

Introduction

- The Hudson Bay has a watershed area of over 4 million km²
- Environmental changes due to climate change and hydroelectric regulation are expected to impact the coastal and pelagic ecosystems
- Information about the abundance and distribution of fish species is limited
- The Hudson Bay has full ice cover in winter and no ice in summer - conditions proposed to be likely for the Arctic in the near future
- Studying the sub-arctic marine ecosystem of Hudson Bay would help with predictions on higher latitude ecosystems

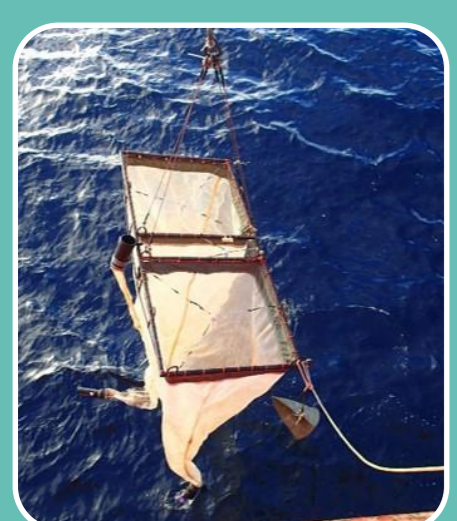
Project objectives

- To detect regional fish assemblages in Hudson Bay and Hudson Strait
- To identify changes in fish distributions and biomass in response to a changing environment

Materials and methods



All data collected aboard the CCGS Amundsen during the 2005 and 2010 expeditions and the CCGS Pierre Radisson in 2012



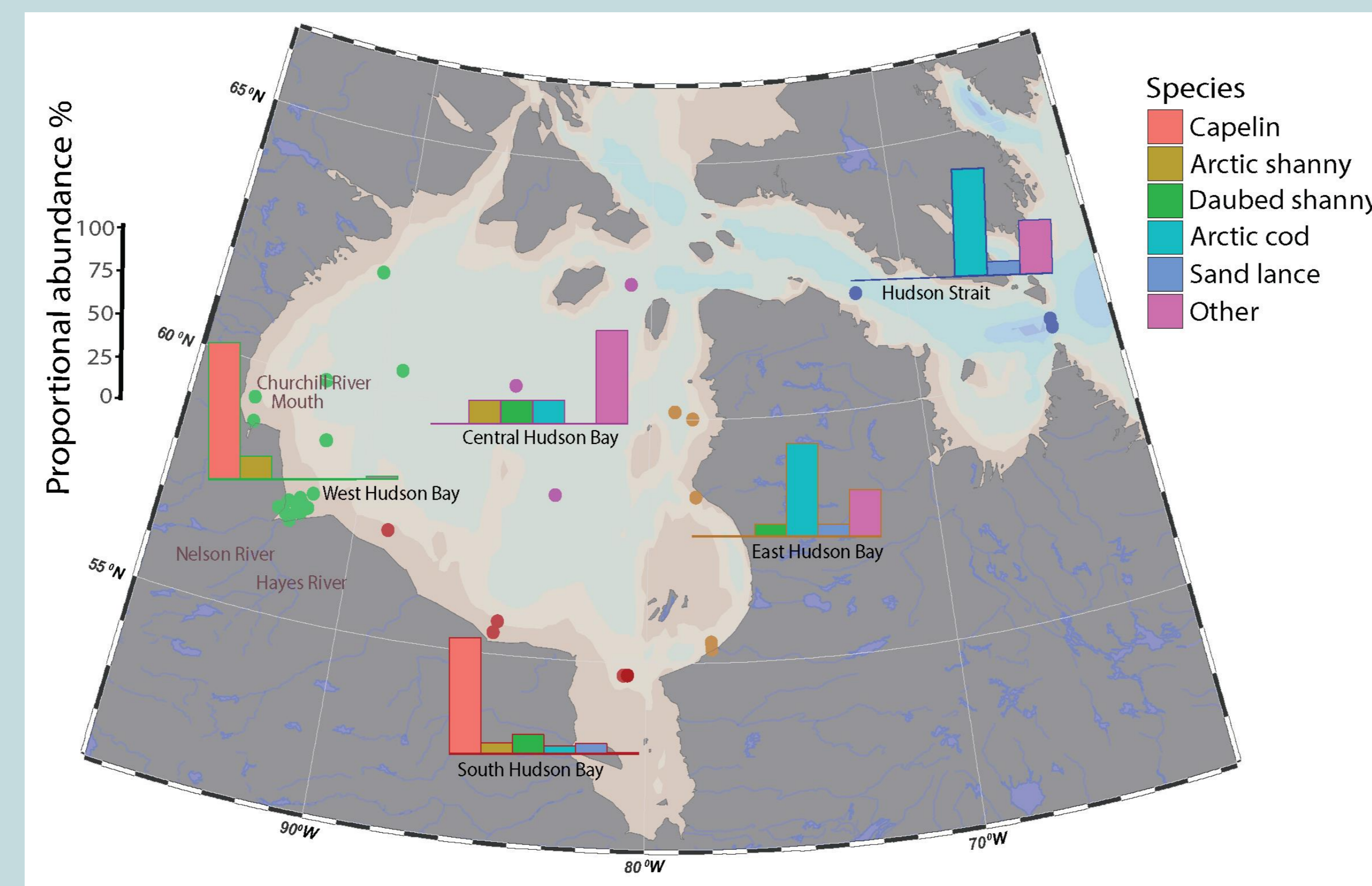
On this poster the first results from the fish larvae samples captured with oblique trawls are presented



