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Introduction:

Hypoxia as a harmful phenomenon has recently increased in the marine coastal environment. For free living marine nematodes, the most dominant groups of meiofauna, oxic condition is favourable and they can tolerant short-term anoxia but the activity level of them could be reduced by oxygen limitations. Also, hypoxia can change nematode community structure and reduce diversity and abundance of some dominant nematodes. Different sediment types are characterised by different biogeochemical environments, which is reflected in nematode densities, community composition and vertical distribution in the sediment. The aim of present study was investigation the effect of short-term hypoxia on nematode densities and vertical distribution patterns in three different sediment types.

Materials and Methodes:

Sampling at three different stations in June 2011 at the Belgian Part of the North Sea (BPNS).

- Station 700 (median grain size: 25 μm)
- Station 115 bis (median grain size 185 μm)
- Station 330 (median grain size 330-360 μm)

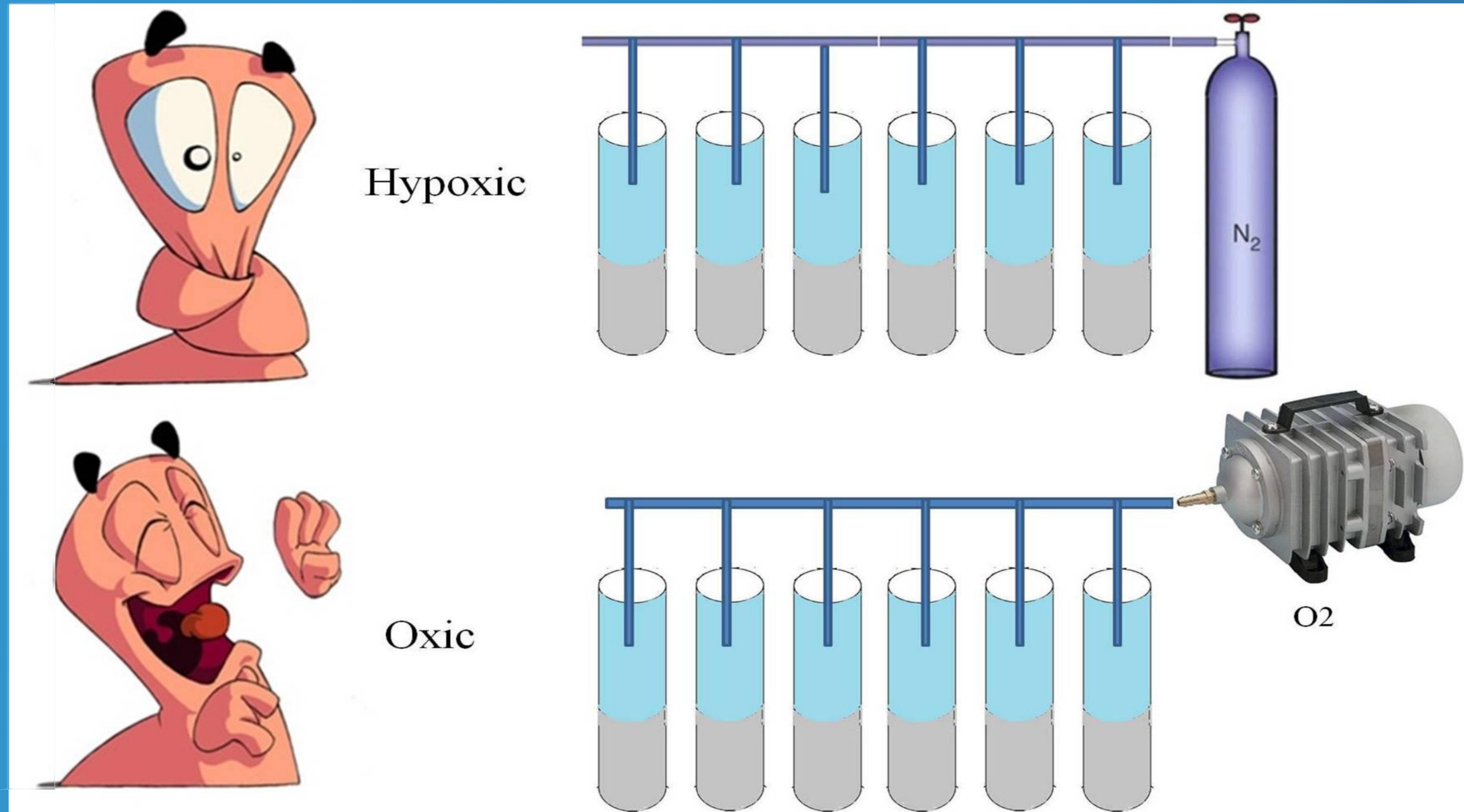
Field control: 18 cores, 9 for community structure and 9 for sediment condition

Experiment: 18 cores, 9 for community structure and 9 for sediment condition for each treatments.

