Humber Gateway Ornithological Survey Update: June 08 to November 08 Results

Report E.ON (Climate & Renewables)

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For and on behalf of the Institute of Estuarine and Coastal Studies	
Approved by:	_____
Signed:	_____
Position:	_____
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1 CONTEXT AND METHODS

This report details the results of six seabird surveys conducted by the Institute of Estuarine & Coastal Studies (IECS) on behalf of E.ON (Climate and Renewables) in the vicinity of the proposed Humber Gateway offshore wind farm site off the Yorkshire coast.

The site has been subject to an intensive seabird survey programme during the September 2003 to December 2005 period. The results of the baseline surveys are presented in a technical report (IECS, 2007) with the results incorporated in an Environmental Statement (E.ON, 2008). However, given the lapse of time between the original surveys and the ongoing consultation process, a number of surveys were conducted in summer 2008 to up-date the information described in the ES and provide additional information on Little Gull status in the area, should its status be changed on the Hornsea Mere Special Protection Area (SPA). The proposed offshore wind farm site is situated at about 30km from the Hornsea Mere SPA which supports in the autumn large numbers of Little Gull (*Larus minutus*). The site is also at about 55km to the Flamborough Head and Bempton Cliffs SPA. This is a European Marine Site which supports large numbers of breeding seabirds including Kittiwake *(Rissa tridactyla)* and Auk spp. (Alcidae), as well as the only mainland-breeding colony of Northern Gannet *(Morus bassanus)* in the UK (Stroud *et al*, 2001). The seabirds associated with the colony feed and raft in the waters around the cliffs, outside the SPA, as well as feeding more distantly in the North Sea. In addition, the site is located off the Humber Estuary SPA and cSAC site, this supporting large numbers of wintering and passage wildfowl and waders as well as some other species of breeding importance.

In order to collate information on seabird usage, a total of six ship-based seabird surveys were conducted in and around the proposed wind farm site using the standard seabird methodology recording technique (Camphuysen *et al*, 2003). The first three surveys (July, August and September) followed a similar transect layout to that of the baseline survey (Figure 1), and these were aimed at addressing foraging usage during the breeding season, post breeding moult flock usage and seabird, wildfowl and wader passage through the area during the autumn as well as any early Little Gull activity in the area. The following three surveys (early October, mid October and early November) were aimed specifically at investigating Little Gull distribution at sea, and as such used a modified methodology (similar to a dedicated Little Gull survey undertaken as part of the original survey programme), covering both the wind farm site but with the transects extended further inland and offshore in order to gain a greater coverage along the water depth gradient (Figure 1).