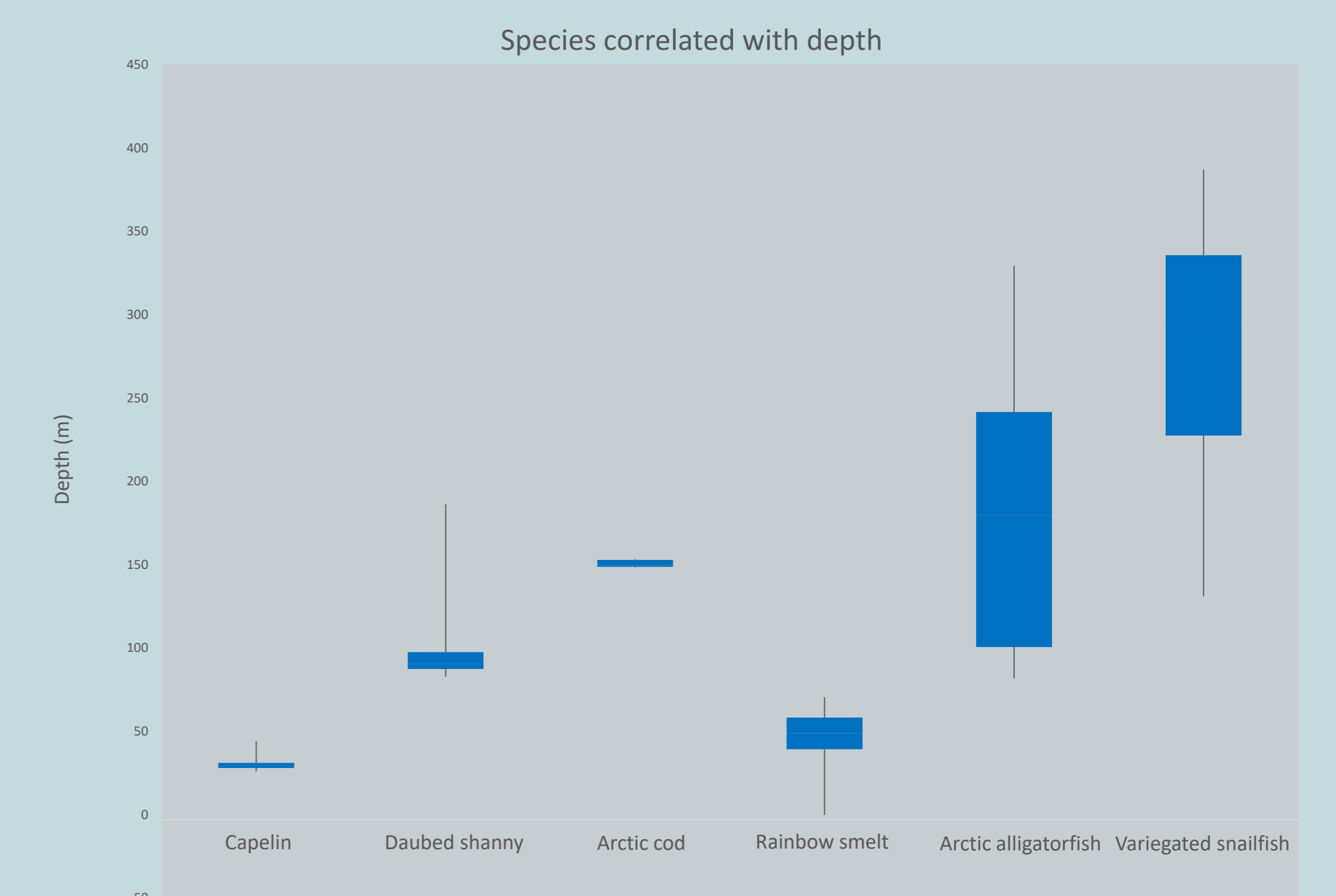
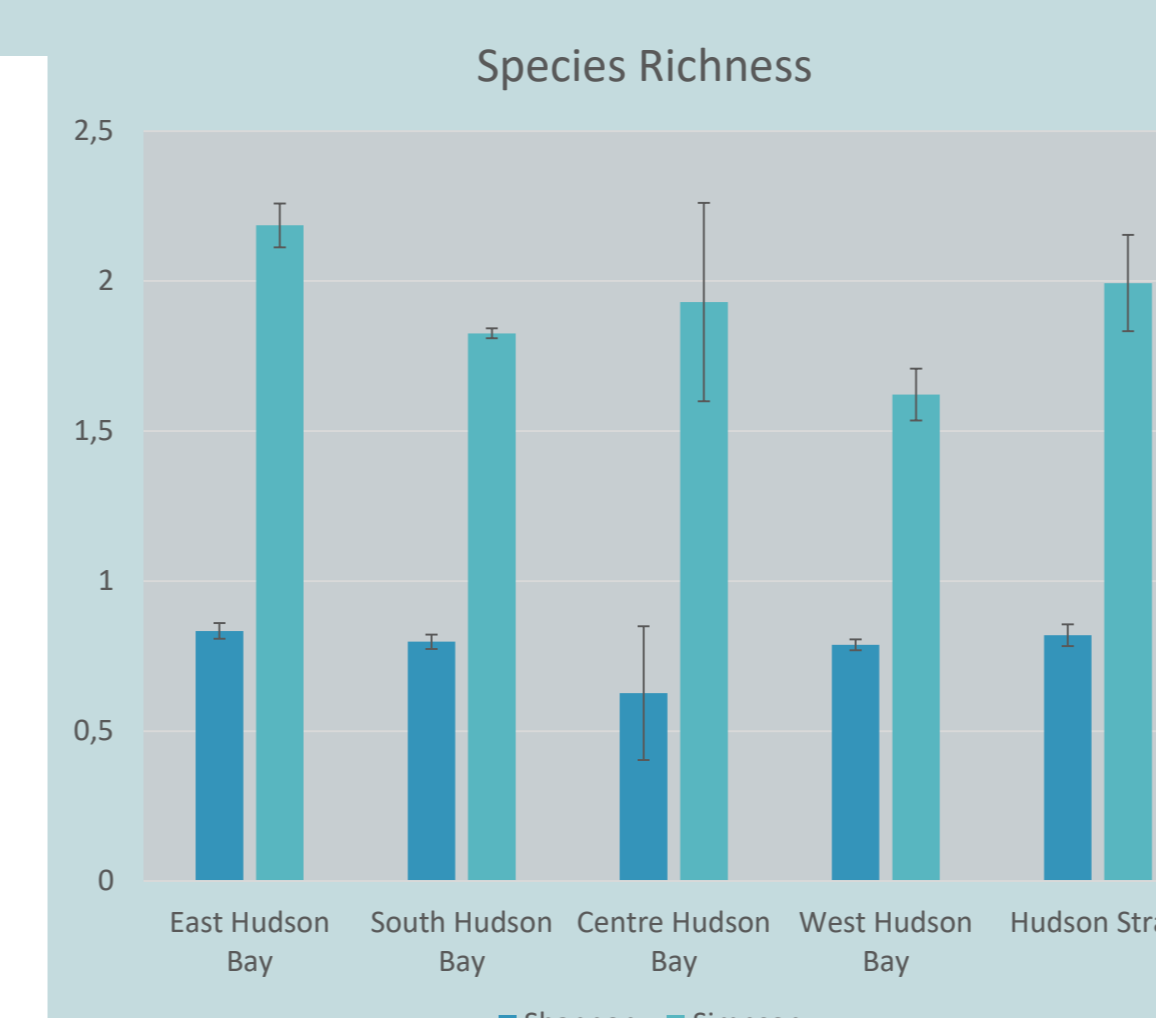
