



ABP Grimsby

**Grimsby Ro-Ro Berth  
Environmental Statement  
Supplementary Note 1:  
Response to Consultees**

Date: March 2010

Project Ref: R/3723/04

Report No: R.1605a



ABP Grimsby

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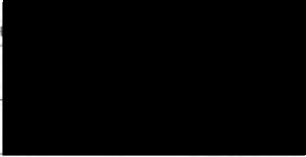
Date: March 2010

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Report No: R.1605a

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Version	Details of Change	Authorised By	Date
1	Draft	C E Brown	16.02.2010
2	Draft	C E Brown	22.02.2010
3	Final	C E Brown	09.03.2010

Document Authorisation		Signature	Date
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## Grimsby Ro-Ro Berth Environmental Statement Supplementary Note 1: Response to Consultees

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## 1. Background

Associated British Ports (ABP) Grimsby submitted an application for a Harbour Revision Order (HRO) along with an Environmental Statement (ES) (ABPmer, 2009) for a proposal to construct a Roll-On Roll-Off (Ro-Ro) Berth with associated dredging of a berthing pocket, turning area and approach channel. The application was acknowledged on 17/09/2009 under the Department of Transport (DfT) Reference PCP 2/11/1 with respect to the Harbours Act (1964) requiring a HRO.

During the statutory consultation, under the Harbours Act, a number of comments were received by DfT which require further attention before a consent decision can be made. Although no formal letter has been received to date from DfT individual letters have been forwarded as and when they have been received and ABP Grimsby has made the decision that the various comments should be addressed. The purpose of this document is to address the queries and clarification points raised by the consultees, primarily from Natural England (NE) and Royal Society for the Protection of Birds (RSPB), in their various letters. The comments are addressed by either referencing and/or clarifying sections of the ES, as well as providing specific additional information focused on the individual comments.

## 2. Natural England

The response has been made to address the comments on the ES in same order as set out in the NE response to DfT, Reference HE SSSI O ((ABP Grimsby), 25/10/2009).

### 2.1 Non -Technical Summary

A non-technical summary (NTS) is a standalone document written in layman's terms as far as possible, which details the study in the same order in which the technical sections are presented. For this reason some differences in wording may occur compared to the main body of text, which may give rise to apparent inconsistencies.

#### 2.1.1 Bullet Point 1

First bullet point suggests that there is inconsistency in the non - technical summary with regard to impacts on the intertidal areas. This can be clarified by distinguishing the differences between direct impacts - a physical loss resulting from the scheme and an indirect impact - a change resulting as a consequence to the changes to the physical processes of the development at that location. The scheme is therefore predicted to only have direct impacts on the subtidal (i.e. dredging at berth, approach channel and turning area are all below Mean Low Water (MLW) and Lowest Astronomical Tide LAT)). Indirect impacts occur over both the subtidal and intertidal areas and differ at locations within each area.

The NTS text describes the direct morphological changes as subtidal only (see ES Section 7.3.2) therefore no direct impact on intertidal through this process. Indirect effects on water levels are negligible at high and low water therefore morphologically there is no impact. The

impacts associated with sedimentation changes are however considered to be indirect (ES Section 7.3.6) which will be beneficial in the area of Doig's Creek, where an increase of up to 20% in sedimentation rate is predicted. In addition a small amount of accretion is predicted over the Pyewipe Foreshore. This term is used to refer to the general area for a short distance in front of the Pyewipe Sea Defence. The reference to reduced sedimentation along the Pyewipe Flats refers to the lower section of the intertidal (i.e. a different place). This is a reduced rate of sedimentation (up to 0.4m/yr), therefore mud flat lowering will not occur (i.e. insufficient to cause erosion), but the current rate of the trend for build up in this area will be reduced.

### 2.1.2 Bullet Point 2

The comment about dredging more by backhoe is made to put the modelling of the dispersion into its correct perspective as a worst case scenario whereby a greater amount of material was deposited in the model than is likely to actually be the case, as the actual amounts are not possible to accurately derive. Thus the model is likely to over represent the effects on water quality from suspended material from the Burcom Sand Deposit Ground.

It is agreed that Middle Shoal Deposit is within a highly mobile subtidal sandbank feature. This location however has been subject to disposals of sediments ranging from clay to medium sand from maintenance dredging, since the early 1970's, and of importance to this consideration, similar glacial clay material from the Immingham Outer Harbour dredge and the Pyewipe outfall, both before and after the designation of the sandbank feature. This material has been completely removed from the site with no trace remaining and no change to the normal variability of the sandbank can be established. Whilst the material will not be immediately mobile it will breakdown and/or be buried to depths that will not affect the current characteristics of the sandbank in the longer term. All material to be deposited is currently material that does not contribute to the sediment balance of the estuary. A large proportion of the material will be deposited in a form that will allow it contribute to the supply of the sediment in the estuary, thus giving an enhancement in the supply.

### 2.1.3 Bullet Point 3

The proposed strategy for the disposal was carefully considered taking account both the maintenance commitments and the consented capital works along with the material types and volumes as well as the capacity of the various sites, in addition to the nature conservation considerations, although this may not have been given in detail in the ES. The Immingham Oil Terminal (IOT) Approach Dredge distributes a large volume of different material around the estuary to minimise impacts and gain benefit where possible. The volumes, however, will initially have localised effects and cause temporary but recoverable change. For the Grimsby Ro-Ro the Middle Shoal site is proposed over Bull Sand Fort for four primary reasons:

- The additional volume (should the dredge occur at a similar time to the approach channel deepening) would put 'added stress' on the processes occurring at the Bull Sand Site, particularly the scour holes where the material would be deposited to minimise the impact on the bank feature;

- Locating the material at Bull Sand Fort would mean more material would be lost from the estuary as the clay/silt breaks down. This is the material that has greatest potential value to build up the intertidal over time. Placing at Middle Shoal increases the longer term benefit of the increased supply;
- Material of this type has already been deposited at Middle Shoal in the past and when it breaks down will have a similar character to the silt sediments that have been deposited here from maintenance dredging; and
- Transport distances are reduced, which saves significantly on fuel and the site has a less severe wave climate more suitable for the smaller barges generally used for backhoe operations.

This said the Bull Sand Site could be used, however it is considered that this would not be the best practical environmental option for the estuary as a whole when considered in combination with other consented projects. Deposit at either location, due to the natural variability that occurs and past history of disposal will have no significant effect on the subtidal sandbank feature.

The stiff clay will result in large non-erodible lumps which will be of the same character as deposited at the Sunk Dredged Channel (SDC) sites from previous dredges. The relatively small volume means the sites will be capable of accommodating the volume in combination with the effects of the Immingham Approach Dredge.

#### **2.1.4 Bullet Point 4**

The mitigation screening of the movements (vehicle and human) along the jetty and directional lighting will be incorporated into the detailed design of the terminal to minimise any disturbance effects to birds feeding and moving along the foreshore both day and night. The screening will be up to 2m high and the design will be discussed with NE for approval. Further details on the mitigation are given in Section 5.

#### **2.1.5 Bullet Point 5**

ABP Grimsby will schedule the piling works to take place in the summer months between 1 May to 31 July.

Additional bird studies have been undertaken (see Section 3), which support the assessment that the development will have no significant impact on bird populations in the Doig's Creek area. There is therefore no reason to believe the quality or usage of this compensation area will be compromised. Further details on the mitigation are given in Section 5.

