

Assessing trawling impact in West Greenland using a benthic drop camera.

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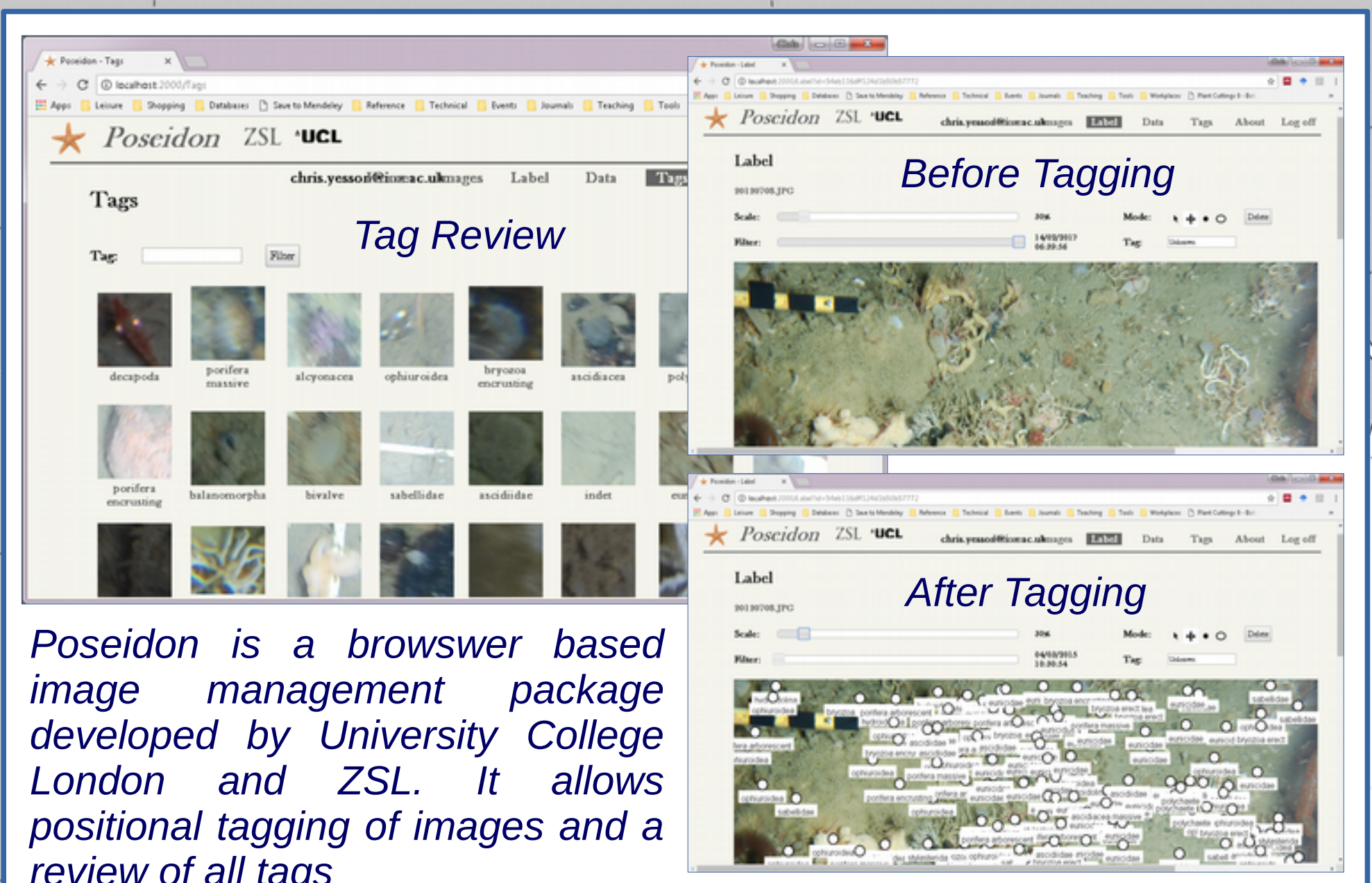
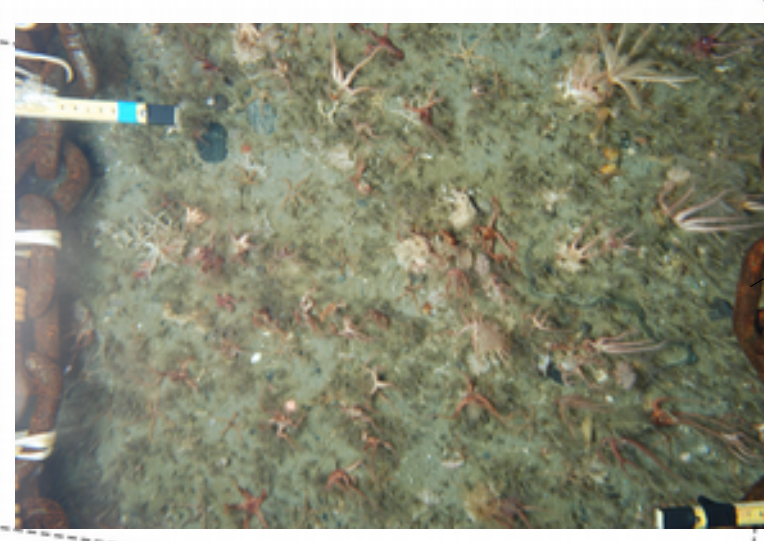