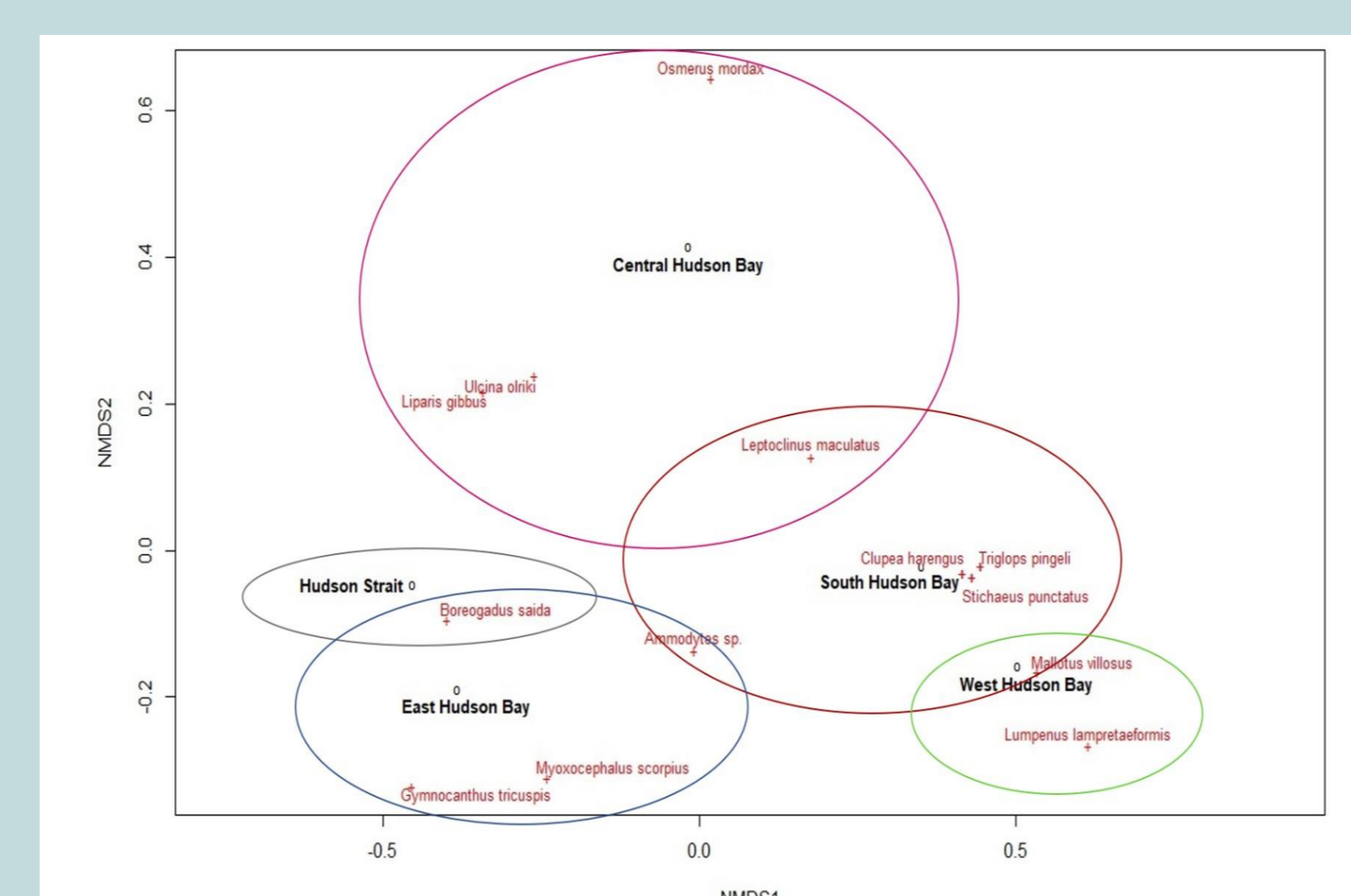
Fish were identified, measured (length & height) and preserved in alcohol