#### **2.1.6 Bullet Point 6**

The 1% refers to the approximate proportion (relating to the Grimsby Ro-Ro development) of the total area of the estuary that is directly impacted by developments included for in-combination assessment, predominantly the Immingham Oil Terminal (IOT) Approach Channel Dredge and the Hull Riverside Bulk Terminal (HRBT).



### 2.1.7 Bullet Point 7

Clarification relating to mitigation is detailed above.

## 2.2 Main Report

### 2.2.1 Section 2.4.2

The land owned by ABP at Immingham is insufficient to relocate the current landuse and operations for Toyota and VAG, if the car trade was moved to Immingham it would require the development of at least 130 acres of green field site in the vicinity. There would not be a need to deepen the Immingham approach channel as the port already receives vessels of greater draughts than the car carriers under consideration. The arrival of vessels into Immingham Docks would however require the road transportation of the cars back to the dedicated facilities at Grimsby.

### 2.2.2 Sections 7.3.2-7.3.6

For the most part these sections summarise the effects of the development on the specific impact pathways as interpreted from the detailed modelling and analysis, which is set out in Appendix C of the ES. The detail (spatial distribution and quantification) that NE is asking for is presented in diagrammatic form in Appendix C of the ES. This analysis shows the changes that occur in the different areas as a result of the development and identifies the scale of effect with respect to the rest of the estuary. The text in the ES identifies the most significant changes of the environmental impact assessment.

All developments will cause local changes, which will be both positive and negative. The modelling shows increased sedimentation is predicted to occur in the entrance to Doig's, but sedimentation potential is reduced along the edge of Pyewipe further west, creating a redistribution of sediment. The change in flow and bed shear characteristics at the latter location is insufficient to cause erosion, therefore will not reduce the area of intertidal at this location, but will reduce the potential rate of build up. It should be noted that the sedimentation figures are only rates derived from a single spring /neap cycle. The model does not morphologically update over a year, if this could happen the actual annual change at any specific location is likely to be considerably lower than the quantification of the model rates, particularly in areas where bed shear stresses are increased, because variable and changing consolidation of the sediments is not accounted for. Whilst local changes may be significant, there are similar areas of positive and negative change, which tend to cancel out when considering over a wider area and the net effect is negligible when considering the system as whole. The modelled changes must also be interpreted with respect to the natural variability that occurs within the local area and the accuracy of any measurements that can be made, which form the basis of the modelling. This always means modelling results must be interpreted with the aid of expert opinion, based on local knowledge of the area concerned.

The scale of the water level changes modelled are negligible with respect to those predicted to occur due to tidal range, particularly away from the very local area of the works.

#### **2.2.3 Section 9.2.8.2 Comment**

In addition to the counts presented in the ES, further counts and specific studies relating to the black-tailed godwit have been undertaken. These are presented in Appendices 1 to 3 and summarised with respect to the RSPB comments in Section 3.

#### **2.2.4 Section 9.3.9 Comment**

The impact on the birds on the existing mudflat from anthropogenic disturbance at the edge of the embankment bordering Doig's Creek has not been raised as significant from the existing port activities. This is not likely to increase substantially following the development. ABP Grimsby however, have committed to screening the disturbance from the additional car movements, see Bullet Point 4 in Section 2.1 above.

#### **2.2.5 Section 15.2.1 Comment**

This has been addressed by additional surveys and studies in Appendices 1 to 3, with an in-combination assessment made in Section 3.5.2 below.

#### **2.2.6 Section 15.3 Comment**

A dredge and disposal strategy has been produced for the development; see Section 3.1 below for the reference.

#### **2.2.7 Section 16 Comment**

ABP Grimsby is committed to updating the Maintenance Dredge Protocol Baseline Document for the Humber Estuary to incorporate this development (and other projects) as consented and when carried out. This is summarised in Section 5.

### **3. Royal Society for the Protection of Birds**

This section is set out to address the RSPB comments on the ES in their response to the DfT dated 29/10/2009 using the same sub headings.

#### **3.1 Dredging**

A detailed dredge disposal strategy accompanies this document and is entitled 'Grimsby Ro-Ro Berth Environmental Statement Supplementary Note 2: Dredging and Disposal Strategy' Report R.1605b (ABPmer, 2010). In addition the dredge protocol will be updated on approval of the proposed scheme.

RSPB have noted that predicted maintenance dredge requirements for other developments have been exceeded in recent years. Whilst this is true for some locations and individual years it has always been noted that maintenance commitments have always been highly variable due

to both the considerable natural variability of sediment processes in the estuary and the specific commercial needs during any year. This means that care is required in interpreting dredge disposal returns over short periods when determining potential environmental effects. One example was to apply for an extension to the Immingham maintenance dredge licence following the development of Immingham Outer Harbour. This occurred because the initial licence was not increased to account for the new commitment. At Humber Sea Terminal (HST) some of the increase was due to a backlog from under dredging in previous years when commercial demand did not require it. Rates of sedimentation have, however also increased along the whole southern bank in recent years. We should also note however, with respect to the estuary as a whole, that no maintenance dredging has been required in the SDC for the last three years. If the whole estuary is considered during this time the amount of sediment deposited from maintenance dredging in the estuary over this period has been lower than in previous years, even though some locations have been more than or at the high end of the predicted range.

### **3.2 Disturbance**

The mitigation proposals detailed in the ES will be implemented as ABP are committed to providing these as part of the scheme and it is anticipated that these will be addressed in a legal agreement /undertaking with NE. ABP welcome this approach and will consult and agree the detail of the mitigation measures with NE and other appropriate parties as necessary. Further details on the mitigation are given in Section 5.

### **3.3 Noise**

As stated in the ES the piling will be carried out during the summer months of 1 May to 31 July, i.e. within the RSPB defined period of May to July for the summer months. This again will be addressed in a legal agreement /undertaking with NE.

### **3.4 Visual Disturbance**

ABP emphasises that the proposed mitigation to reduce the impact of the scheme on bird usage of the adjacent intertidal mudflats through visual disturbance and increased lighting will be implemented. The details of the specific design will be agreed with NE but will include the erection of screening up to 2m high along the length of the jetty approach and at Doig's Creek. High Mast directional lighting will be installed to reduce light spill. This will, for example follow, 'The Chartered Institution of Building Services Engineers, Lighting Division Factfile No.7' (CIBSE, 1998) or British Standards Institution (BSI) standards as appropriate.

### **3.5 Habitats Regulations Assessment**

The RSPB have asked for further information of the development impacts both alone and in combination with other planned projects. To address this a number of additional studies have been carried out over and now reported to assess the waterbirds usage of the local mudflats, their movements within the estuary and the reliance of black-tailed godwits on the middle estuary. Full reports can be found in Appendices 1 to 3.



### 3.5.1 Usage of Local Mudflats

A study commissioned by ABP Grimsby including a site visit and review was conducted to assess the condition of the mudflat adjacent to the proposed scheme, Pyewipe and Doig's Creek in particular. The study noted that 'the Pyewipe mudflats are particularly important for the estuary's population of black-tailed godwits. This species both feeds, and when tidal conditions permit, also roost on the Pyewipe mudflats'. In order to make the area more accessible and a safer environment for this species the following recommendations were made (see Appendix 1).