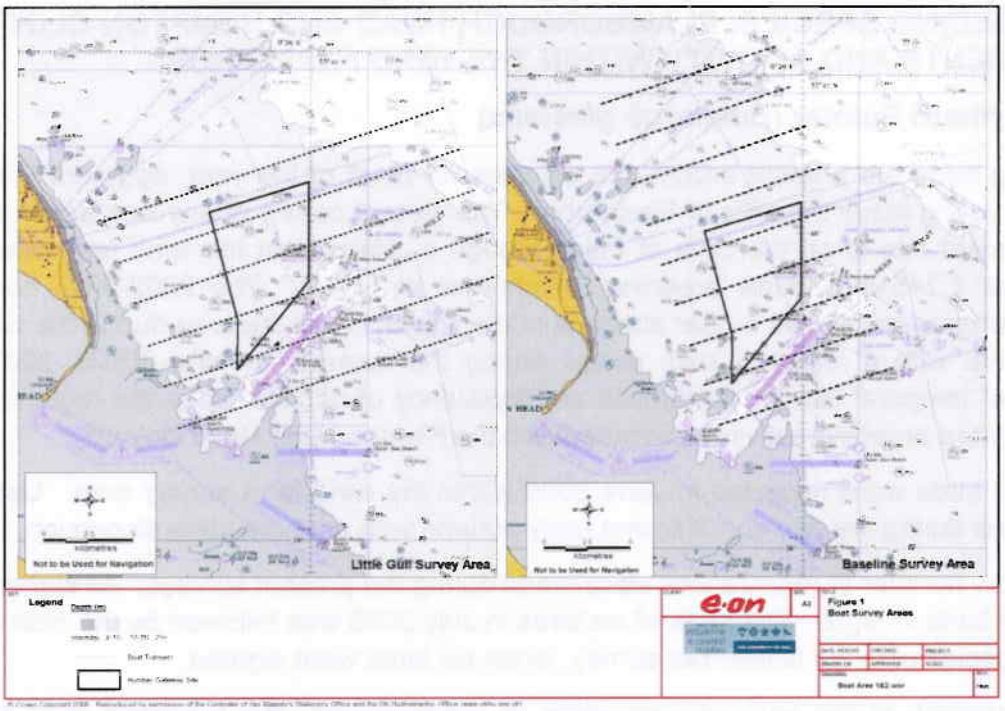

Figure 1: Boat survey transects showing Little Gull Survey Area and Baseline Survey Area.

This report focuses on the function of the site during the findings from this additional programme summer to early autumn period, with the main objectives of the report to:

- Investigate the movement and activity of the Flamborough Head and Bempton Cliffs SPA breeding species within the wind farm site during the breeding and post-breeding seasons, in particular the Auk species;
- Identify any migratory movements down the coast or from the Humber Estuary SPA;
- Assess the distribution and abundance of Little Gull in late summer/early autumn in relation to their usage of the Hornsea Mere SPA.

2. BREEDING SPECIES, FLAMBOROUGH HEAD AND BEMPTON CLIFFS SPA: MOVEMENTS AND ACTIVITY WITHIN THE WIND FARM AREA

2.1 Northern Fulmar (*Fulmarus glacialis*)

Breeding birds are present around the colonies for most of the year, eggs are laid in May and the young leave the cliffs in September. The closest colony of any size to the proposed development site is on the cliffs of Flamborough *c.* 55km from the wind farm site with an estimated 1,245 individuals breeding (Mitchell *et al*, 2004). The 2003-2005 boat-based survey programme shows a near absence of the species from the area during the winter and spring, but with a relatively high usage during the summer months (IECS, 2007). The pattern of temporal usage, distribution and frequency of occurrence in the region is mostly driven by the breeding activity associated with the Flamborough Head Colony.

Up to 20 birds were recorded in June 2005 within the wind farm survey area. Usage then decreases during the late summer and early autumn with post-breeding dispersion.

A very low number of registrations were made during the present surveys. All sightings were of single birds in flight. The peak of six birds in July 2008 was followed by the near absence of the species until the November survey, when six birds were sighted.

In the context of the colonial population at Flamborough, the proposed wind farm site continued to be only sporadically used, with <1% of the Flamborough breeding population recorded within the proposed development site on a daily basis, and with no particular pattern of usage in terms of flight direction and foraging movements etc.

Table 1: Abundance of Northern Fulmar (all sightings from ship-based seabird survey).

Behaviour	14/07/2008	29/08/2008	19/09/2008	09/10/2008	17/10/2008	06/11/2008
In flight	6	1	0	0	0	6
On sea surface	6	1	0	0	0	0
Total	**6**	**1**	**0**	**0**	**0**	**6**

2.2 Northern Gannet (*Morrus bassanus*)

The Flamborough Head and Bempton Cliffs SPA is the only mainland Northern Gannet breeding colony on the east coast of England with 2,552 pairs estimated to be breeding in 1998-2000 (Mitchell *et al*, 2004). Gannets generally return to their breeding colonies around February and eggs are laid in April (Cramp, 1998). Most young birds leave their nests in August and September and enter the water beneath the colony, being initially flightless. The last birds leave the colony in October.

The initial baseline survey (IECS, 2007) shows registrations made from the boat-based survey programme during the main breeding period (May to August), with flying bird registrations relatively well distributed across the survey area, and birds on the water predominantly recorded to the north of the proposed wind farm site. The majority of registrations for birds were made during the June and July surveys, with a peak of 74 birds in the wind farm survey area.

