

Use of the Paull Holme Strays by waterbirds: findings from the last 10 years of monitoring

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What are 'Waterbirds'?

- The term 'waterbirds' tends to be used to describe the grouping of birds that are dependent upon wetland habitats for a large proportion of their lives.
- The term is used to describe species included in the groups wildfowl (swans, geese and ducks) and waders.



Waders?



Dunlin

Curlew Sandpiper



Golden Plover



Redshank



Black-tailed Godwit



Curlew

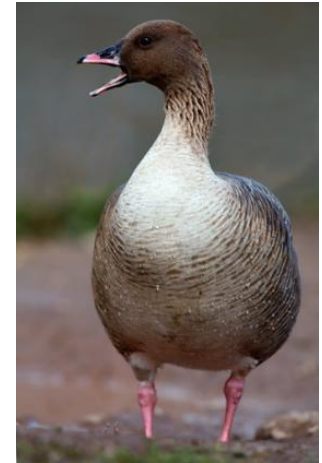


Wildfowl?

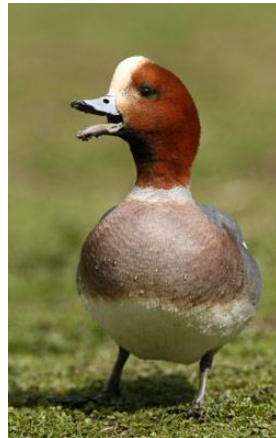
Swans:



Geese:



Ducks:

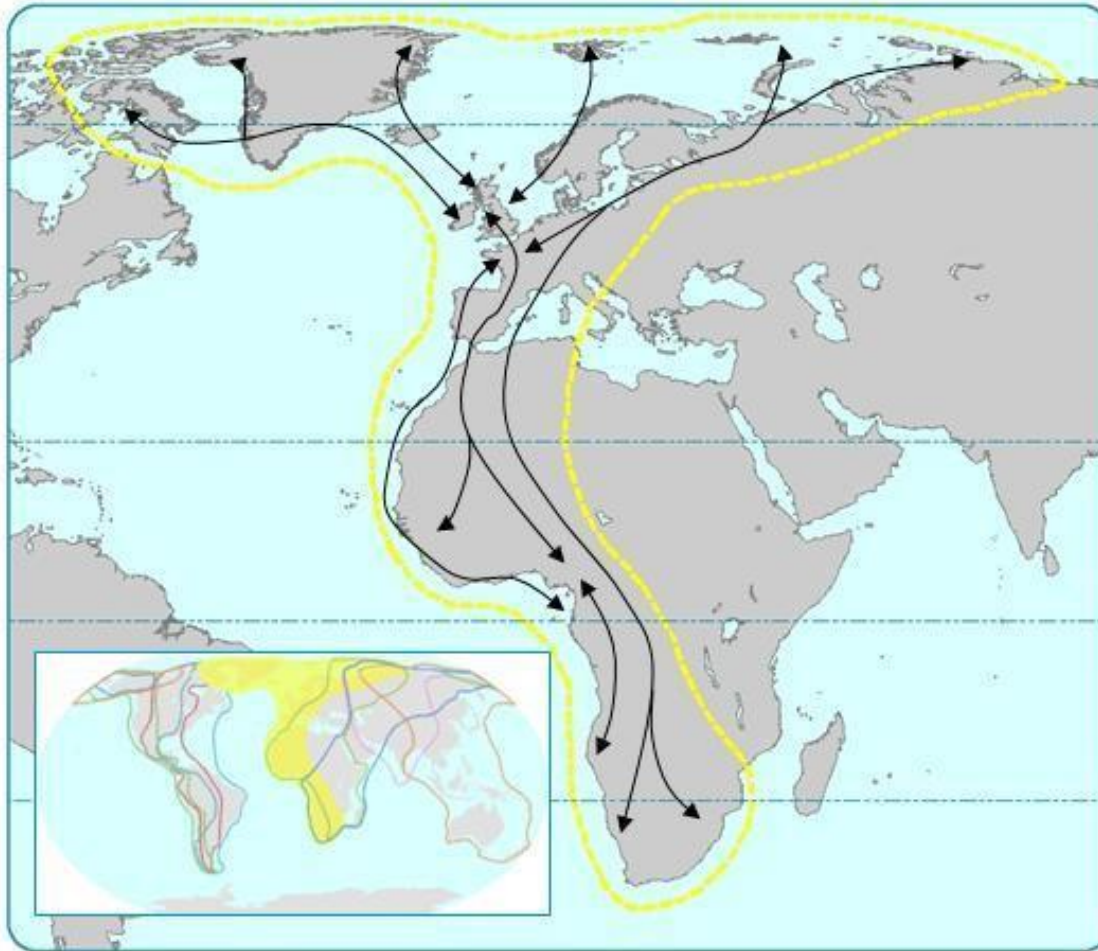


Why do we monitor waterbirds ?

- Humber Estuary is designated as SSSI (Site of Special Scientific Interest) and European Marine Site.
- Waterbirds play key functional roles in aquatic ecosystems, including as predators, herbivores and vectors of seeds.
- Waterbirds can be an effective bio-indicator of the health of the ecosystem.
- Low cost shortcut for monitoring where monitoring is a priority but funds are limited.



1- Challenges of monitoring waterbirds ?



The UK is on the East Atlantic Flyway, which stretches from wintering grounds in West Africa up to breeding grounds in the north, some as far as the Arctic.

- Waders and wildfowl are highly mobile species.
- Rapid turnover of populations during migration.
- Waterbirds mortality is affected by a range of factors occurring on breeding, staging and wintering sites.

2- Challenges of monitoring waterbirds ?

Variability of counts due a range of factors:

- Weather conditions;
- Tidal height;
- Human activities (e.g. recreational disturbance) and bird of prey; and
- Bias in observations e.g. observers over or under-estimation of large flocks.



Flock of Golden Plover at Paull Holme Strays – How many ??