Survey evidence shows that the Pyewipe mudflats are already well used by birds so the aim of any mitigation at this site is to ensure that the conditions are as suitable for them as possible. This may be achieved by simple habitat management (removal of tall vegetation from edge of sea defence) and also potentially by erecting some low-level screening to prevent vehicle movements being visible from the mudflats at low tide. Further details on the mitigation are given in Section 5.

The report notes that with these recommendations in place there should be no direct or indirect impact of the scheme on the continued waterbird usage of these mudflats for foraging, roosting and loafing. The habitat management would marginally improve the general location for waterbird usage.

### 3.5.2 Waterbird Movements Within the Estuary

In order to assess the waterbird movements within the middle part of the estuary, ABP Grimsby commissioned Nyctea Ltd. to carry out a survey of the movements of waders and wildfowl between feeding areas on Pyewipe mudflat and roosts outside at low water during the winter period, defined here as November 2008 to February 2009. These surveys followed work carried out between August 2008 and March 2009 (see Appendix E of ES) inclusive. The results confirmed the presence of the key species that are found in the area under consideration and the lack of any significant numbers of any other species. For full details see Appendix 2.

Observations on the movements of waders and wildfowl to and from roost sites were carried out at two sites, one on the Humber embankment and the second on the North Wall, by the Dock entrance, throughout the tidal cycle on several days during November and December 2009. These were mapped on large-scale maps. Standard vantage point surveys were undertaken from the North Wall on three dates between 14-18 November 2009 inclusive with the number of birds, species and the height of movements being recorded throughout the falling and rising tidal periods. These three dates all coincided with high spring tides as it was recognised that movements of waders and wildfowl between the Pyewipe mudflats and roosts were concentrated on spring tides with neap and medium tides allowing birds to remain in the feeding areas throughout the tidal cycle. Two of the three vantage point survey dates were conducted under severe weather conditions and are considered to be significant in providing unusual movements of birds as opposed to the regular movements undertaken in benign weather.

Three bands were used in the consideration of the height of the bird movements to and from the feeding and roosting sites; these were:

- Band 1 1m to 10m;
- Band 2 11m - 20m; and
- Band 3 21m - 50m.

The results showed that between August 2008 and March 2009 a total of 17 species of wader and five of waterfowl were recorded from the Pyewipe survey area. Of these, some species were only recorded in the passage periods, August - September and March and others only on odd dates with small numbers of birds being involved. The following table shows the daily maximum count of the principal species recorded in the area in August 2008 to March 2009, in ascending order of magnitude; the maximum winter 2008 to 2009 (November to February) count and the maximum November to December 2009 count.

**Table 1. Wader and waterfowl movements August 2008 to February 2009**

Species		August 2008 - March 2009	November 2008 - February 2009	November - December 2009
Turnstone	<i>Arenaria interpres</i>	14	12	10
Wigeon	<i>Anas penelope</i>	33	0	0
Oystercatcher	<i>Haematopus ostralegus</i>	36	21	4
Mallard	<i>Anas platyrhynchos</i>	56	56	34
Bar-tailed Godwit	<i>Limosa lapponica</i>	151	151	59
Grey Plover	<i>Pluvialis squatarola</i>	177	177	39
Curlew	<i>Numenius arquata</i>	381	360	205
Ringed Plover	<i>Charadrius hiaticula</i>	394	27	32
Knot	<i>Calidris canutus</i>	394	36	5
Redshank	<i>Tringa totanus</i>	804	714	360
Golden Plover	<i>Pluvialis apricaria</i>	1400	1400	3300
Shelduck	<i>Tadorna tadorna</i>	1448	864	620
Dunlin	<i>Calidris alpina</i>	3460	3460	2900
Black-tailed Godwit	<i>Limosa limosa</i>	3600	3600	3500
Lapwing	<i>Vanellus vanellus</i>	3794	3794	3800

Of the above 15 species Wigeon were only recorded on passage and the totals for Turnstone, Oystercatcher and Mallard were insignificant in the context of the estuarine population. The numbers of birds in flight are given in Table 2.

The study concluded that the proposed extension to the Western Jetty structure appears unlikely to have any major effect upon wader and wildfowl flight lines between roost and feeding areas. The present infrastructure presents no obstacle to bird passage as most pass over the jetty at considerable heights. The one exception is the Dunlin, which tends to pass low over the jetty in significant numbers. However, movements of this species are weather and disturbance dependent and birds are quite capable of climbing quickly over the main dock buildings from the inner basin showing that they are adaptable and obstacles up to 30m in height seldom influence their movements.

**Table 2. Number of birds in flight**

Species	14 November 2009	15 November 2009	18 November 2009
Little Egret	0	0	1
Shelduck	142	64	9
Oystercatcher	0	0	2
Grey Plover	0	2	8
Dunlin	731	842	401
Knot	3	0	0
Bar-tailed Godwit	22	18	7
Black-tailed Godwit	9	0	369
Curlew	1	0	2
Turnstone	2	0	0

In addition the flight lines tend to indicate that most birds using the Pyewipe area arrive or leave the mudflat to/ from the north or from the east. Up estuary movement appear not to extend up estuary of the western end of Pyewipe except for, perhaps the black-tailed godwit. This suggests that most birds using the vicinity of Pyewipe are unlikely to use the roost sites at North Killingholme Haven Pits. Since the Grimsby development is unlikely to affect waterbird movements in the estuary then it will not increase the impact in combination with the Able UK proposed development at the North Killingholme Haven Pits site or vice versa.

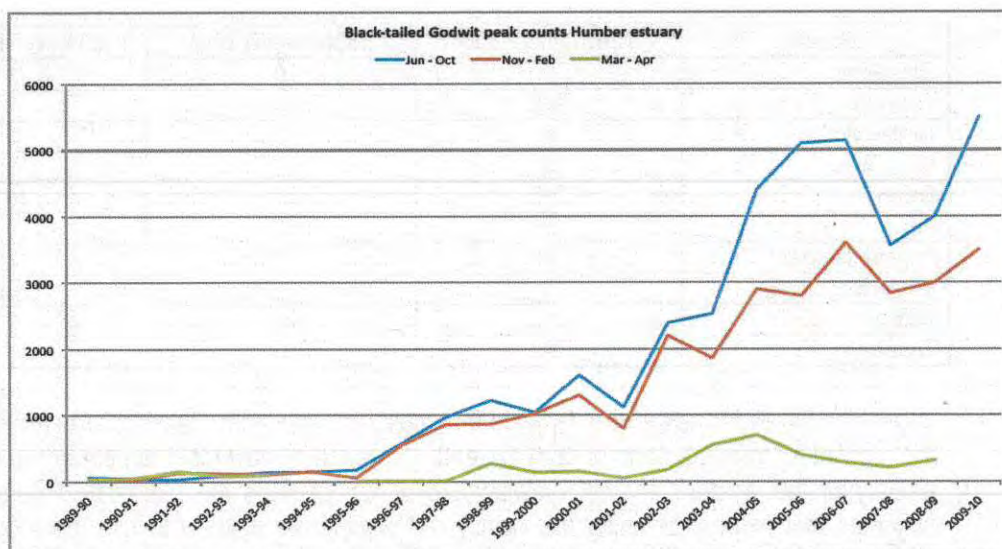
### 3.5.3 Reliance of Black-tailed Godwits on the Middle Estuary

Nyctea Ltd. was contracted by ABP Grimsby to produce a report detailing the status, distribution, movements and habitat choice of the of the black-tailed godwit populations that occur on the Humber Estuary with particular reference to the areas on the south bank of the estuary adjacent to the ports of Grimsby and Immingham. Historical information and details of surveys undertaken over a 20-year period were used in conjunction with surveys from October to December 2009. The full study is detailed in Appendix 3.