Results

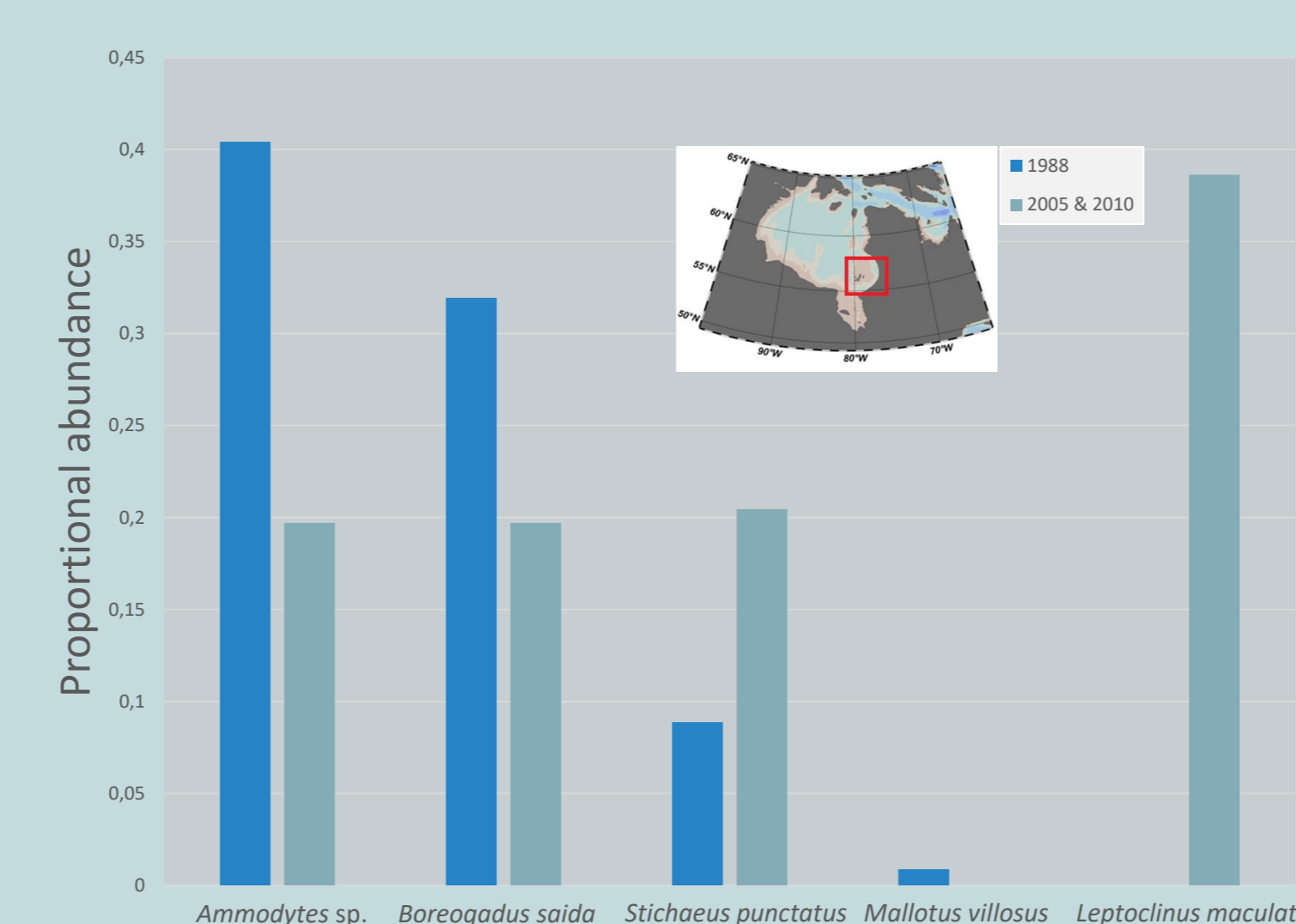
Regional assemblages of fish larvae in the Hudson Bay system