Monitoring Programme ongoing since 2003

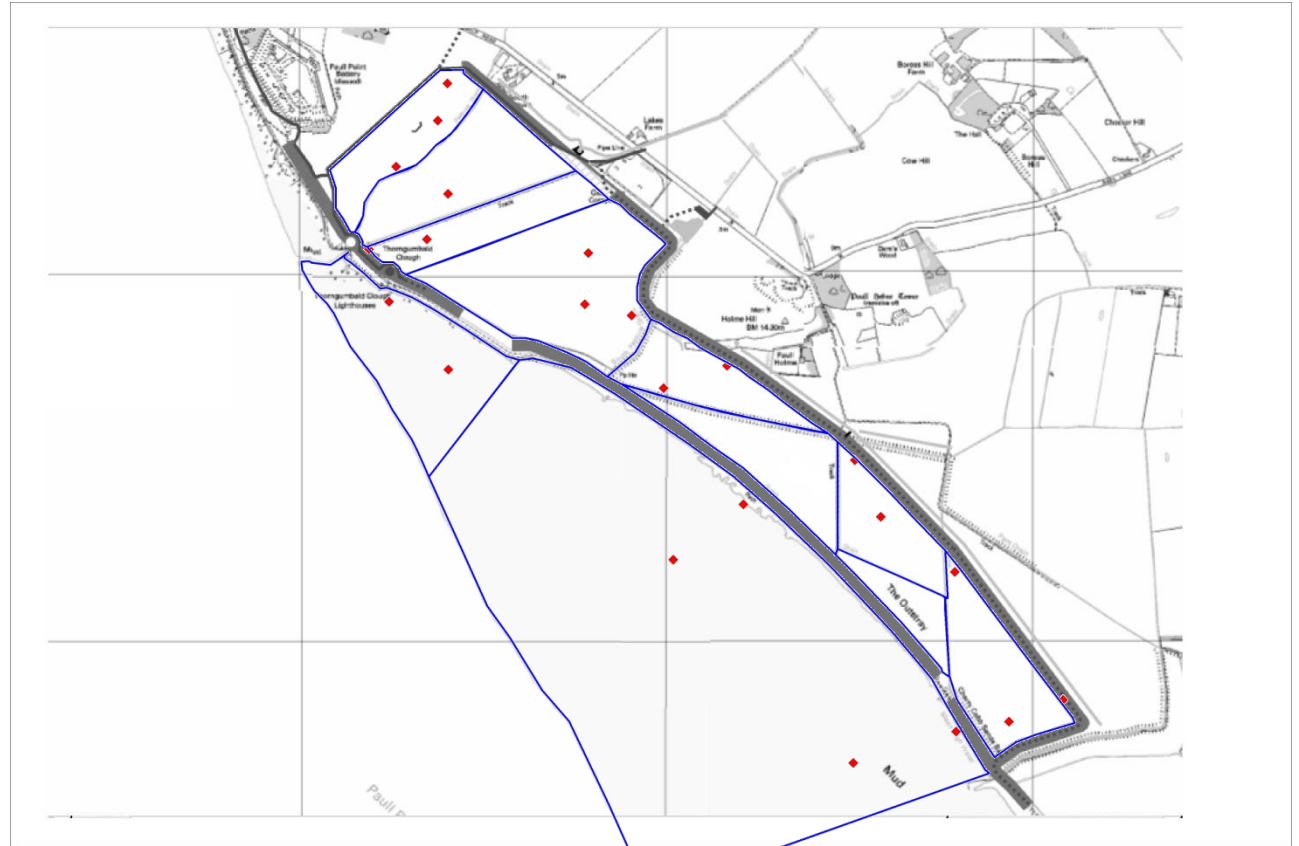
Waterbird monitoring

- Monthly count of birds over half tidal cycle .



Benthic invertebrates

- Annual sampling at fixed locations.



- ## Accretion and erosion
- Monitoring twice annually (spring and autumn).

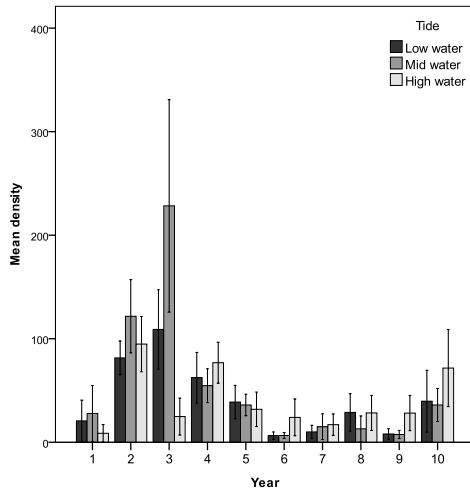


What roles the PHS site plays in the Estuary ?

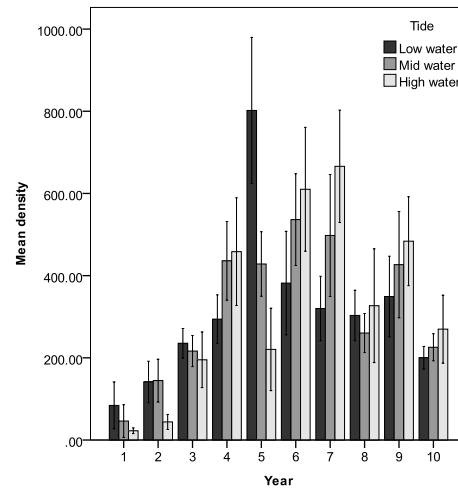
- Roosting / loafing area at high tide when fronting intertidal area is inundated.
- Foraging areas at low tide.
- Foraging areas at high tide when the mudflat is covered on the fronting mudflat.
- Important roosting areas around low tide for Golden Plover.