The black-tailed godwit increase in numbers by more than any other wader species on the Humber Estuary in the latter half of the twentieth century and first decade of the 21st century. From a very scarce passage species, black-tailed godwit has increased to the point where an internationally important passage and wintering population has become established. The wintering flock has increased to form 6.5-10% of the Great Britain winter population (see Figure 1 for Humber population).

There are a number of implications for the protection of the population of black-tailed godwits that occurs on the Humber Estuary, during the winter and autumn passage periods, evident from the occurrence patterns. The wintering population is almost entirely dependent upon the restricted area of mudflats and the high tide roost site around Pyewipe. In addition the autumn passage flocks and aggregations of moulting birds show strong site fidelity to favoured feeding areas (e.g. Pyewipe and Alkborough). The high tide roost sites and moulting area at North Killingholme Haven pits, Alkborough Flats and Blacktoft Sands are also of great importance with the former site having been the most important site on the estuary during the 1990's and 2000's.





**Figure 1. Black-Tailed Godwit Peak Counts in Humber Estuary**

Studies on other estuaries around the UK have shown that the black-tailed godwit may be prone to sudden changes in status in particular sites due to its preference for restricted feeding and roosting areas. If these sites are disturbed or reclaimed the status of the species may undergo dramatic alterations. Low water studies on the Stour revealed that the black-tailed godwit was the one species whose numbers and distribution changed dramatically between the winters 1988/89 and 1989/90 (Coombes, 1991). This change was probably due to reclamation of a section of the Stour, which previously served as a major feeding area.

Gill *et al* 2007 studied the two West Palearctic populations of black-tailed godwit, and produced conservation recommendations for both as detailed below:

1. Improve conservation of winter habitat mosaics, particularly in areas, such as Ireland, England and France, where grasslands, coastal lagoons and saline pools may be necessary to maintain populations when estuarine food supplies are depleted;
2. Reduce impact of afforestation and building developments in Iceland on godwits and other shorebird species, by conserving key breeding areas; and
3. Improve protection of coastal habitats in areas where development and associated disturbance levels are high.

Points 1 and 3 are applicable to the Humber Estuary where it has been seen that the Humber population appears to be reflecting food depletion movements away from the estuary and these may be occurring earlier in the winter than previously recorded possibly as a result of the increase in the number of birds that are now occurring on the estuary.

While the areas of intertidal mudflats have for many years been finite the recent development of managed realignment sites around the estuary has already increased the areas where black-tailed godwits occur and roost and further site development could also benefit the species; particular reference to creating roost sites free from human disturbance.

Studies at Pyewipe have shown that only the parts of the shoreline where human disturbance is minimal, on areas with restricted access, regularly hold roosting birds while the small areas of saltmarsh and fields within 200m of the Humber embankment fail to attract birds due to frequent human and dog disturbance.

The Grimsby Ro-Ro development will not decrease the area of mudflat for feeding of the black-tailed godwit, nor does it change the areas where most feeding takes place or local roost areas. Disturbance from humans and dogs along the embankment edge will not change. The only changes will occur during construction; noise and disturbance and during operation due to vehicle movement and lights at night. However, mitigation has been proposed that ABP Grimsby are committed to deliver which will limit the impact to an insignificant level. The additional impact on the black-tailed godwit is therefore considered to be minimal from both direct and indirect sources of the development alone. As noted in the previous section the effects in the Pyewipe area will have no in-combination effects further up river, particularly North Killingholme Haven Pits.

The additional studies suggest most impact on the black-tailed godwit would arise from a reduction in the intertidal area available for feeding. In this respect the Grimsby Ro-Ro development will remove a maximum of about 60m<sup>2</sup>, which NE have concluded will cause no adverse effect on the integrity of the designated site. In -combination with the proposed HRBT development at Hull it is considered there will be no significant combined effect since that development is again predominantly subtidal with less than 10m<sup>2</sup> of direct loss from the piles.

### **3.6 Further Information in the Environmental Statement**

These have been addressed in Section 2.1, Bullet Point 1.

## **4. English Heritage**

It is noted that English Heritage are content that the historic environment has been adequately considered. ABP will put in place, through the dredge contract, a formal protocol based on BMAPA (2003) 'Marine Aggregate Dredging and the Historic environment and COWRIE (2007) 'Historic Guidance for the Offshore Renewable Energy Sector' (Ref. 9 and 10).

## **5. Summary of Mitigation**

The impacts identified within the assessment can be mitigated through a number of measures that cover the construction, dredging and operational phases of the proposed development and these are detailed in the following sections. The details will be addressed in a legal agreement/undertaking with NE.

### **5.1 General Mitigation**

A number of general mitigation measures will be implemented as part of the environmental management of the scheme to avoid and minimise environmental impacts. These will be incorporated into environmental construction plans:

1. All construction work will be required to adhere to the Environment Agency Pollution Prevention Guidelines for working on construction sites (PPG6) and other relevant PPGs (Planning Policy Guidance);
2. Environmental management and awareness training will be provided to all construction staff prior to commencement of work on site;
3. Best practice methods and working will be used wherever practically possible; and
4. Revisit the dredge protocol document to include fully all new schemes (and the impacts) on the Humber.

### **5.2 Construction and Dredging**

The construction works and dredging will involve a number of activities for which there is potential for disturbance to the bird and shipping communities these will be mitigated through the following mechanisms:

1. Piling will be planned over the summer months (1 May to 31 July) thus minimising disturbance to overwintering waterfowl on the adjacent mudflats;
2. Distribution of dredged material to different deposit grounds to best maintain the character of the seabed at each location, as outlined in the separate dredge strategy document (ABPmer, 2010);
3. Use of temporary navigation lights to reduce potential for collision with plant from vessel traffic movements;
4. Attendance of archaeologist during dredging of alluvium to keep watching brief on the discovery of any artefacts in line with recent guidance, a protocol for reporting finds will be set up prior to the commencement of dredging activities. This will be based on BMAPA and COWRIE recommendations (BMAPA, 2003 & COWRIE, 2007);
5. The removal of the wooden timber structures at base of existing roadway/land interface, see Figure 2; and
6. Notice to Mariners.





**Figure 2. Photograph Showing Wooden Structure to be Removed**

### **5.3 Operation**

During operation the following measures will be put in place to reduce the impact of the berth operation particularly to the bird population using the adjacent mudflats and the local shipping, these include:

1. Use of directional lighting to reduce light spread on the adjacent mudflat, as is common - place for such developments and within the port estate in general;
2. 2m high screening along roadway from the landfall to the linkspan to the reduce visual impact of vessel movement. The screening will be constructed of timber or plastic overlapping boarding, the details of which will be agreed with NE;
3. Liaison meetings between the Harbour Master's department and recreational clubs, and re-iterate the ease of contact with VTS;
4. Permanent navigation marks;
5. 1m low level screening, details of which will be agreed with NE, along the head of Doig's Creek; and
6. Removal of tall vegetation at edge of sea defences adjacent to Pyewipe Flats and to the north of the Northern Distribution Centre (VW Terminal).