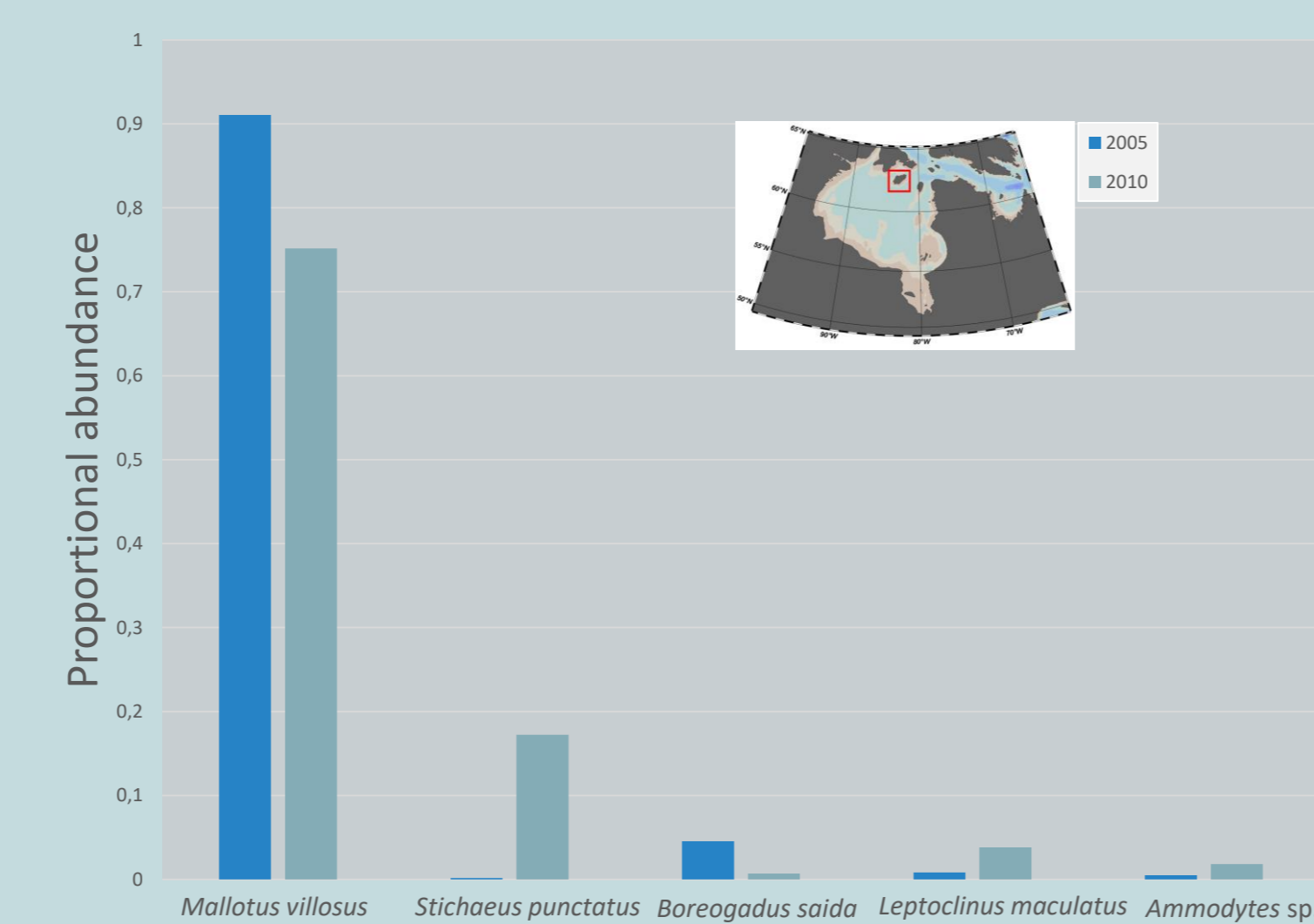
- Fish assemblages in eastern Hudson Bay and Hudson Strait are defined by characteristically arctic species (eg, Arctic cod), while characteristically sub-arctic species (eg, Capelin, shanny species) are common in the West and South of Hudson Bay
- There is no significant difference in species richness between regions
- Typically arctic species are found in deeper waters than subarctic ones



