

Long Term Monitoring of the European Herring Gull (*Larus Argentatus*) on the Wexford Coastline

Research Questions:

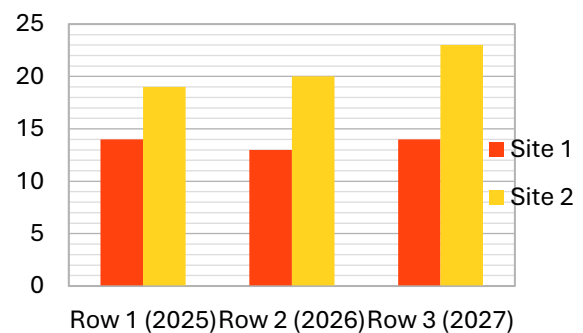
1. What statistical methods give the most precise data for population size of European herring gulls over time
2. Which features of the sites attract European herring gulls
3. What effect does land use have on European herring gulls population between the two sites on the Wexford coastline

Considerations / Control Factors:

- Season – in order to eliminate variation, data collection of both sites will occur during the same month
- Accessibility – exposure (both human and animal) will affect the data collected on the sites
- Area for data collection – land area for data must remain equal
- Land use – some environments are not suitable for nesting
- Presence of other birds species – territories may encroach on each other

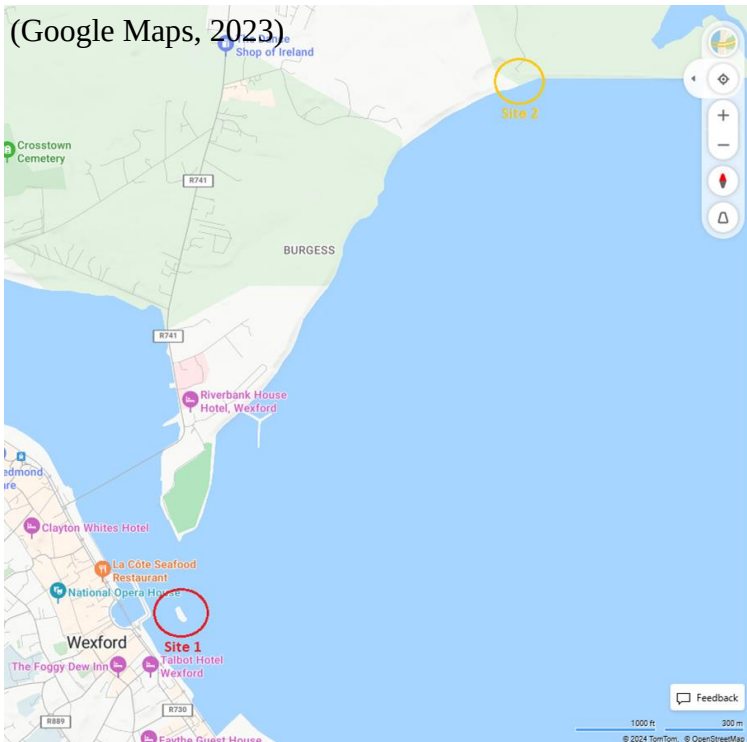
Example Data Collection Results Table and Graph:

Number of eggs Found	Site 1 Ballast Bank (brownfield)	Site 2 Ardcavan Beach (greenfield)
2025	14	19
2026	13	20
2027	14	23



Site Description:

The sites are situated roughly 3km from one another along the Wexford coastline. Site one is an abandoned, man-made structure just over 100m offshore. Site two is a beach located at the mouth of a small river north of the town.



Survey Design:

Passive Techniques

1. Indirect Counts – There are many advantages of this technique, particularly for answering research question two (e.g. potential for studying nesting patterns). The main drawback is the lack of accuracy / reliability when obtaining quantitative data.
2. Group Based Counts – These may present some issues associated with identifying the specific bird the study is aimed at. Despite this, the technique is one of the easiest methods of data collection and could provide broad information pertinent to question three.
3. Territory Mapping – This technique would offer useful data for question three, showing the effect of land use (bias from different sites). It would however, only function in conjunction with other data collection methods. The reliability of this information would improve over time as more information is collected (requires multiple visits).
4. Point Counts – Another useful method for question one due to the easily observable nature of herring gulls (main limitation being identifying the type of gull).
5. Area Searches – Use of point counts makes area searches unnecessary.

Non-Passive Techniques

1. Playback – Not applicable for this study as the herring gull is easily observable.
2. Catching Birds – Overall, catching birds for this study is largely unnecessary. This is mainly because morphological data doesn't directly pertain to the research questions but also because of the type of bird being studied.
3. Mist Netting – Not applicable due to the size of the bird.
4. Cannon Netting – Not applicable due to the size of the bird.
5. Nooses and Traps – Generally not practical for use on large populations of birds considering the work and skill required + risk of injury.
6. Morphological Data – Largely not applicable for the research questions in this study.
7. Marking and Tagging – This method, particularly mark and recapture, has many benefits for research questions one and two as it can be applied over time and gives a general outline for population size. Pit tags could have similar benefits. Both of these techniques however, require a method of capturing the birds which brings the associated risks, costs and general impracticalities.

Referencing:

Google Maps. (2019). Google Maps. [online] Google Maps. Available at: <https://www.google.co.uk/maps/@52.3425204> [Accessed 3 Oct. 2024].

Wexford Hub. (2018). Ardavan Beach, Wexford. [online] Available at: <https://wexfordhub.com/places/ardavan-beach/> [Accessed 3 Oct. 2024].

Wikipedia Contributors. (2023). Ballast Bank. [online] Wikipedia. Available at: https://en.wikipedia.org/wiki/Ballast_Bank.