## 6. References

ABPmer, 2009. Grimsby Ro-Ro Berth Environmental Statement. ABP Marine Environmental Research Ltd, Report No. R.1506.

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# Appendices



# **Appendix 1**

**Grimsby Site Report December 2009**

## **Report on a site visit to Port of Grimsby.**

**3<sup>rd</sup> December 2009**

### **Background**

Humber INCA was contacted by Associated British Ports (ABP) to request assistance in identifying mitigation proposals for a new roll-on roll-off jetty at Port of Grimsby. The proposed development is adjacent to the Pyewipe mudflats which are an important feeding area for birds using the Humber Estuary Special Protection Area.

Humber INCA is a membership organisation that works with its members to assist them in meeting their obligations and responsibilities relating to wildlife on and around their sites.

### **Method**

A site visit was made on 3<sup>rd</sup> December 2009 by Darren Clarke of Humber INCA accompanied by Tom Jeynes of ABP. Two points on the flood defences behind the Pyewipe mudflats were visited. The first was adjacent to the Volkswagen car storage area at Grid Ref TA267111 and the second was at the site of the old lock gates at Doig's Creek at Grid reference TA273106. Conditions at both sites were observed and photographs taken to allow recommendations on future management to be made.

### **Site Description and Observations**

The area concerned is at the eastern end of the Pyewipe mudflats which lie immediately west of the north dock wall at Port of Grimsby. The mudflats are part of the Humber Estuary cSAC, SPA, Ramsar site due to their importance for a range of wintering and migratory wading bird species. At the eastern end the mudflats are approximately 750m wide at low tide.



**Mudflat at Doig's Creek**

## **HUMBER INDUSTRY NATURE CONSERVATION ASSOCIATION**

Waters' Edge Visitor Centre, Maltkiln Road, Barton upon Humber, North Lincolnshire. DN18 5JR

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Since the old lock gates have been closed at Doig's Creek, the former channel across the mudflats has silted up to the point that it has now reached the level of the adjacent mudflats. On the western side of the former channel, saltmarsh vegetation, in particular common cord-grass (*Spartina anglica*) has begun to develop out onto the mudflat.



Saltmarsh vegetation spreading out onto the Pyewipe mudflats at Doig's Creek.

Recent survey work commissioned by ABP has shown that the Pyewipe mudflats are particularly important for the estuary's population of Black-tailed godwits. This species both feeds, and when tidal conditions permit, also roosts on the Pyewipe mudflats.

Along the southern edge of the mudflats a flood defence embankment protects the Port of Grimsby and the urban area of Grimsby beyond it. At the toe of the embankment an approximately 10m wide strip of rubble runs along the full length of the flood defences.



Rubble strip at the base of the flood defence.

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It appears that little management has taken place along the top of the flood defence embankment in recent years. As a result of this the vegetation has become rank with succession to scrub beginning in some places.



Rank vegetation along the flood defence adjacent to the car storage area.



Rank vegetation growing on the flood defence outside the former lock gate at Doig's Creek

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## Recommendations

Survey evidence shows that the Pyewipe mudflats are already well-used by birds so the aim of any mitigation at this site is to ensure that the conditions are as suitable for them as possible. This may be achieved by simple habitat management and also potentially by erecting some low-level screening to prevent vehicle movements being visible from the mudflats at high tide.

The following actions should therefore be considered:

1. Vegetation along the top of the flood defences should be cut in late-July to help ensure that clear sight lines are maintained from the mudflats. Any arisings should be removed from the site. The reason for this is that wading birds require open sight lines in order to allow them to detect the presence of potential predators such as birds of prey. The presence of scrubby vegetation along the tops of the flood defences adjacent to feeding / roosting areas may discourage birds from using an area if they feel threatened. Clear sight lines will also allow birds to spend less time 'scanning' for potential threats and more time feeding.
2. The sudden appearance and disappearance of vehicles moving to and from the new roll-on roll-off jetty could disturb birds using the adjacent mudflats. This may particularly be the case at night (when vehicles have their lights on) where there are breaks in the embankment around the old lock gates. In order to mitigate against this, low-level screening could be erected at Doig's Creek to help hide vehicle movements (and lights) from birds on the mudflats. Any screening should be no-higher than the existing horizon (generally the flood defence) so as to ensure that sight lines during daylight hours are not affected.

It should be understood that the above recommendations represent an outline of options for the site, and that ABP, is under no obligation to implement any of the recommendations.

If there are any queries about this report please contact Humber INCA at the address below.

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# Appendix 2

Grimsby Docks Western Jetty  
Bird Surveys 2009



Grimsby Docks Western Jetty bird surveys 2009  
wader and wildfowl movements / roosts

G P Catley BSc Env,  
Nyctea Ltd





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## Movements of waders and wildfowl between feeding areas in Pywipe basin and roosts outside the basin

G P Catley Nyctea Ltd

### Introduction:

Nyctea Ltd were contracted by Associated British Ports Grimsby to ascertain the degree of movement to external high tide roosts and the flight lines followed by wildfowl and waders using the inter-tidal mudflats at Pywipe, Grimsby, WeBS sector Mid South A, at low water during the winter period defined here as November – February.



### Methodology:

Surveys during August 2008 to March 2009 inclusive had identified the key species that are found in the area under consideration. Follow up surveys in November and December 2009 confirmed the presence of the same species and the lack of any significant numbers of any other species.

Observations were carried out from the Humber embankment and from the North Wall, by the Dock entrance, throughout the tidal cycle on several days during November and December 2009 to identify the movements of waders and wildfowl to and from roost sites within and outside the basin and these were mapped on large-scale maps. Standard vantage point surveys were undertaken from the North Wall on three dates between November 14<sup>th</sup> and 18<sup>th</sup> inclusive with the number of birds, species and the height of movements being recorded throughout the high to low and low to high tide periods. These three dates all coincided with high spring tides as it was recognised that movements of waders and wildfowl between the Pywipe mudflats and roosts outside the basin were concentrated on spring tides with neap and median tides allowing birds to remain in the feeding areas throughout the tidal cycle. Two of the three vantage point survey dates provided some severe weather conditions considered to be significant in determining unusual movements of birds as opposed to the regular movements undertaken in benign weather.

The height bands used were:

band 1	1m to 10m,
band 2	11m – 20m
band 3	21m – 50m.

