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

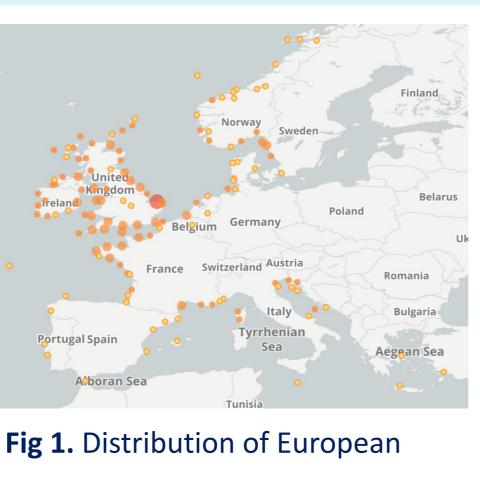


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European lobster range and importance

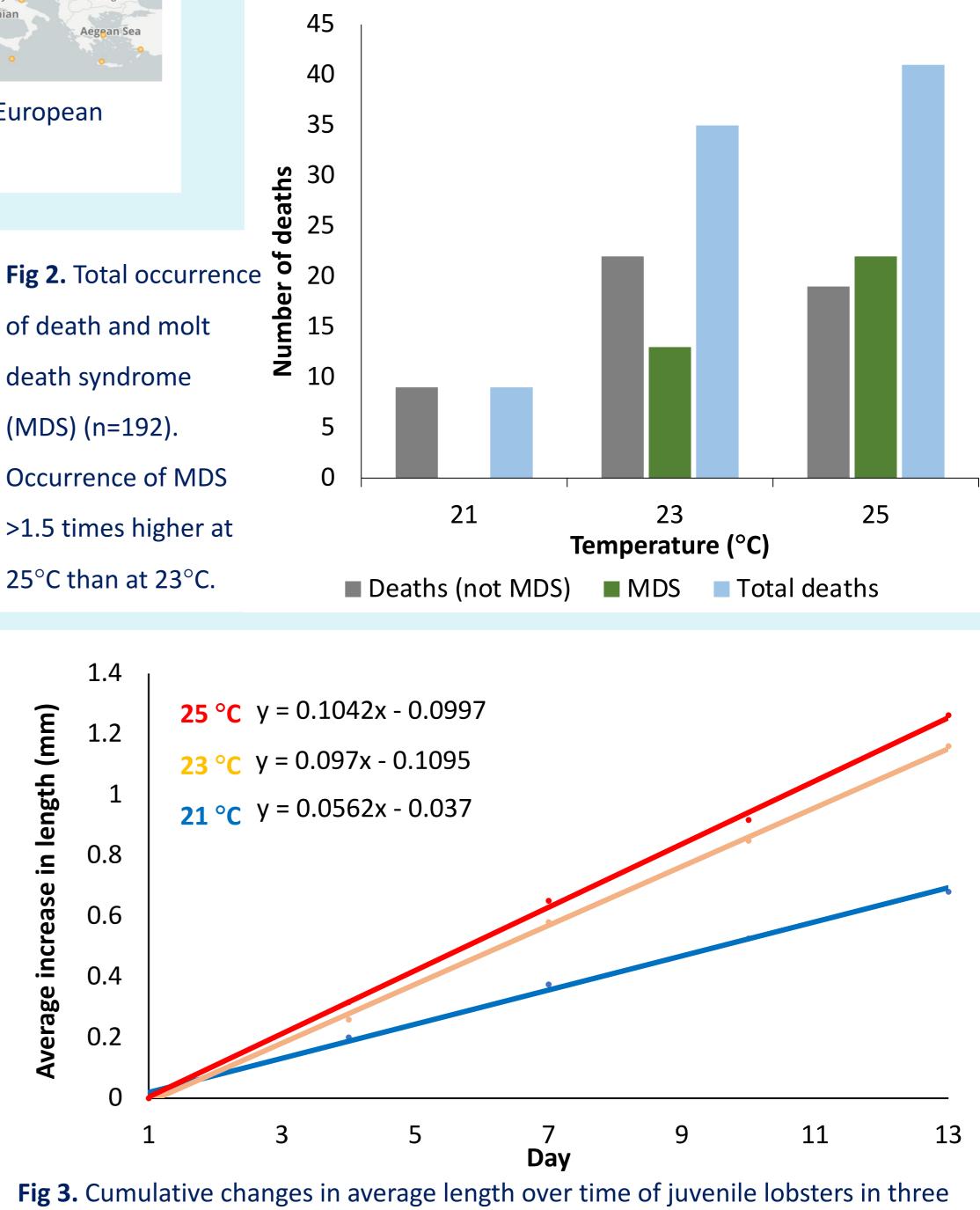
European lobsters currently inhabit a range from Norway to the Mediterranean. In the southern most habitat of European lobsters, sea temperatures may reach 18°C or higher (NOAA, 2022). Current climate change predictions indicate warming of +1.83°C and +8.49°C in the Mediterranean region, causing temperatures 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.