Hypoxic condition ($1.34 \pm 0.09 \text{ mg}^{-1}$): day 1 and day 7 (with gas mixture containing 97% nitrogen).

Oxic condition ($7.70 \pm 0.09 \text{ mg}^{-1}$): day 1 and day 7 (with air pump)

In each treatment all cores were sliced into one centimetre interval till six centimetres.



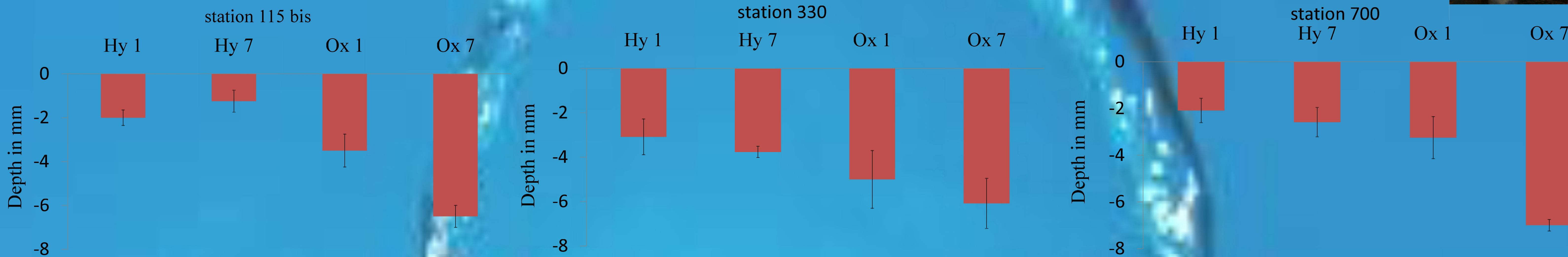
Results:

Field control:

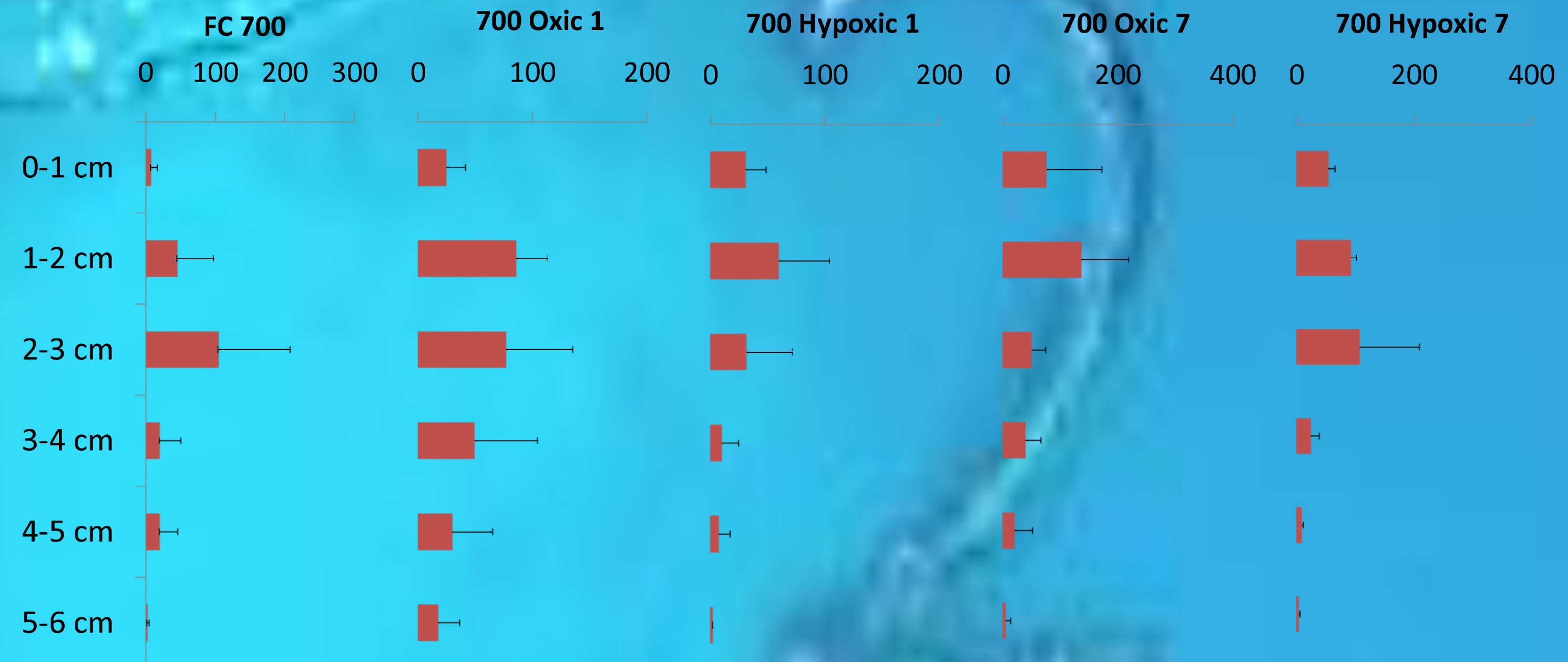
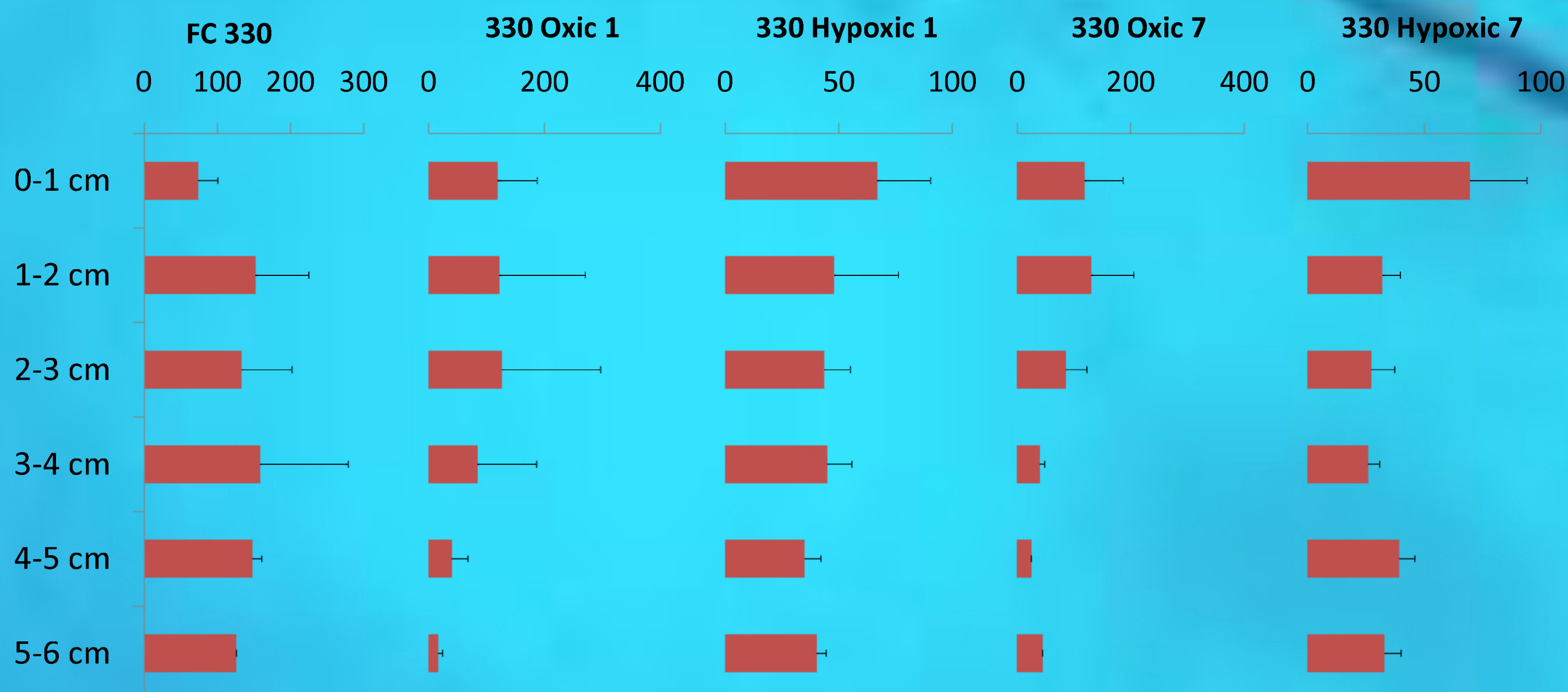
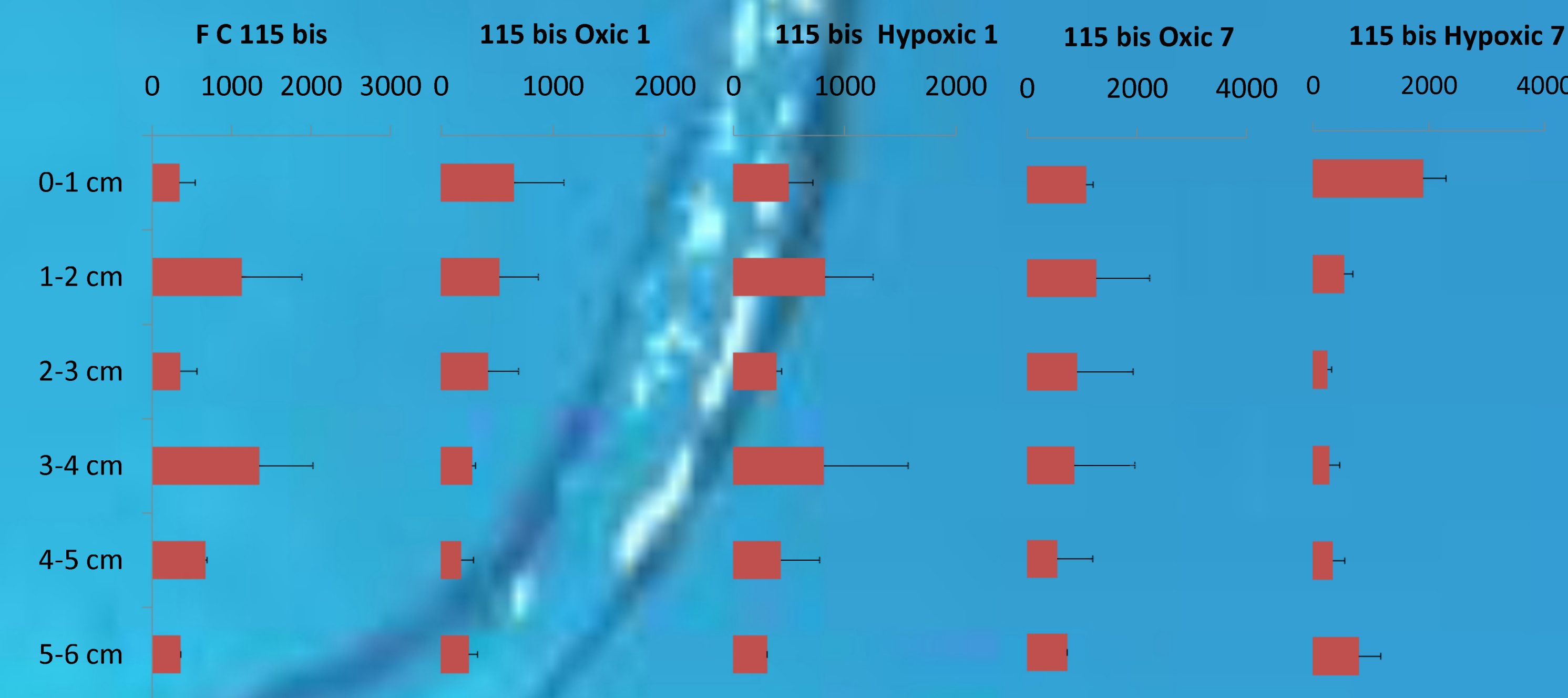
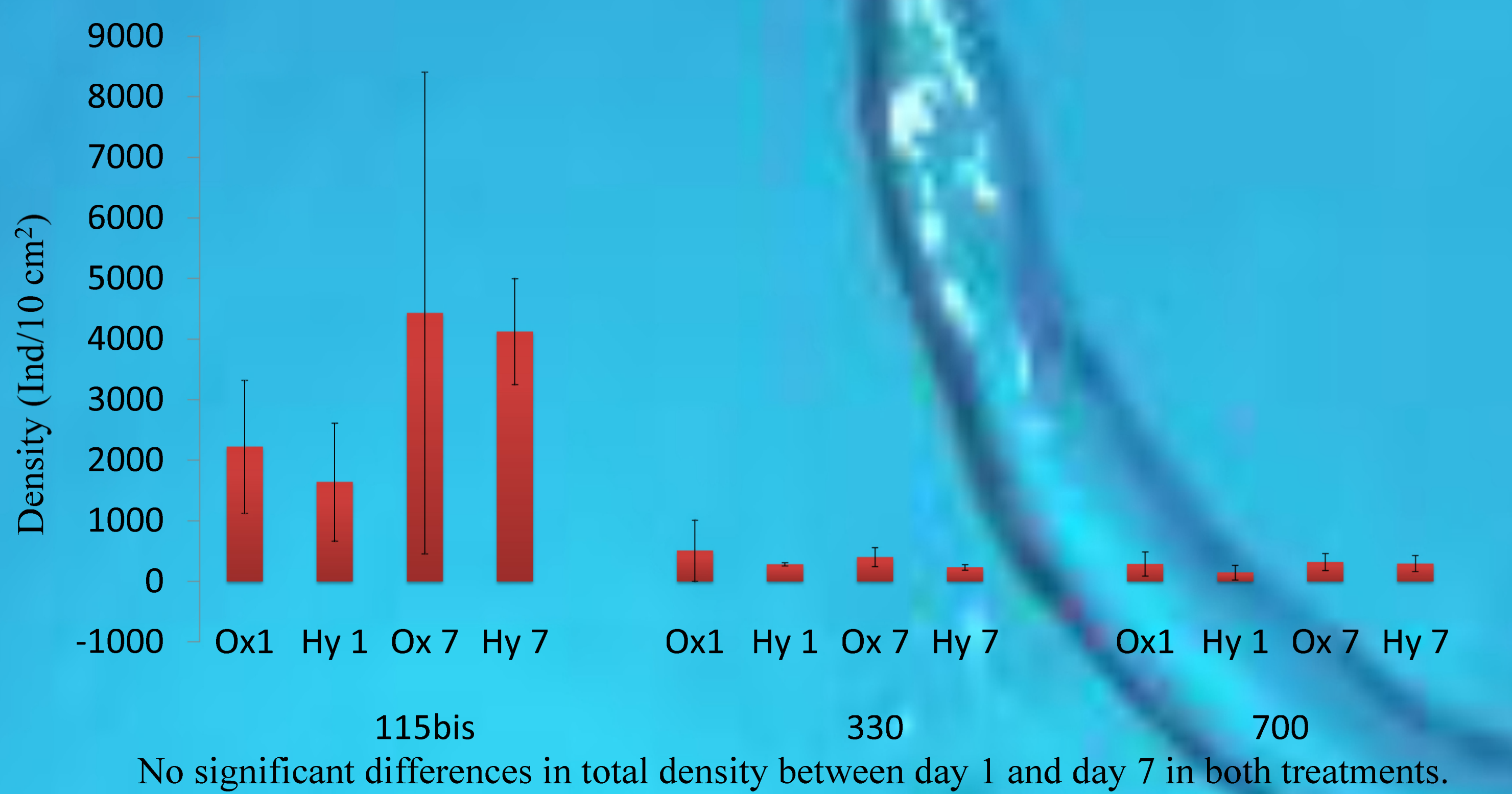
- Total density, 115 bis > 330 = 700
- No significant differences in the vertical distribution pattern (relative abundance).
- Not significant differences between total densities of FC and Oxic day 1 in all stations.

Experiment:

- Reduced oxygen penetration depth in hypoxic treatments from Day 1 onwards at St330, and at Day7 at both other stations.



- No significant differences in total densities in Oxic day 1, Oxic day 7, Hypoxic day 1 and Hypoxic day 7 in all stations.
- Hypoxia did not affect nematode total densities after 1 and 7 days at any of the stations.
- Hypoxia did not affect the vertical distribution of the nematodes at any of the stations.



Vertical distribution of nematodes density (Ind/10 cm²) in all stations and both treatments.

Conclusion:

Our results indicate that nematode communities from different sediment types from the BPNS were not negatively affected by short-term hypoxia, in terms of total densities and vertical distribution patterns. This can partly be explained by the buffering capacity of all types of sediment, as reflected in the relatively small differences in oxygen penetration depth in most of the sediments. On the other hand, nematode communities present at the start of the experiment probably were adapted to life in oxygen-stressed environments, as they were sampled after the deposition of the spring phytoplankton bloom. However, more detailed (but ongoing) analyses of the nematode communities (e.g. at species level) and environmental variables are needed to increase our understanding of the response of different nematode communities to short-term hypoxic events.