Western Jetty bird surveys



## Results:

Between August 2008 and March 2009 a total of 17 species of wader and 5 of waterfowl were recorded from the Pywipe basin survey area. Of these some species were only recorded in passage periods, August – September and March and others only on odd dates with small numbers of birds being involved. The following table shows the daily maximum count of the principal species recorded in the area in August 2008 – March 2009, in ascending order of magnitude in the first column, the maximum winter 2008 – 2009 (November – February) count in the second column and the maximum November – December 2009 count column three;

Species	Aug – Mar 08-09	Nov – Feb 08-09	Nov-Dec 09
Turnstone <i>Arenaria interpres</i>	14	12	10
Wigeon <i>Anas penelope</i>	33	0	0
Oystercatcher <i>Haematopus ostralegus</i>	36	21	4
Mallard <i>Anas platyrhynchos</i>	56	56	34
Bar-tailed Godwit <i>Limosa lapponica</i>	151	151	59
Grey Plover <i>Pluvialis squatarola</i>	177	177	39
Curlew <i>Numenius arquata</i>	381	360	205
Ringed Plover <i>Charadrius hiaticula</i>	394	27	32
Knot <i>Calidris canutus</i>	394	36	5
Redshank <i>Tringa totanus</i>	804	714	360
Golden Plover <i>Pluvialis apricaria</i>	1400	1400	3300
Shelduck <i>Tadorna tadorna</i>	1448	864	620
Dunlin <i>Calidris alpina</i>	3460	3460	2900
Black-tailed Godwit <i>Limosa limosa</i>	3600	3600	3500
Lapwing <i>Vanellus vanellus</i>	3794	3794	3800

Of the above 15 species Wigeon were only recorded on passage and the totals for Turnstone, Oystercatcher and Mallard were insignificant in the context of the estuarine population. The remaining species are dealt with below with regard to favoured roosting areas and movements between the feeding sites in the Pywipe basin and these roosts.

Number of birds in flights November 14<sup>th</sup>, 15<sup>th</sup> and 18<sup>th</sup> 2009

	14.11.	15.11	18.11
Little Egret	0	0	1
Shelduck	142	64	9
Oystercatcher	0	0	2
Grey Plover	0	2	8
Dunlin	731	842	401
Knot	3	0	0
Bar-tailed Godwit	22	18	7
Black-tailed Godwit	9	0	369
Curlew	1	0	2
Turnstone	2	0	0

# **Shelduck *Tadorna tadorna***

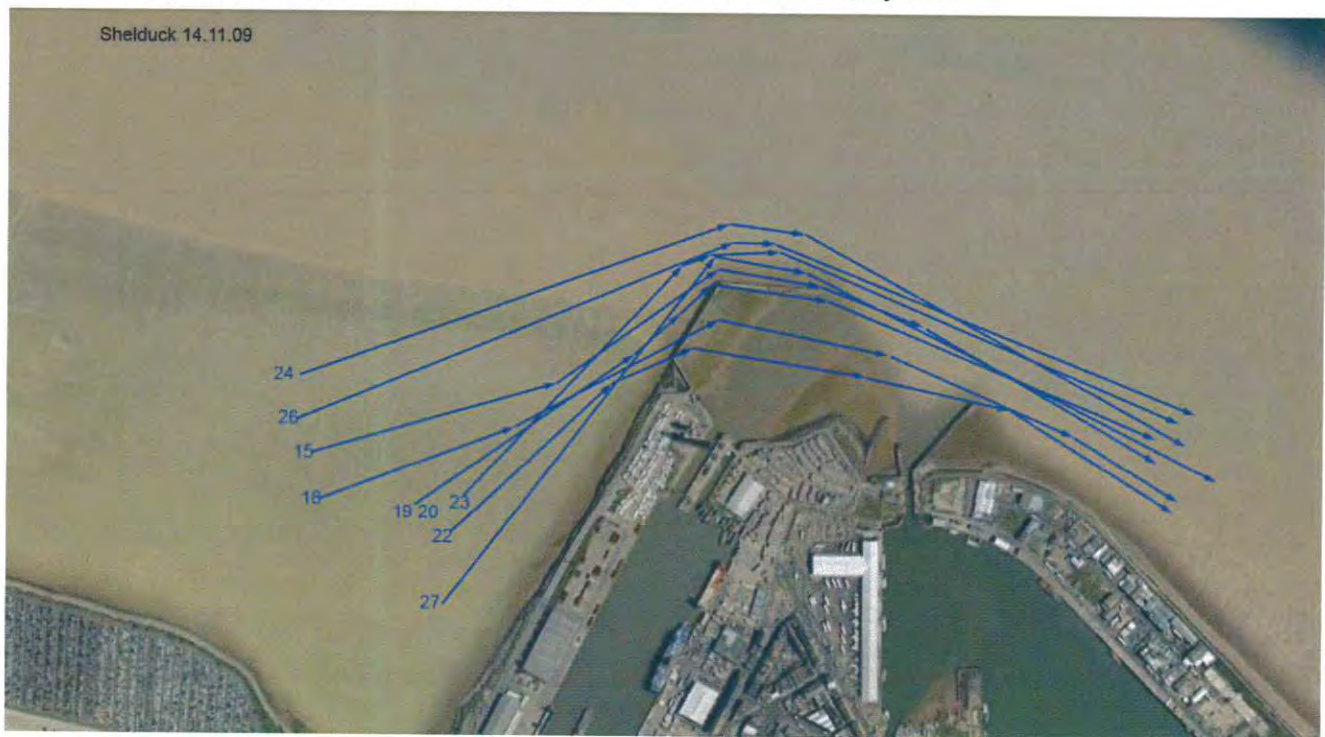
Humber Webs 5-year mean 3284 to 2006-2007.

Shelduck concentrate their feeding along the edge of the incoming and outgoing tide on the mudflats spreading northwards from the inner basin as the tide falls. Some of the movements are accomplished by swimming and walking but others by flights of varying lengths usually out over the water. Flight heights tend to be at a low level up to 20m above the water surface and may be affected by disturbance from varying sources but principally from hunting Peregrines and occasionally low flying aircraft particularly helicopters. Feeding birds move as far as the northern edge of Immingham Docks at low water on high tides. As the tide rises birds move back towards the inner basin where they tend to loaf and feed in the shallow water of the rising tide but on high springs the birds loaf for longer periods further offshore. The majority of the birds remain in the basin throughout the high tide period drifting with the tide and loafing / bathing. A few birds do leave the basin over high tide but the percentage seems to vary considerably with the height of the tide and the weather conditions. Strong to gale force winds tend to produce more bird movements than calm conditions or light winds.

November 14<sup>th</sup> 2009

High tide 15:56 6.6m

Weather wind South West force 7; 8/8/ cloud cover with rain showers from midday 12C



Flight	Species	No of birds	Start time	15	30	45
No.			first at	sec		
15	SU	1	13:58	2	1	
18	SU	3	14:17	2	2	2
19	SU	10	14:19	3	3	3
20	SU	58	14:21	2	3	3
22	SU	5	14:25	3	3	
23	SU	19	14:28	3	3	
24	SU	9	14:30	3	3	
26	SU	23	14:53	3	3	1
27	SU	14	14:59	2	2	2



As shown above 142 (23%) of the 620 Shelduck that had been feeding in the basin left the area prior to high water on November 14<sup>th</sup>. Movements started two hours prior to high water but were concentrated from 100 minutes to 60 minutes prior to high tide. The map shows the direction of the movements but note that most were accomplished at height band 3, >21m, with birds passing high over the western jetty.

November 15<sup>th</sup> 2009

High Tide 16:38 6.7m

Weather South-west force 4; 3/8 cloud cover; 11C



Flight No.	Species	No of birds	Start time first at	15 sec	30	45
1	SU	3	12:31	1	1	1
5	SU	2	14:13	3	3	3
6	SU	3	14:21	3	3	3
9	SU	18	14:34	3	3	3
10	SU	38	15:03	3	3	3

Three Shelduck arrived into the basin and a total of 61 Shelduck left the feeding area between 14:13 and 15:03, 145 minutes to 95 minutes before high water. With the exception of the three birds at 12:31 hours, all of the birds moved at height band 3, >21m above the jetty.