In general, the numbers of sightings in 2008 were similar to those recorded from the 2003-2005 survey programme, with a maximum of 39 birds recorded during the late August

survey, of which 29 were recorded in the control block of the survey area. The species continued to be present until the November survey with the dispersal of adults and juvenile birds from colonies in the North Sea being recorded.

No active fishing by the species was observed during the survey programme, with birds mainly flying through the site (91% were recorded in flight). The present ship-based surveys recorded 85% of the flying Gannet to be heading in northerly or southerly directions.

Table 2: Abundance of Northern Gannet (all sightings from ship-based seabird survey).

Behaviour	14/07/2008	29/08/2008	19/09/2008	09/10/2008	17/10/2008	06/11/2008
In flight	24	28	16	27	21	34
On sea surface	2	11	1	0	0	1
Total	26	39	17	27	21	35

2.3 European Shag *(Phalacrocorax aristotelis)*

The Shag is typically a bird of rocky coastlines and is almost exclusively restricted to the coastal waters around the Flamborough Head and the wider Bempton Cliffs colony where it breeds. No birds were recorded during the current survey programme.

2.4 Herring Gull (*Larus argentatus)*

Commonly recorded along the coast, the Herring Gull breeds at Flamborough and adjacent areas. The 2003-2005 surveys found the species generally present in greatest numbers during the winter and spring. Usage on the control and main survey areas were broadly similar, with around 10 to 15 birds recorded on most surveys during the winter and spring. The majority of individuals were recorded in flight but occasionally the birds were seen on the sea surface around the fishing vessels, mainly potting boats. The 2003-2005 boat-based surveys showed no particular spatial pattern of registration distribution, although a slight clustering around the mouth of the Humber may have occurred (very small sample size).

As expected, very few registrations were made during the 2008 survey programme. The species was recorded at the mouth of the Humber in July (two individuals) and November (three individuals).

Table 3: Abundance of Herring Gull (all sightings from ship-based seabird survey).

Behaviour	14/07/2008	29/08/2008	19/09/2008	09/10/2008	17/10/2008	06/11/2008
In flight	1	0	0	0	0	3
On sea surface	1	0	0	0	0	0
Total	**2**	**0**	**0**	**0**	**0**	**3**

2.5 Black-legged Kittiwake *(Rissa tridactyla)*

The Kittiwake (Black-legged Kittiwake) breeds in large numbers on Flamborough Head, this site supporting the largest UK breeding colony, with an estimated 41,971 breeding birds (Mitchell *et al*, 2004). The last national census (Mitchell *et al*, 2004) shows a 50% decline at

the Bempton Cliffs /Flamborough Head site since the Seabird Colony Register (SCR) in 1985-1988 (Mitchell *et al*, 2004).

Apart from the very high level of usage recorded in the control area in June 2004 (over 200 birds), the species was present in the survey area on most months, with total registrations numbering between around 20 and 50 birds.

A similar level of usage was recorded during the summer 2008. Abundance in both the wind farm survey and control survey areas peaked in August with respectively 54 and 29 birds (83 in total). Usage thereafter declined into the late autumn. Except for a flock of 40 birds recorded, the majority of registrations were of single or paired birds in flight or on the sea surface, with around 50% of the sightings relating to birds in flight. There was no evidence of foraging movements through the survey area, nor migratory movements along the coast during the present surveys, with the sightings evenly distributed around the compass rose.

Table 4: Abundance of Black-legged Kittiwake (all sightings from ship-based seabird survey).

Behaviour	14/07/2008	29/08/2008	19/09/2008	09/10/2008	17/10/2008	06/11/2008
In flight	38	22	23	4	6	17
On sea surface	17	61	20	1	0	3
Total	**55**	**83**	**43**	**5**	**6**	**20**

2.6 Common Guillemot *(Uria aalge)*

Common Guillemot breed on Flamborough Head, with the species present all year round in Bridlington Bay and off the Holderness coast, although with the summer months featuring the greatest level of usage, associated with the breeding colony. Birds leave the summer colony in mid to late summer, and undergo their main moult which leaves them flightless for up to two months until they attain their winter plumage.

