# The effect of temperature on juvenile European lobsters (*Homarus gammarus*).

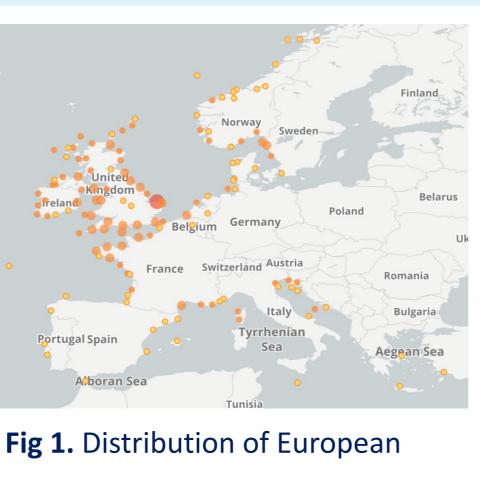


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#### **European lobster range and importance**

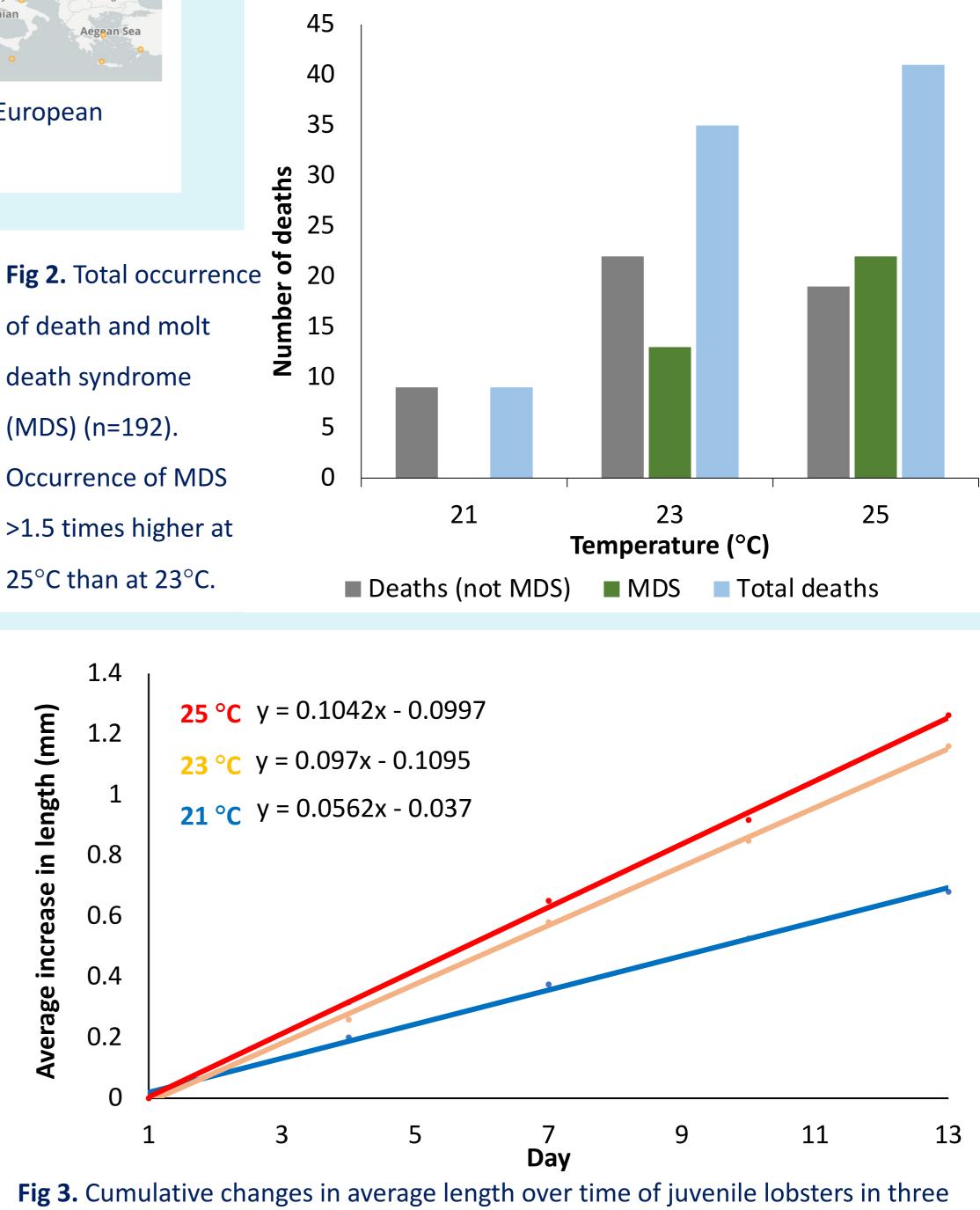
European lobsters currently inhabit a range from Norway to the Mediterranean. In the southern most habitat of European lobsters, sea temperatures may reach 18°C or higher (NOAA, 2022). Current climate change predictions indicate warming of +1.83°C and +8.49°C in the Mediterranean region, causing temperatures of up to 26 °C (Iturbide, et al., 2020). The European lobster has key economic value and supports many fisheries in Europe.



lobster (GBIF, 2022).

