications for back-calculation of size in fish early life history stages. Canadian Journal of Fisheries and Aquatic Sciences, Vol. 52(9). 1909-1922. 10.1139/f95-783.

SCAN ME