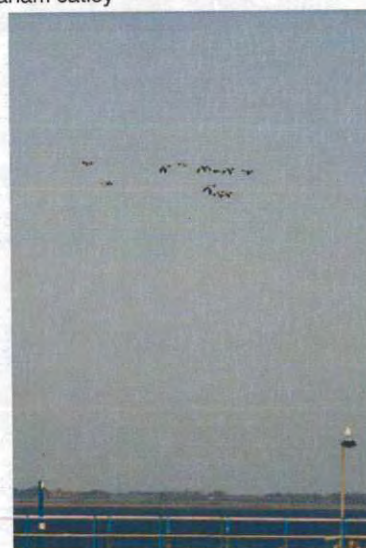
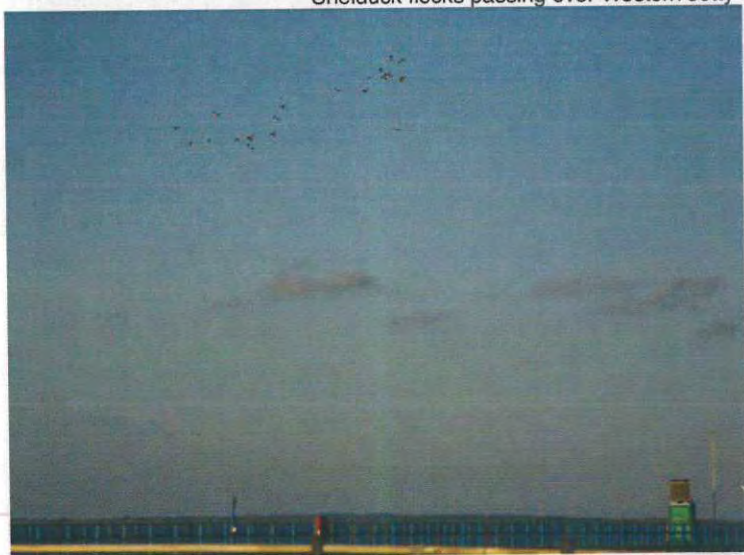
High Tide 06:10 at 6.9m  
 Weather south-west force 7; 8/8 cloud cover with rain showers; 11C



Flight	Species	No of birds	Start time	15	30
No.			first at	sec	
12	SU	2	08:08	1	
33	SU	7	09:02	1	1

Only nine Shelducks were recorded on the Vantage Point survey between 07:00 and 11:00 hours all of which arrived from the Humber into the basin suggesting that the bulk of the birds had roosted within the feeding area throughout the high tide.

Shelduck flocks passing over Western Jetty 14.11.2009 © graham catley



Western Jetty bird surveys



**Ringed Plover *Calidris hiaticula***

Humber Webs 5-year mean 322 to 2006-2007

Wintering Ringed Plover generally roost with the Dunlin and Redshank along the rocky edge of the inner basin or further north along the stony bays adjacent to the embankment wall but this location depends on disturbance from walkers. On occasions the birds have also been found roosting on car park areas on the Novartis site. Birds were noted roosting in these usual locations in November – December 2009 but none were noted moving out of the basin to roost and none recorded on the vantage point surveys in November. Passage flocks have in previous seasons been seen moving south-east to roost with other small waders at Humberston – Tetney.

**Golden Plover *Pluvialis apricaria***

Humber Webs 5-year mean 45,734 to 2006-2007

The maximum number of Golden Plover recorded from Pywipe in winter 2008 – 2009 was only 1400 birds and these were irregular in appearance. Larger numbers of birds were present in November – December 2009 with peak counts of 3300 birds. Golden Plover roost and loaf for the majority of the time on the mudflats and feed at night on inland fields. Their high tide roost sites vary with cropping on arable fields inland of the estuary and disturbance but are generally located between the Europarc site and the Millenium factory site to the north. In November – December 2009 the Golden Plovers present roosted on the field of winter cereals to the south of the Stallingborough Power Station moving there from all parts of the mudflats. There were no recorded movements from the basin past the western jetty during the vantage point surveys.

**Grey Plover *Pluvialis squatarola***

Humber Webs 5-year mean 3284 to 2006-2007

Up to 177 Grey Plovers were found on the Pywipe mudflats in the 2008 - 2009 winter but numbers were much lower in November – December 2009 with a peak count of just 39 birds. Two birds were recorded on the vantage point survey on November 15<sup>th</sup> and eight on the 18<sup>th</sup> moving between the mudflats and roosting areas to the south-east at Cleethorpes – Humberston. Although some of the birds that feed on the Pywipe mudflats roost in the inner basin, more typically on neap and median tides, on spring tides most birds move to the roosts at Cleethorpes and Humberston.

November 15<sup>th</sup> 2009

High Tide 16:38 6.7m

Weather South-west force 4; 3/8 cloud cover; 11C



Flight	Species	No of birds	Start time	15	30	comments
No.			first at	sec		
2	GV	2	13:54	3	3	flushed by Peregrine



November 18<sup>th</sup> 2009  
 High Tide 06:10 at 6.9m  
 Weather south-west force 7; 8/8 cloud cover with rain showers; 11C



Flight	Species	No of birds	Start time	15	30
No.			first at	sec	
27	GV	7	08:37	1	
31	GV	1	08:44	1	

#### Lapwing *Vanellus vanellus*

Humber Webs 5-year mean 34,532 to 2006-2007.

The maximum number of Lapwing recorded from the Pywipe mudflats in winter 2008 – 2009 and November – December 2009 were very similar at 3794 and 3800. Although the birds roost and loaf on the mudflats at low water they tend to move inland to feed from an hour after sunset onwards. Some Lapwings remain on the mudflats through high water on median and neap tides but on high springs all of the birds move inland to arable fields where they concentrate often with Golden Plovers. In November – December 2009 all of the Lapwings were using the field of winter cereals south of Stallingborough Power Station as a high tide roost.

There were no recorded movements of Lapwing over the Western Jetty area during the vantage point surveys in November 2009 but limited flocks roosted in the inner basin around Doig's Creek on low spring tides.



**Knot *Calidris canutus***

Humber Webs 5-year mean 35,378 to 2006-2007.

Although there was a peak count of 394 Knot on the Pywipe mudflats during August 2008 – March 2009 the winter peak, November – February, was just 36 birds. During November – December 2009 only five Knot were recorded on survey dates. The number of birds found on this part of the estuary is insignificant in comparison with the huge flocks found further down the estuary at Cleethorpes – Donna Nook and on the north bank from Spurn to Cherry Cobb where the bulk of the winter mean total of 35,000 birds are located.

Three birds were recorded on the vantage point survey on November 14<sup>th</sup>.

November 14<sup>th</sup> 2009

High tide 15:56 6.6m

Weather wind South West force 7; 8/8/ cloud cover with rain showers from midday 12C



Flight	Species	No of birds	Start time	15	30
No.			first at	sec	
5	KN	3	13:21	3	3

**Dunlin *Calidris alpina***

Humber Webs 5-year mean 23,218 to 2006-2007.