#### Aims of study

- To measure how temperature affects the growth of juvenile European lobsters by measuring length and mass changes.
- To record the occurrence of molt death syndrome (MDS) as a cause of mortality at increased temperatures.

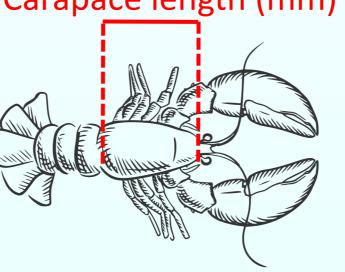


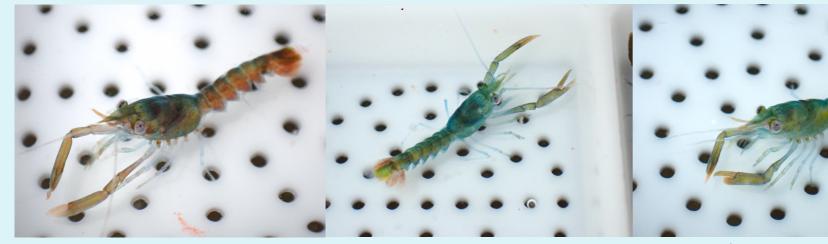
## Methods



x3 replicates, 192 lobsters per treatment, 13 days per replicate Measuring: Carapace length (mm)

- Mass changes (g) and carapace length (mm) every 3 days.
- Mortality every day.



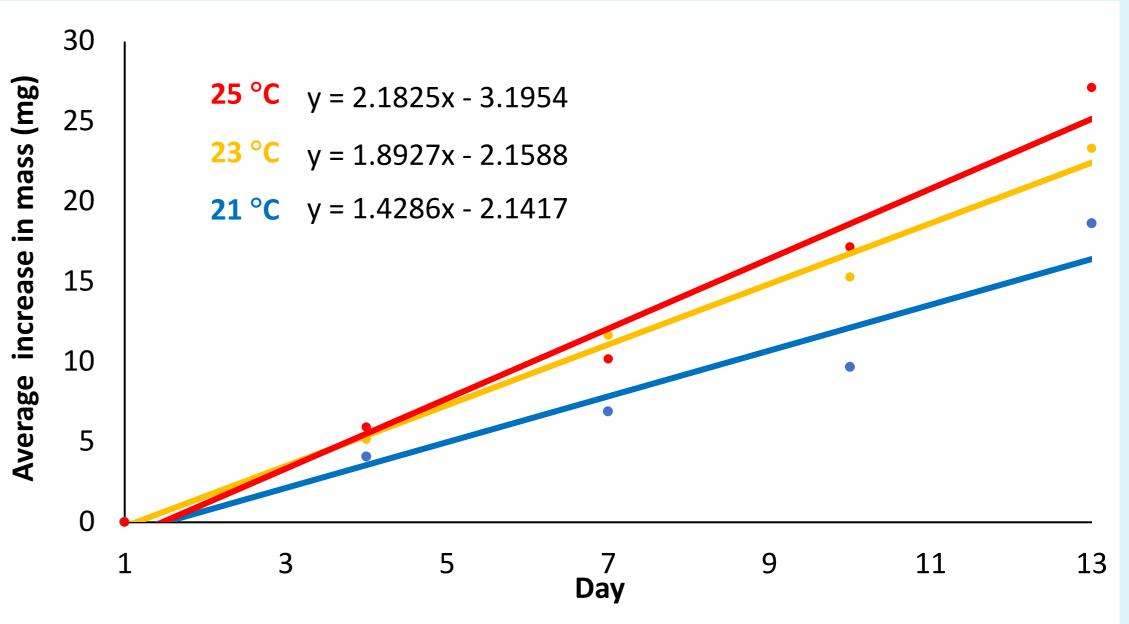


Pictures: Becci Jewell

### Conclusions

• Current climate predictions may put European lobster populations

**Fig 3.** Cumulative changes in average length over time of juvenile lobsters in three temperature treatments.



at risk, especially along the trailing edge of the species.

- A range contraction of the species could have negative effects on Mediterranean fisheries and increase pressure on remaining fisheries in the North.
- The increased exportation of lobsters from the North to the South will increase the carbon footprint of the lobster fishing industry.
- Increased growth rates at 25°C may increase potential for

hatchery and aquaculture outputs.

Fig 4. Cumulative changes in average mass over time of juvenile lobsters in three

Acknowledgements

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Jake Norton

temperature treatments with the highest growth rates occurring at 25°C.

# ReferencesGBIF.org (2022), GBIF occurrence search. Available from: <a href="https://www.gbif.org/occurrence/map?taxon\_key=5972003">https://www.gbif.org/occurrence/map?taxon\_key=5972003</a> [4 October 2022].Iturbide, M. et al., 2020. An update of IPCC climate reference regions for sub-continental analysis of climate model data: definition and<br/>aggregated datasets. Earth System Science Data, Volume 12, pp. 2959-2970.National Oceanic and Atmospheric Administration (2022). The CoastWatch data portal. Available from:<br/>"https://coastwatch.noaa.gov/cw\_html/cwViewer.html" [2 October 2022].

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