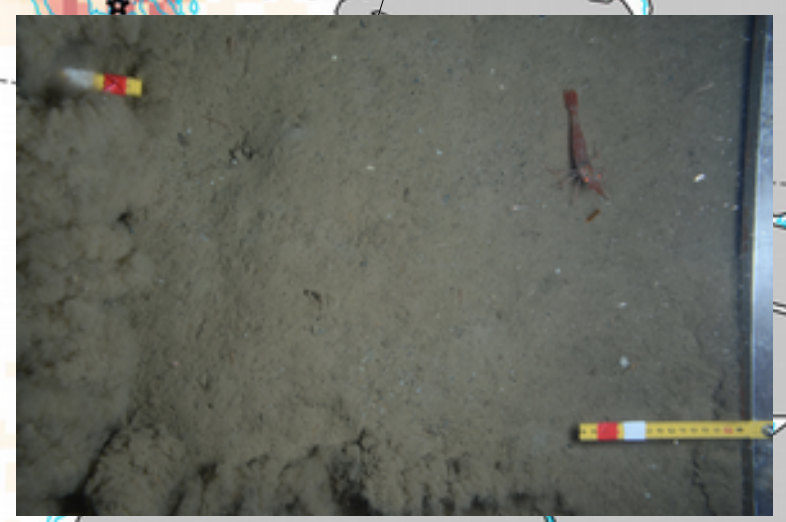
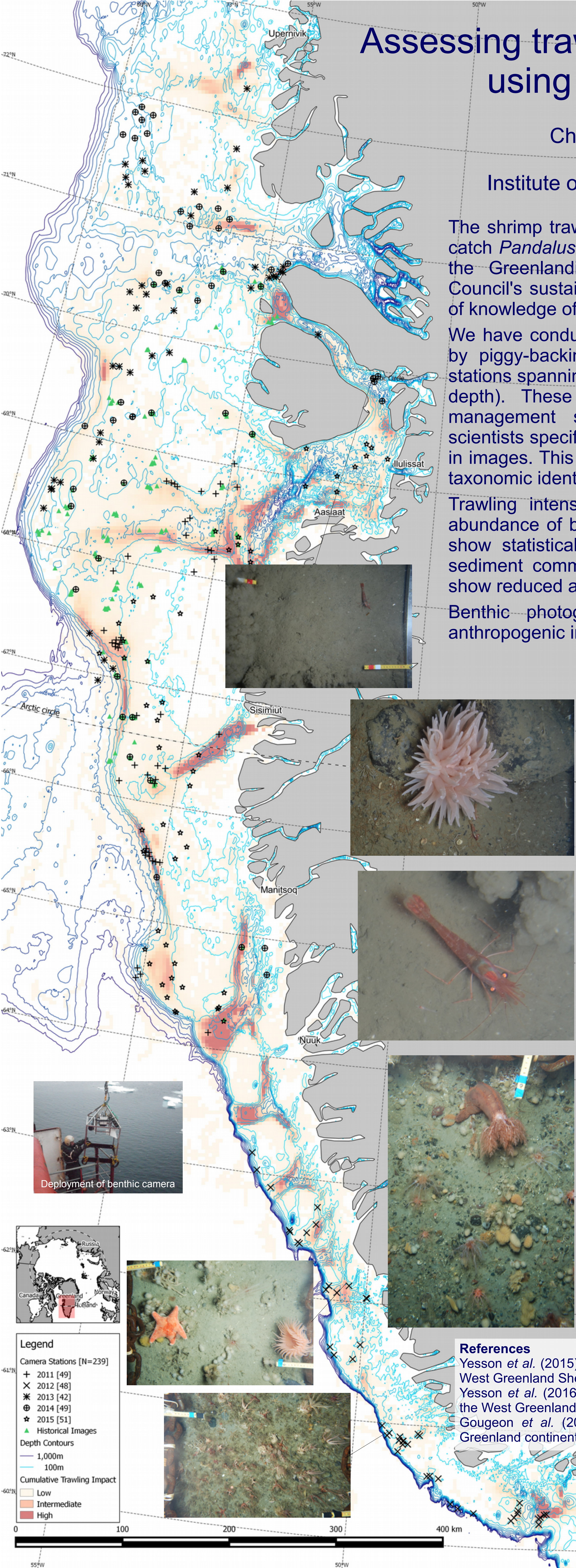
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The shrimp trawl fishery of West Greenland has been using otter trawls to catch *Pandalus borealis* since the 1950s. The fishery is a significant part of the Greenlandic economy and has entered the Marine Stewardship Council's sustainability scheme. The MSC assessment highlighted the lack of knowledge of benthic habitats in the region.

