

Haul-out behaviour and anthropogenic disturbance of an increasing population of seals in the UK

Harbour seals (*Phoca vitulina*) and grey seals (*Halichoerus grypus*) both occur within the UK, but display contrasting population trends. Whilst grey seals are typically increasing in number, harbour seals have shown varying patterns since experiencing severe pandemics in recent decades. There is a need for monitoring of regional and local populations to understand overall trends.

This study utilised a 20-year dataset of boat-based seal counts from two neighbouring harbours in the Solent region of southeast England, supplemented with six months of dedicated, land-based behavioural surveys.

Generalised Additive Models (GAMs) showed a significant increase in the numbers of both species over time, although site-specific differences existed. Accompanying photographic-identification data supported this increase and suggests evidence of site fidelity, with a total of 68 harbour and eight grey seals identified.

Further GAMs based on behavioural observations investigated haul-out patterns in relation to temporal and environmental variables, revealing patterns linked to season, time of day, tidal state, temperature, and wind speed. Seals were particularly abundant in the summer months approximately 2-hours after low tide.

Concerningly, behavioural surveys also showed high levels of anthropogenic disturbance in this area, primarily from seasonal increases in recreational boating activity. Over 100 disturbance events were observed, with approximately 20% resulting in seals fleeing from the haul-out site. Disturbance events were more prevalent in summer, on weekends, and in response to kayaks, canoes, and motorboats with large crews.

Overall, this study shows reasons for both hope and concern. The rising number of seals suggests the Solent is an increasingly important area for these species, particularly as a pupping site for harbour seals. However, this area also experiences high anthropogenic pressure, which has direct overlap with periods of peak seal abundance and the harbour seal pupping season. Increased public awareness campaigns targeting recreational boaters are recommended to help mitigate disturbance events.