Highest numbers of birds were recorded during the boat-based programme, with the peak usage occurring in September (68 individuals), this presumably being the post-breeding moult flock having moved down from the breeding colony area. Abundance levels then declined into the late autumn. No particular spatial pattern of usage recorded with a relatively even distribution within the main study area and control, although numbers of sightings increased inshore during the Little Gull survey with the transect extending further inshore. The majority of registrations were for birds on the water (92% of the total registrations), rather than flying.

Abundance levels recorded during the 2008 programme were broadly the same as the 2003-2005 surveys, although monthly variations were recorded. For comparison, numbers of sightings peaked in July 2004 at 30 birds. The following year, a total of 85 birds were recorded in July but population peaked in October (139 birds).

Table 5: Abundance of Common Guillemot (all sightings from ship-based seabird survey).

Behaviour	14/07/2008	29/08/2008	19/09/2008	09/10/2008	17/10/2008	06/11/2008
In flight	10	0	1	1	2	3
On sea surface	20	52	67	23	10	40
Total	**30**	**52**	**68**	**24**	**12**	**43**

2.7 Razorbill (*Alca torda*)

The Razorbill is a colonial nesting bird, with approximately the same summer and winter distribution as the Guillemot, although generally less numerous. Birds leave the colony in mid-August and disperse, the adults then moulting into winter plumage, during which they undergo a flightless phase similar to that of the Guillemot. The total number of individual Razorbill counted at the Flamborough Head / Bempton cliffs colony during the seabird 2000 was 8,539 breeding individuals (Mitchell *et al.*, 2004).

The 2003-2005 boat-based survey programme recorded Razorbill at lower abundance levels to that of Common Guillemot, this being expected given their smaller breeding population on the Flamborough Head colony. Although present in most months, survey area maxima were generally below 20 birds per survey, apart from August 2005 when over 200 birds were recorded, these presumably part of the post breeding dispersion and moult.

The findings from the 2008 survey programme were consistent with those from the 2003-2005 surveys, showing an initial dispersion of individuals from the colony (albeit in smaller numbers than in 2005 but in line with 2004), sightings then decline into the late autumn. In July, abundance was below 20 birds in both survey areas, and most individuals were adults accompanying immature birds (eight in total), some at an early chick stage.

Table 6: Abundance of Razorbill (all sightings from ship-based seabird survey).

Behaviour	14/07/2008	29/08/2008	19/09/2008	09/10/2008	17/10/2008	06/11/2008
In flight	4	0	0	3	0	0
On sea surface	22	5	1	1	5	7
Total	**26**	**5**	**1**	**4**	**5**	**7**

2.8 Atlantic Puffin *(Fratercula arctica)*

The Puffin breeds on the Flamborough Head and Bempton Cliffs SPA, when small rafts of the species can occur on the adjacent waters, but numbers are substantially less than those of the Guillemot and Razorbill.

The increase in numbers in the survey area observed in previous surveys during the late summer was not repeated during the 2008 surveys. In fact, numbers were substantially lower than during the initial baseline surveys, with the numbers only peaking at two birds in summer and six birds in autumn.

Table 7: Abundance of Atlantic Puffin (all sightings from ship-based seabird survey).

Behaviour	14/07/2008	29/08/2008	19/09/2008	09/10/2008	17/10/2008	06/11/2008
In flight	2	0	0	1	0	0
On sea surface	0	2	0	5	0	3
Total	**2**	**2**	**0**	**6**	**0**	**3**

3. MIGRATORY MOVEMENTS OF OTHER SPA SPECIES THROUGH THE WIND FARM AREA

In addition to the Flamborough Head and Bempton Cliffs SPA species discussed above, a number of species which are features of the Humber Estuary SPA or part of the Humber assemblage were recorded during the 2008 programme and these are described below.

