



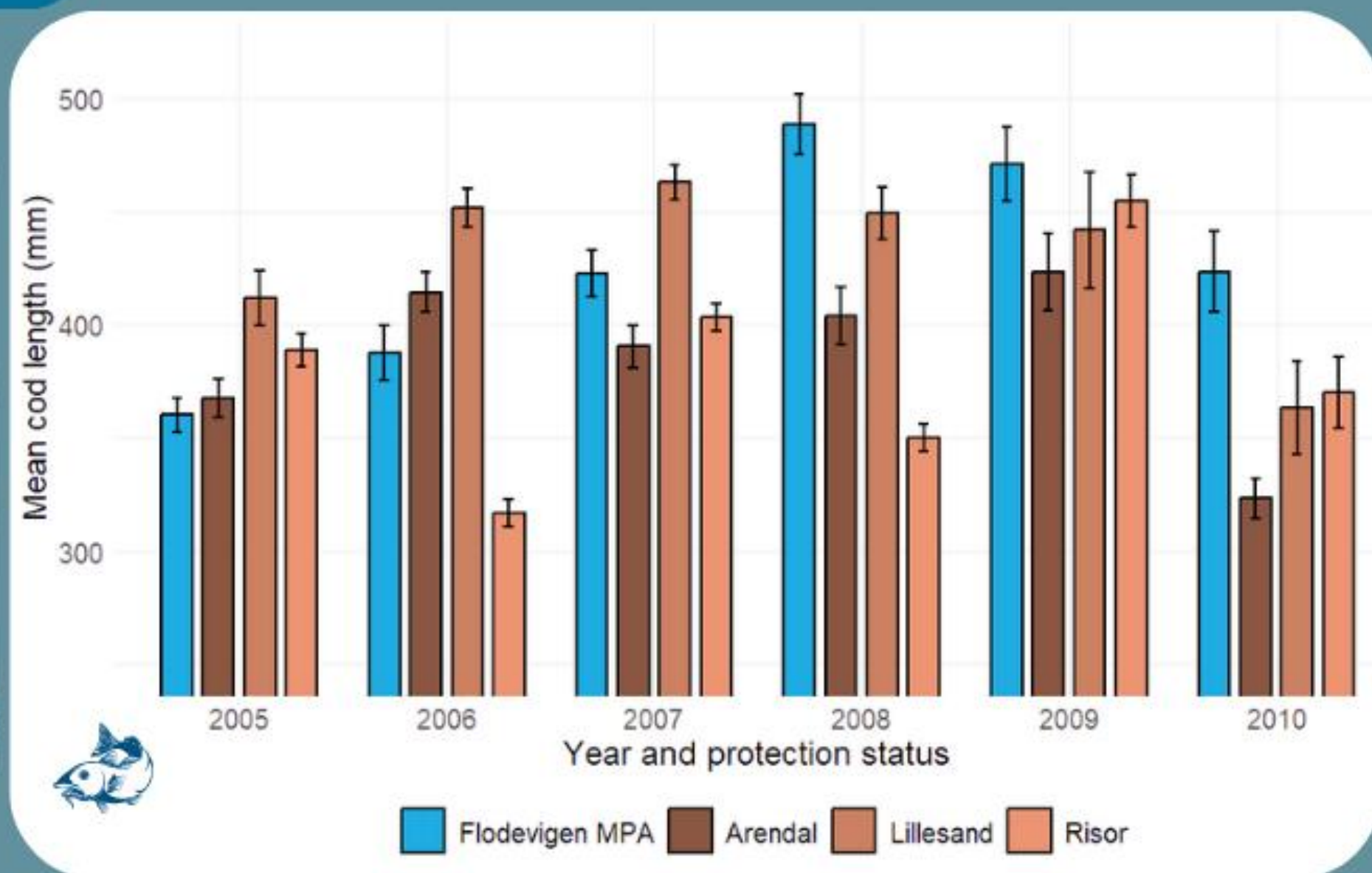
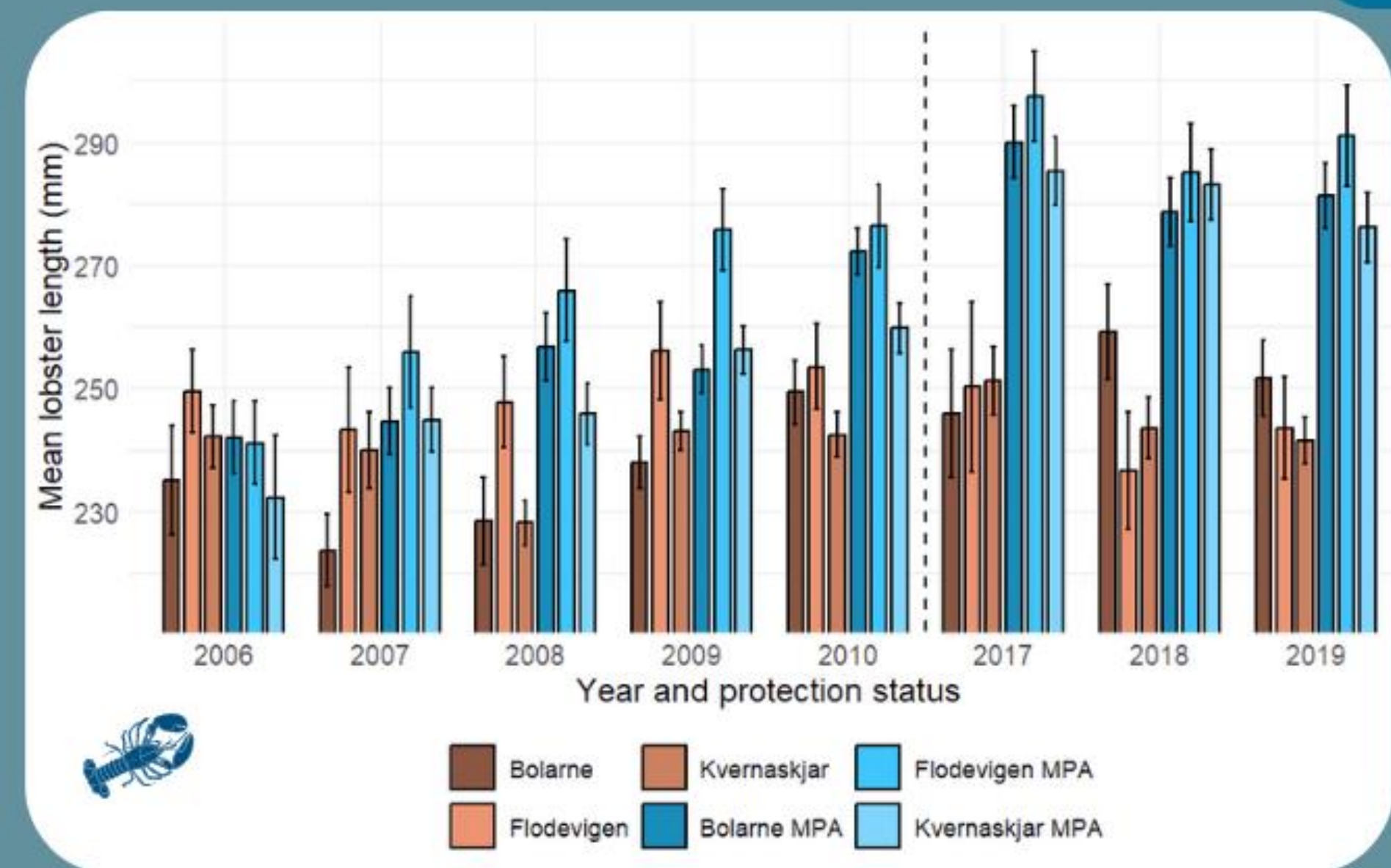
IS PROTECTION THE RIGHT DIRECTION? AN EFFORT TO REDUCE SIZE DEPRESSION