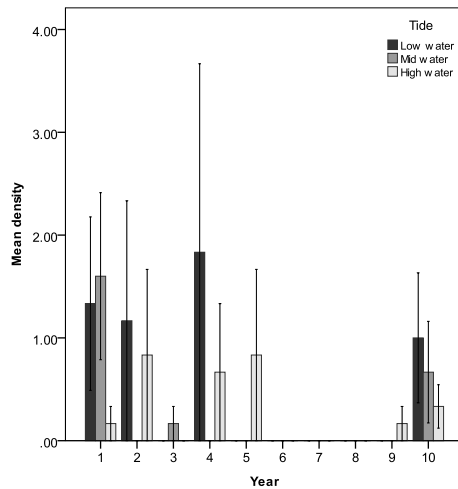
Foraging Guild Trends – 2003 to 2013



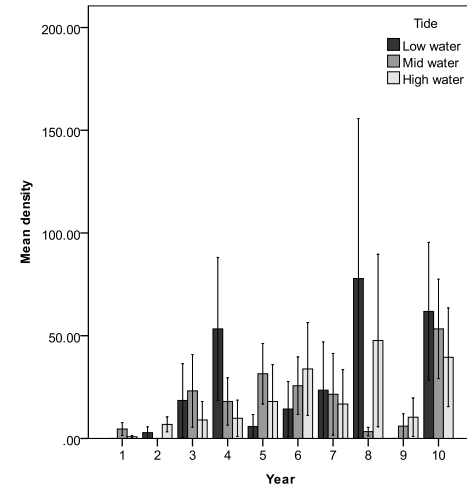
Benthivorous ducks



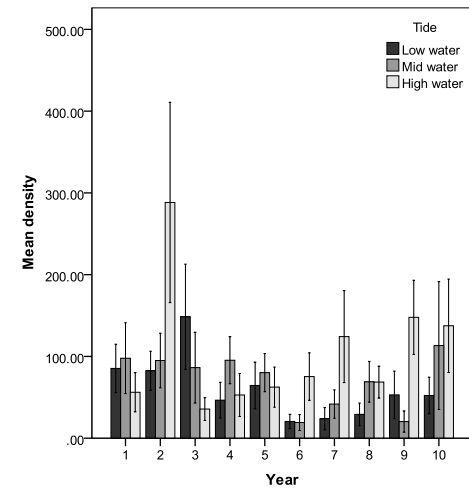
Benthivorous waders



Piscivorous grebes, cormorants and herons



Herbivorous geese, swans and ducks



Omnivorous ducks and rails



Heterogeneous habitats supporting different waterbird communities

- Habitat dominated by saltmarsh vegetation. →



- Habitat characterised by exposed mud at low tide. →



Findings after 10 years of monitoring

- Rapid colonisation by foraging waterbirds within the first five years due to rapid accretion of sediment.
- Foraging community within the realignment site reaching a degree of stability in its evolution in the last few years.
- Differences in bird community between recording zones within the re-created intertidal areas reflected the heterogeneity of habitats after 10 years of tidal inundation.
- Waterbird assemblage in recording zones featuring saltmarsh being significantly different to those dominated by bare mudflats.



The Future

- We speculate that the most likely cause of long term variation in bird community will be in response to vegetation cover (i.e. the extent of saltmarsh habitat).
- It would appear that the Humber is currently experiencing an accreting phase. It can only be assumed that if this trend continues, sediment would accrete further in the realignment site and the increased elevation would favour the development of saltmarsh vegetation.
- Design of the site allows longer phase of inundation in the realignment site and prevents the establishment of vegetation in the lowest elevated areas.



Channel forming in the realignment site

Further reading



Available online at www.sciencedirect.com



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Assessing the development of newly created habitat for wintering estuarine birds

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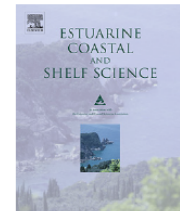
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Short communication

The value of wader foraging behaviour study to assess the success of restored intertidal areas



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