



University of Exeter

Investigating the history of Sussex kelp habitats and their impact on local communities

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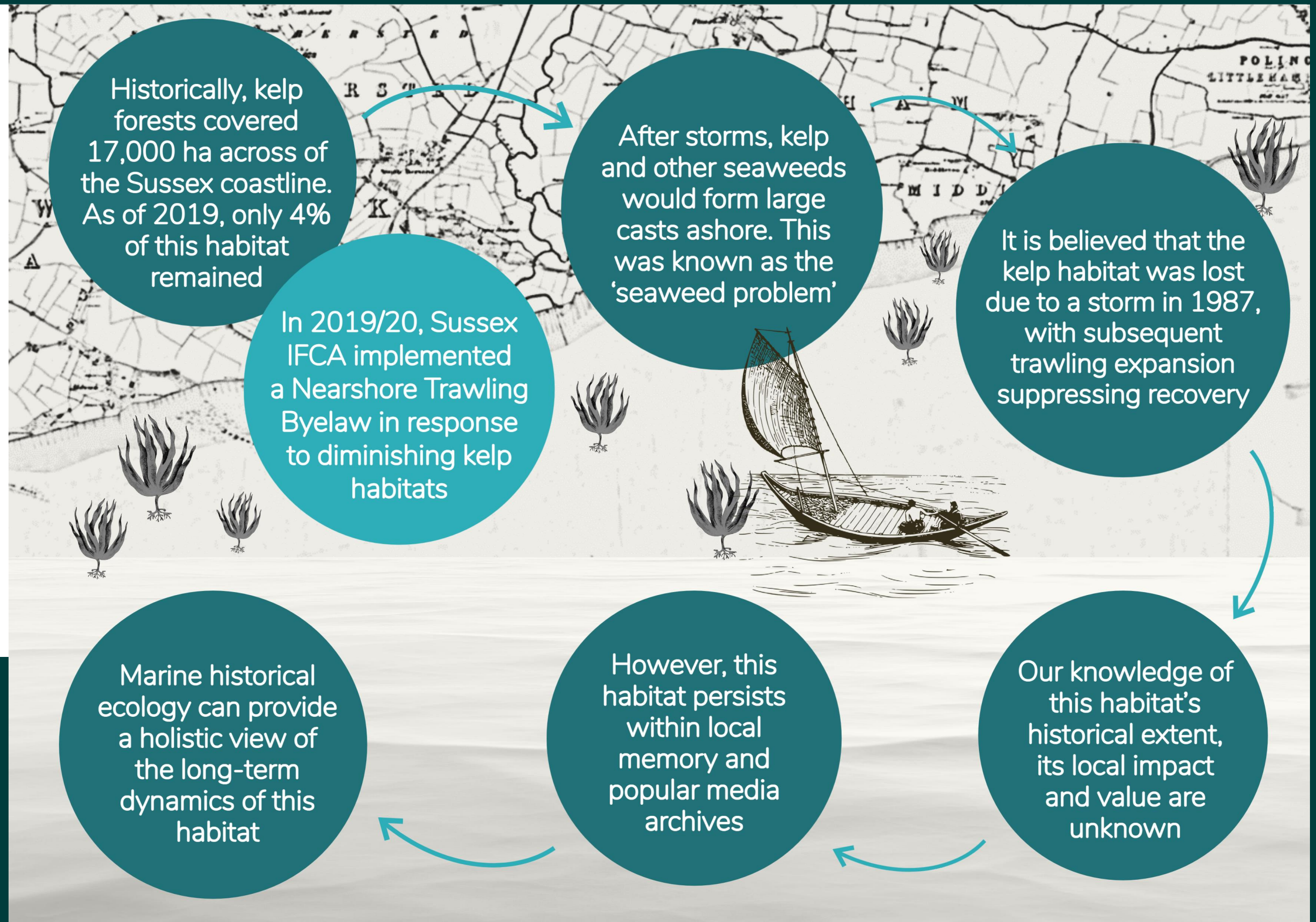
Background

Kelp forests are some of the most productive habitats on earth [1], and globally they are in decline [2]. For centuries, kelp has been utilised and exploited in the UK [3] and Ireland [4], however, monitoring this impact is challenging because of their difficulty to survey and a lack of long-term, historical data [5].

As a significant sociocultural [3, 4] and socioeconomic element of coastal communities and economies [6], it is important to generate a longer term perspective of this habitat, to enable a deeper understanding of its current and future changes [5] and their associated social-ecological interactions.

Research objectives

1. Society and seaweed: UK and Ireland review of **past and present cultural services** of kelp.
2. Understand the **past sociocultural significance** and value of kelp habitats in Sussex, and **drivers of decline**.
3. Determine past, fine-scale **spatiotemporal activities of fisheries** across the known historic kelp habitats, and **the impact and influence of its loss** on the local fishing communities.
4. Understand the **historical spatial extent** of kelp habitats in Sussex and change throughout the 20th and 21st century.



Map reproduced from the National Library of Scotland

Proposed methodologies

Archival mining – Targeted sampling of two local Sussex newspapers between 1850–1999 that describe human perceptions of/interactions with seaweed.

Fisher oral histories – Semi-structured interviews and participatory mapping exercises with active and retired inshore (≤ 6 nm) commercial and recreational fishers, including both demersal and shellfish fisheries (N = 25).

Historical fisheries data – Compile historical fisheries statistics from demersal and shellfish landings in Sussex using archival UK Government data. Compile spatial fisher sightings data from Sussex Inshore Fisheries and Conservation Authority.

Community oral histories – Semi-structured interviews with local community elders, residents and various marine user groups.

Remote sensing and ariel imagery – Test a variety of kelp detection indices to estimate habitat extent and spatial dynamics over the last 40 years.

References

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- [3] Rao, A.R. and Ravishankar, G.A. eds. 2022. *Sustainable Global Resources Of Seaweeds Volume 1: Bioresources, Cultivation, Trade and Multifarious Applications*. Springer Nature.
- [4] McElean, T.C. 2007. Archaeology of the Strangford Lough kelp industry in the eighteenth- and early-nineteenth centuries. *Historical Archaeology*, 41, pp.76–93.
- [5] Carnell, P.E. and Keough, M.J. 2019. Reconstructing historical marine populations reveals major decline of a kelp forest ecosystem in Australia. *Estuaries and Coasts*, 42, pp.765–778.
- [6] Forsythe, W. 2006. The archaeology of the kelp industry in the northern islands of Ireland. *International Journal of Nautical Archaeology*, 35, pp.218–229.



Fig. 1 Image extracted from The Sphere newspaper, 1953. Two men dispensing insecticidal fog onto seaweed cast ashore in Brighton. Red boundary on map highlights the study area.

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