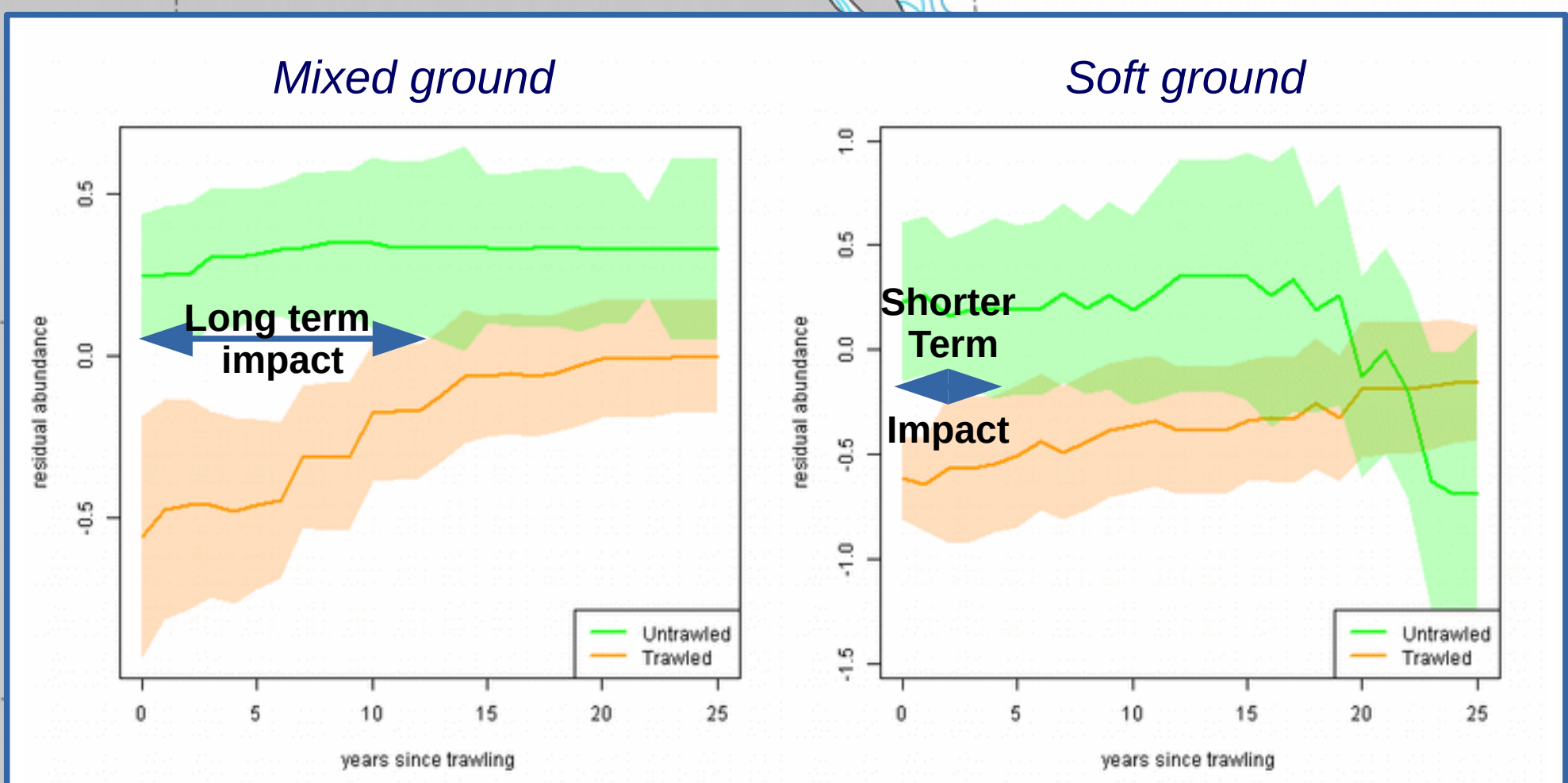
We have conducted 6 years of cost-effective benthic drop camera surveys by piggy-backing on stock assessment cruises. We have covered 297 stations spanning 2000km of the west Greenland continental shelf (61-725m depth). These images were examined with the help of an image management software package "Poseidon" developed by computer scientists specifically for this project to assist in tagging organisms observed in images. This software greatly increased the efficiency and consistency of taxonomic identifications.

Trawling intensity is the most important factor determining the overall abundance of benthic organisms. Sessile erect organisms, such as corals, show statistically significant negative response to fishing pressure. Soft sediment communities show more resilience than rocky areas; the latter show reduced abundance even for sites last trawled a decade ago.

Benthic photography can be a useful tool in the assessment of anthropogenic impacts.



Poseidon is a browser based image management package developed by University College London and ZSL. It allows positional tagging of images and a review of all tags



Time series showing the difference in abundance between recently trawled and recently untrawled sites. The time series shows the effect of changing the definition of "recently", where recently trawled sites are any site that has some trawling activity in the past X years and recently untrawled sites are those which have had none in that same time period (Yesson et al. 2016).

References

- Yesson et al. (2015) Community composition of epibenthic megafauna on the West Greenland Shelf. *Pol. Biol.* 38: 2085-2096.
- Yesson et al. (2016) The impact of trawling on the epibenthic megafauna of the West Greenland shelf. *ICES J. Mar. Sci.* (doi:10.1093/icesjms/fsw206)
- Gougeon et al. (2017) Mapping and classifying the seabed of the West Greenland continental shelf. *Est. Coast. Shelf Sci.* 187: 231-240.

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