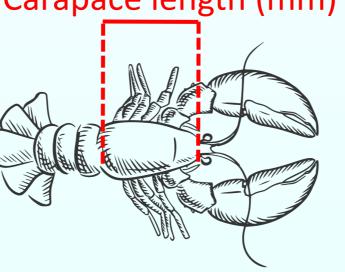


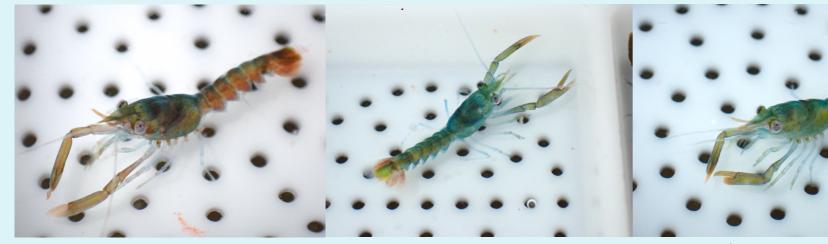
Methods



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.



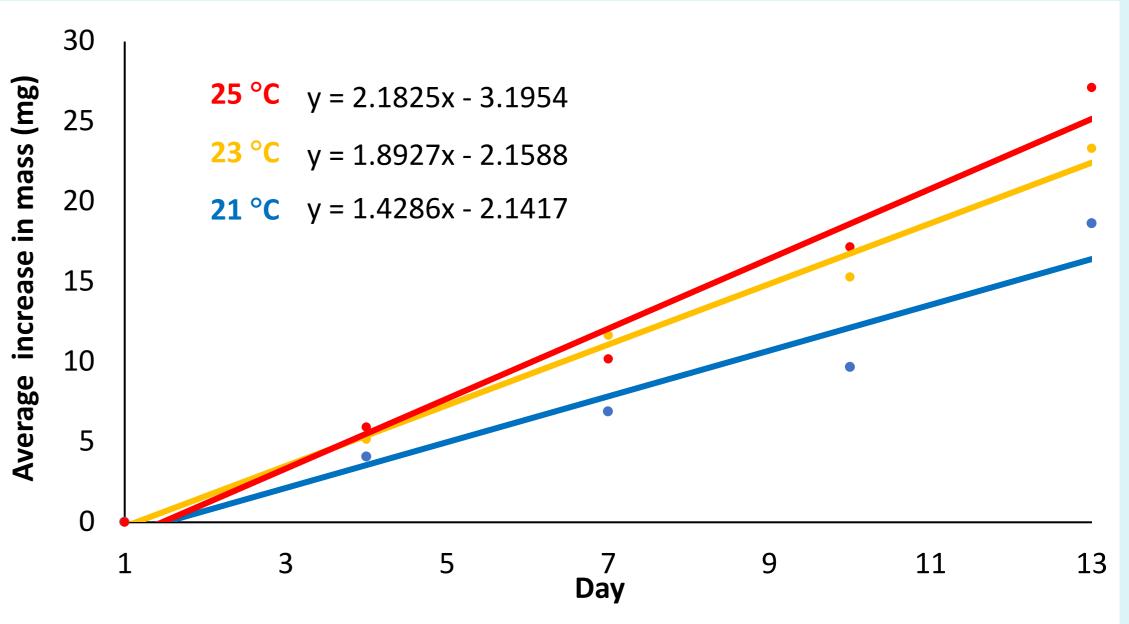


Pictures: Becci Jewell

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

Dr Ben Wigham

Jake Norton

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

ReferencesGBIF.org (2022), GBIF occurrence search. Available from: https://www.gbif.org/occurrence/map?taxon_key=5972003 [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
aggregated datasets. Earth System Science Data, Volume 12, pp. 2959-2970.National Oceanic and Atmospheric Administration (2022). The CoastWatch data portal. Available from:
"https://coastwatch.noaa.gov/cw_html/cwViewer.html" [2 October 2022].

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