Pink-footed Goose *(Anser brachyrhynchus)*: The species start to arrive in Britain during early to mid September with numbers building in early to mid October, when peak numbers occur at the major northern sites. The observations from Spurn Bird Observatory in conjunction with findings from the 2003-2005 ship-based seabird surveys, indicate that birds fly south and parallel to the east coast of England, probably towards the Wash and other areas along the North Norfolk coast. Migrating birds have also been observed flying across Bridlington Bay and following the coast south (IECS, 2007). There is also a degree of movement across the UK to and from the Wash and staging areas in the north-west. The degree to which these movements occur is currently unclear, as is the 'coast fall' of these movements, although separate sources indicate a one From Flamborough down to south Lincolnshire as potential locations.

During the 2008 survey programme a single flock of 140 birds was observed at approximately 4km from the coast on the 17th October. Interestingly, these birds were flying in a south westerly direction at an altitude exceeding 100m. On the same day a total of 800 Pink-footed Geese were seen moving south at Spurn (Spurn Bird Observatory, 2008), and it might be expected that the flock of 140 birds was part of this movement. However, the direction of flight is of interest and somewhat difficult to attribute cause. Potentially the observed flight direction might have been a localised course change from a long-distance flight movement, possibly in relation to the sighting of Spurn, or perhaps be an artefact of a localised flight movement originating from the Humber itself. It may also, although probably unlikely, indicate a previously unexpected offshore movement of a long distance flight onto the coast in this area

Northern Lapwing *(Vanellus vanellus)*: A single flock of 15 birds was recorded in flight within the wind farm survey area in November. The birds were heading in a northerly direction. No migration watches took place at Spurn that day because of the inshore fog, and it is possible that this movement was at least partially a result of poor visibility on the coast.

Eurasian Curlew / Whimbrel *(Numenius arquata/ Numenius phaeopus)*: Both sightings of unidentified Curlew/Whimbrel were made during the July survey. The birds were flying in a westerly direction just above sea level. These birds are likely to be early migrants, possibly birds having crossed the North Sea.

Mallard *(Anas platyrhynchos)*: Two birds were recorded during the survey programme on two separate surveys (August and November). Both were flying in a westerly direction, which suggest that there were possibly migrants.

Dunlin *(Calidris alpina)*: One bird was seen in flight inshore during the November survey.

Eurasian Teal *(Anas crecca)*: One Teal in flight was recorded in November. The species was associated with a Mallard and both were flying west within the 50 to 100m band flight height.

4. LITTLE GULL ACTIVITY AROUND THE WIND FARM AREA

The species' breeding range is generally across Finland, the Baltic countries and northern Russia with most UK records as a passage migrant. The birds, associated with Hornsea Mere, are part of a substantial movement of Little Gull onto the UK North Sea coast, birds having bred in the Baltic and undergoing post-breeding moult before moving out to wintering grounds. On the Yorkshire coast, the species can be recorded daily in numbers well in excess of 100 during passage periods, with the main movement occurring during September and October.

Up to 100 birds were recorded in July 2005, with the species present in lower numbers both in the survey area and the control block thereafter in the late summer and early autumn. A similar level of usage was recorded in July 2008 with a total of 90 birds recorded. This was followed by the absence of the species in August and September. In July, the birds were mostly distributed inshore along the Freshwater Seawater Interface (FSI) (Figure 2). The front line in the water was seen to attract small numbers of foraging birds.