Do marine protected areas (MPAs) have a **positive effect** on the **length** of the two economically and culturally important species, **European lobster** (*Homarus gammarus*) and **Atlantic cod** (*Gadus morhua*)?

ABSTRACT

- ✓ Advanced fishing gear boosts fishing efficiency
- ✓ High fishing pressure on large individuals
- ✓ Larger individuals have greater fecundity
- ✓ Solution: Marine Protected Areas
- ✓ MPAs preserve size structure
- ✓ MPAs improve reproductive success

OUR FINDINGS



INTRODUCTION

As the fishing industry is becoming more efficient, and the climate continues to change, the need for better **management** of our oceans is increasing.

Marine protected areas (MPA) are important tools implemented to **maintain essential habitats** and species, including economically important stocks like European lobster and Atlantic cod.

These MPAs **help sustain populations** and can also **boost nearby fisheries** through "spillover". Monitoring of the MPAs are essential to ensure their success and guide future conservation efforts.

RESULTS

Lobster within MPAs had a significantly larger size compared to those in unprotected areas, with an annual increase of 2.92mm in MPAs versus 0.76 in unprotected areas. The difference became more pronounced over time, with the largest gaps seen 13 years after protection.

The initial measurements in 2005 indicated that cod in the MPAs were 29mm smaller than those in unprotected areas. However, by 2008-2010, **cod within MPAs surpassed the length of those in unprotected areas**, suggesting that MPAs can increase body size over time for both species

CONCLUSION

The implementation of MPAs have had a positive effect for both lobster and cod.

The larger body size could enhance reproductive success, as larger females tend to birth larger, stronger and healthier offspring.

This could be advantageous to fisheries, as spillover can cause bigger healthier fish migrating to fishing grounds.

Data references

Sørdalen, T. K., Halvorsen, K. T., Vøllestad, L. A., Moland, E., Olsen, E. M., (2020), <https://doi.org/10.1111/eva.12992>

Moland, E., Olsen, E. M., Knutsen, Halvor., Garrigou, P., Espeland, S. H., Kleiven, A. R., Knutsen, C. A., Knutsen, J. A., (2013), <https://doi.org/10.1098/rspb.2012.2679>