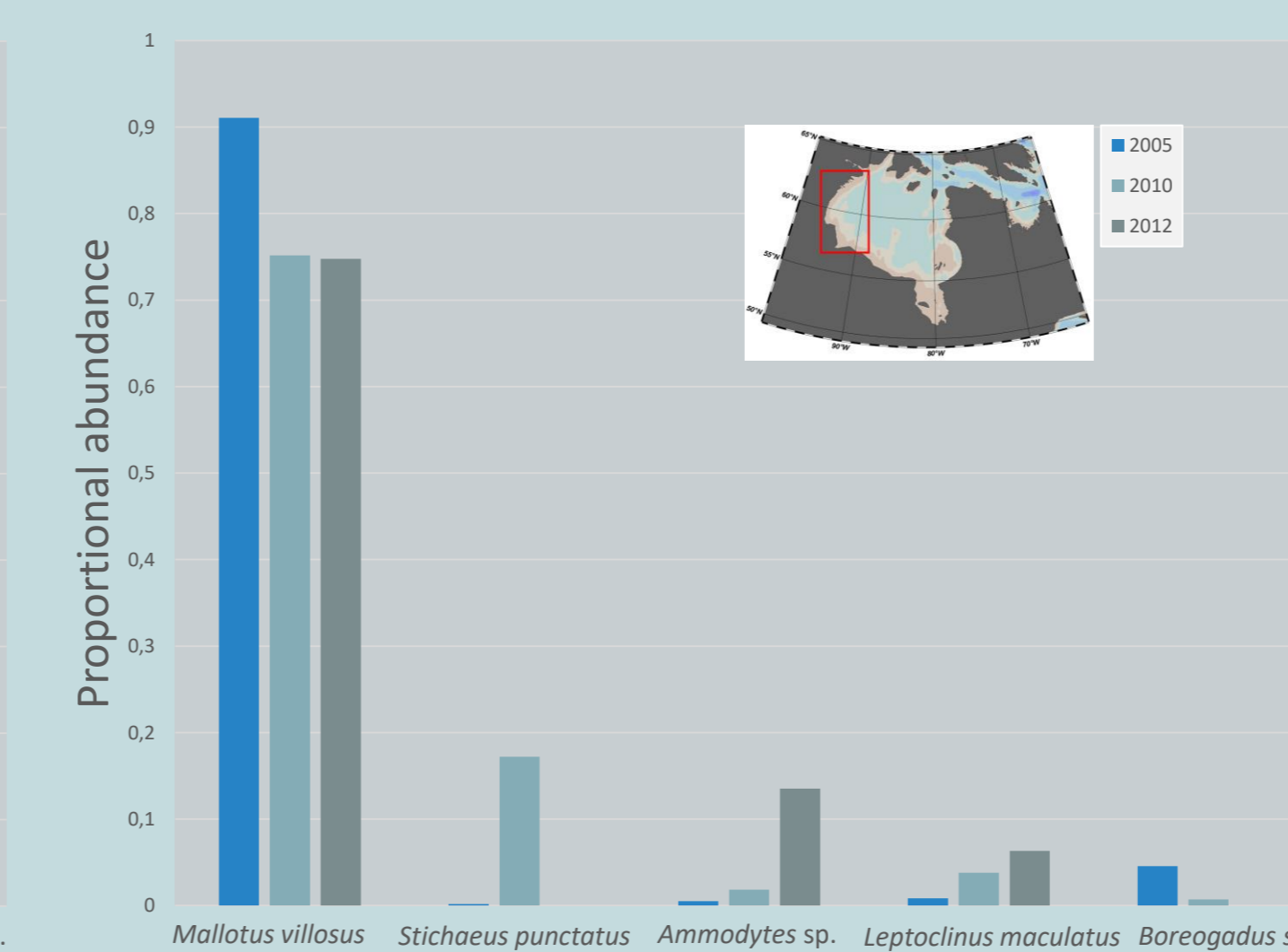
An ecosystem in change



Between the 1980s (Drolet et al., 1991) and the 2000s, the proportional abundance of *Boreogadus saida* decreased while stichaeidae species became more abundant



At a shorter timescale, in 2010 and 2012 there was a higher relative proportion of *Stichaeus punctatus*, *Leptoclinius maculatus* and *Ammodytes* sp. than in 2005.



Discussion and future work

- The estuaries on the East coast of Hudson Bay are nursery areas for capelin as shown by their presence in large numbers in shallow coastal zones
- The changes in fish species over the years are similar to changes in predator's diets
- Thick-billed murres on Coats islands caught less Arctic cod and more Capelin and Sand lance between 1980 and 2002
- Ringed seals in western Hudson Bay captured less Arctic cod and more Capelin in the 2000s compared to the early 90s
- Correlation of fish and zooplankton distribution and biomass with more environmental variables will help separate effects of climate change and hydroelectricity regulation

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