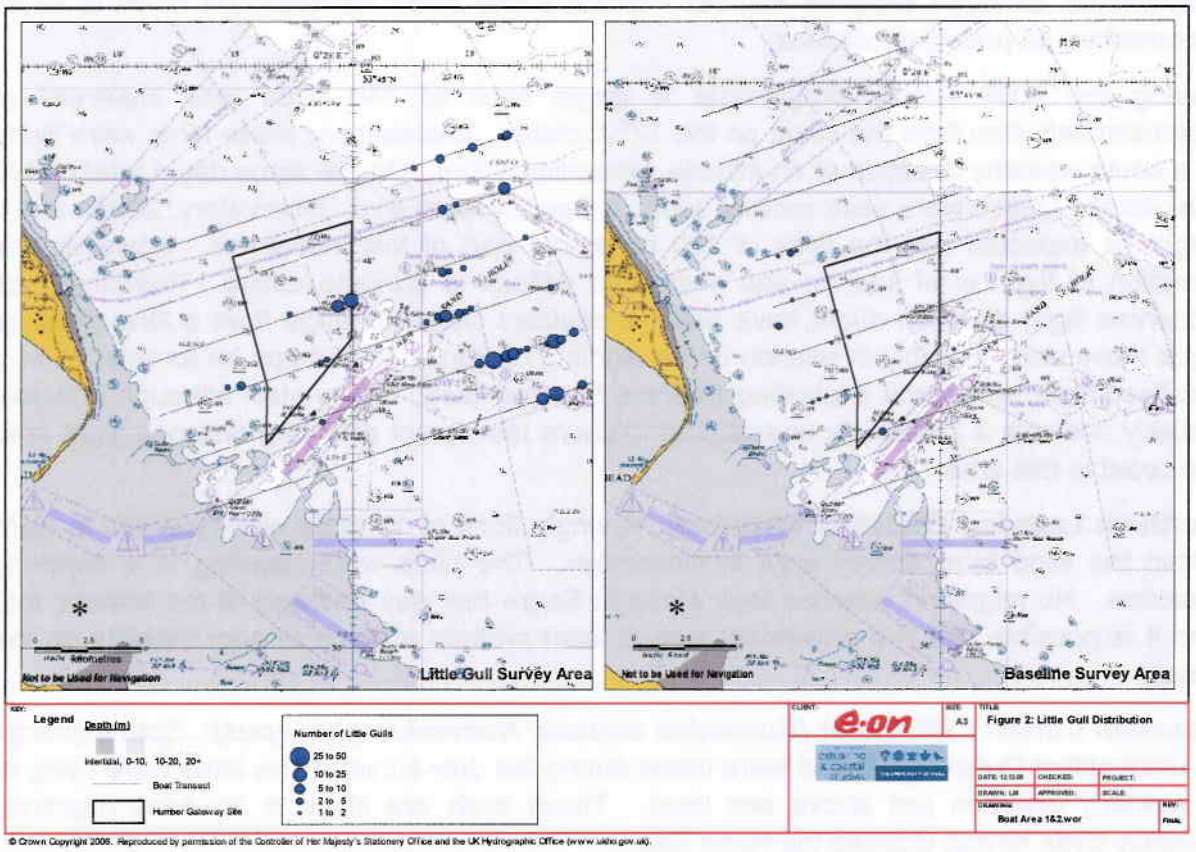

Figure 2: Little Gull Distribution

Three dedicated Little Gull surveys were undertaken between early October and early November. The area surveyed during the dedicated Little Gull survey encompassed offshore waters (up to 20km offshore) where large concentrations of Little Gull were observed in October 2005. The October 2005 survey, which recorded a total of 436 birds, indicated a greater level of usage, both by birds on the water and flying, with distance from shore. The majority of registrations were made from 10km out to the end of transect (c. 22km offshore), with the largest flocks (on the water) around 15km to 20km offshore.

To some extent, the early October 2008 survey recorded a similar distrubution with the birds distributed at distances between c.15 to 20km offshore (Figure 2). However, the level of

abundance was lower than in October 2005 with only 113 birds recorded in October 2008. Very low numbers of Little Gull were recorded from Spurn in October 2008, with numbers in single figures through the month. The highest number was recorded on 17th October with eight birds (Spurn Bird Observatory, 2008). It is worth noting that the bulk of the passage took place in July 2008 at Spurn with counts of 150 birds on 10th July, 300 on 12th July, 100 on 17th July (Spurn Bird Observatory, 2008).

Table 8: Abundance of Little Gull (all sightings from ship-based seabird survey).

Behaviour	14/07/2008	29/08/2008	19/09/2008	09/10/2008	17/10/2008	06/11/2008
In flight	12	0	0	48	8	25
On sea surface	78	0	0	65	0	17
Total	**90**	**0**	**0**	**113**	**8**	**42**

5. CONCLUSIONS AND POINTS OF NOTE

In general, the 2008 survey programme recorded findings consistent with those from the more extensive 2003 to 2005 programme undertaken in and around the proposed Humber Gateway site.

Usage by birds associated with the Flamborough Head and Bempton Cliffs SPA remained relatively low, with no significant patterns of usage within the survey area and only limited flight movements through it. This is encouraging as it suggests that the likelihood of diurnal movements by birds through the area and associated potential turbine interactions is relatively low. As such conclusions relating to the impacts of the development on the Flamborough Head and Bempton Cliffs SPA assemblage made in the ES remain well founded.

A degree of long distance passage movement was recorded, including some very small scale movements onto the coast and potentially into the Humber Estuary SPA. These findings relating to very small numbers of wildfowl and waders is again consistent with those from the previous programme, and as such, conclusions made in the original ES remain valid. Of note, however, is the recorded of a flock of Pink-footed Geese recorded moving in a south westerly direction. Long distance movements of Pink-feet are known to occur down the east coast, with birds moving onto the Wash to winter, some potentially stopping off on the Humber on route. Similarly, a small flock winters on the Humber and localised movements around the mouth of the estuary may result from this. As such, the function of the observed movement from the October survey is unclear, although a larger southerly movement of the species was noted at Spurn on the same day. This would potentially suggest that the movement observed during the survey was part of this wider long distance coastal movement, which is somewhat odd given the location and flight direction (onto the coast). Whether this was a localised movement or a course correction for a longer distance movement is unclear, but it does raise some interesting questions on flight patterns by the species in this area. However, despite this, the approach used in the ES is still considered to be sufficiently precautionary to encompass such flight variability within any wider impact predictions.

Little Gull usage during the survey period was relatively low, although it would also appear from Spurn data that usage in the coastal margins in this area was relatively low compared to recent years. It remains likely that the majority of activity by Little Gull is undertaken outwith the proposed development area, and primarily further offshore. As such, the findings described in the ES remain valid, although the foraging activity along the seawater/freshwater interface off the mouth of the Humber is of note.

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APPENDIX 1: SPECIES AND NUMBERS OF BIRDS PER SURVEY

Listing is by overall recorded abundance rather than taxonomic order.

Species	14/07/08	29/08/08	19/09/08	09/10/08	17/10/08	06/11/08	Total
Little Gull	90			113	8	42	**253**
Common Guillemot	30	52	68	24	12	43	**229**
Black-legged Kittiwake	55	83	43	5	6	20	**212**
Northern Gannet	26	39	17	27	21	35	**165**
Mew (Common) Gull	2	3	2	25	41	72	**145**
Pink-footed Goose					140		**140**
Great Black-backed Gull	4	30	26	12	5	29	**106**
Redwing						70	**70**
Common Guillemot/ Razorbill	5		16	13	5	23	**62**
Razorbill	26	5	1	4	5	7	**48**
Fieldfare					3	26	**29**
Meadow Pipit			29				**29**
Common Tern / Arctic Tern		19	1				**20**
Lapwing						15	**15**
Northern Fulmar	6	1				6	**13**
Atlantic Puffin	2		2	6		3	**13**
Arctic Skua		6			2		**8**
Eurasian Woodcock						8	**8**
Blackbird / Song Thrush/ Redwing / Fieldfare						6	**6**
Black-headed Gull		1		1		4	**6**
Common Tern	3		2				**5**
Common Eider						5	**5**
Herring Gull	2					3	**5**
Red-throated Diver				1	1	3	**5**
Common Starling						5	**5**
Eurasian Curlew / Whimbrel	4						**4**
Lesser Black-backed Gull	1		2			1	**4**
Song Thrush			1		2		**3**
Sandwich Tern				2	1		**3**
Feral Pigeon	1		1				**2**
Herring Gull /Lesser Black-backed Gull / Great Black-backed Gull			1		1		**2**
Mallard		1				1	**2**
Great Skua		1				1	**2**
Arctic /Long-tailed /Pomarine Skua		1					**1**
Black-throated/Red-throated Diver				1			**1**
Dunlin						1	**1**
Goldcrest						1	**1**
Manx Shearwater	1						**1**
Pied Wagtail		1					**1**
European Robin						1	**1**
Short-eared Owl						1	**1**
Common Swift	1						**1**
Eurasian Teal						1	**1**