There was a peak of 3460 Dunlin recorded from the Pywipe mudflats in winter 2008 – 2009; in November – December 2009 fewer birds were present but the peak count was still 3100 birds. On neap and median tides the vast majority of the Dunlin recorded in the basin at low water remain in the area through high water roosting on the exposed upper inter-tidal in the inner basin between Doig's Creek and the saltmarsh by the Pywipe Sewage Works. On higher spring tides Dunlin roost on the upper rocky areas of the foreshore along the same section noted above but also on the seawall on the southern side of Doig's Creek (see photograph). This roost can be disturbed by hunting Sparrowhawks and Peregrines and if disturbance is persistent then flocks of waders will leave the roost and move to other areas whether or not the roost site is still suitable due to tidal height. A variable number of Dunlin leave the Pywipe mudflats to roost in the Humberston – Tetney area on high



spring tides with flocks moving out around the Western Jetty but also passing over the jetty and on occasions over the main Grimsby Docks area taking a direct line from the inner area of Doig's Creek towards Cleethorpes beach (see map). Vantage point surveys revealed that birds used the jetty for shelter from the strong winds as they moved between Pywipe and Cleethorpes – Humberston with flocks flying low around the jetty. In lighter winds the flocks simply looped over the jetty structure cutting off the corner of the Docks as they followed the same routes to and from their roosts.

November 14<sup>th</sup> 2009

High tide 15:56 6.6m

Weather wind South West force 7; 8/8/ cloud cover with rain showers from midday 12C



Flight No.	Species	No of birds	Start time first at	15 sec	30	45	60 min	comments
1	DN	28	12:28	1	1			
3	DN	1	12:42	1				landed in basin
7	DN	5	13:28	3				
13	DN	26	13:58	1	1			
14	DN	380	13:58	1	1			
16	DN	76	14:06	1	2	2	3	pushed out by hunting Peregrine
17	DN	25	14:15	1	1	1		
21	DN	190	14:25	1	1	1		

A flock of 28 Dunlin arrived in the basin from the Cleethorpes direction at 12:28; thereafter all the movements were out of the basin with 101 moving off towards the north bank and 602 moving towards the Humberston – Tetney roost. All of the movements to of the basin occurred between 12:42 and 14:25, 198 and 91 minutes before high water with the bulk of the birds 671 moving between 120 minutes and 91 minutes prior to high water. This was approximately 33% of the Dunlin recorded from the survey area at low water.



November 15<sup>th</sup> 2009  
 High Tide 16:38 6.7m  
 Weather South-west force 4; 3/8 cloud cover; 11C



Flight No.	Species	No of birds	Start time first at	15 sec	30	45	comments
2	DN	8	13:54	3	3		flushed by Peregrine
3	DN	32	13:56	2	2		
4	DN	120	14:06	3	3		
7	DN	32	14:29	1	1	1	
8	DN	650	14:32	3	3		

On November 15<sup>th</sup> 842 Dunlin moved out of the Pywipe basin as the tide rose between 158 minutes and 126 minutes prior to high water; all of the birds left to the south-east towards the Cleethorpes – Humberston roost areas with none going across the estuary.

November 18<sup>th</sup> 2009  
 High Tide 06:10 at 6.9m  
 Weather south-west force 7; 8/8 cloud cover with rain showers; 11C



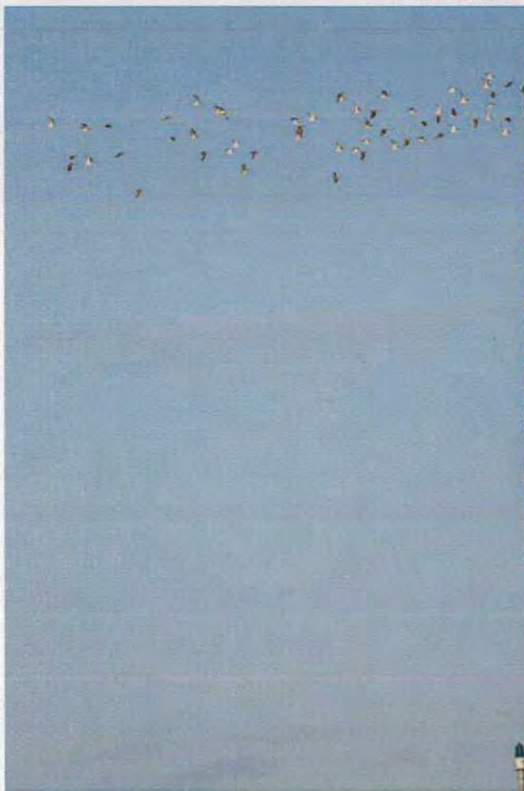
Flight No.	Species	No of birds	Start time first at	15 sec	30
1	DN	5	07:22	1	1
2	DN	14	07:33	1	2
4	DN	16	07:28	1	1
11	DN	4	08:07	1	
14	DN	90	08:11	1	
15	DN	100	08:11	1	
16	DN	38	08:12	1	
17	DN	19	08:16	1	
20	DN	11	08:22	1	
22	DN	25	08:23	1	
23	DN	24	08:25	1	
24	DN	38	08:30	1	
28	DN	13	08:38	1	
30	DN	4	08:42	1	1

A total of 401 Dunlin arrived in the Pywipe basin on the falling tide on November 18<sup>th</sup>. The first birds arrived 72 minutes after high water with the last flock appearing 152 minutes after high tide. All of the birds were moving at height band 1, 1 – 10m, above the water. A total of 141 birds arrived from across the estuary, from the north bank, while the remainder, 260 arrived from the direction of the Cleethorpes – Humberston roost all but four birds passing over the inner edge of the Western Jetty (see map).

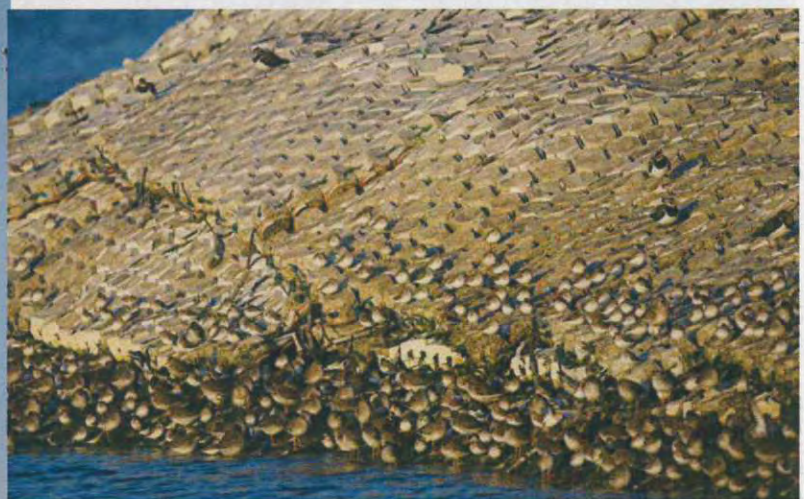




Dunlin and Redshank roost Grimsby North Wall November 2009



Above Dunlin passing over western jetty  
note height in relation to beacon on jetty



Dunlin roosting Doig's Creek November 2009



### Black-tailed Godwit *Limosa limosa*

Humber Webs 5-year mean 3361 to 2006-2007.

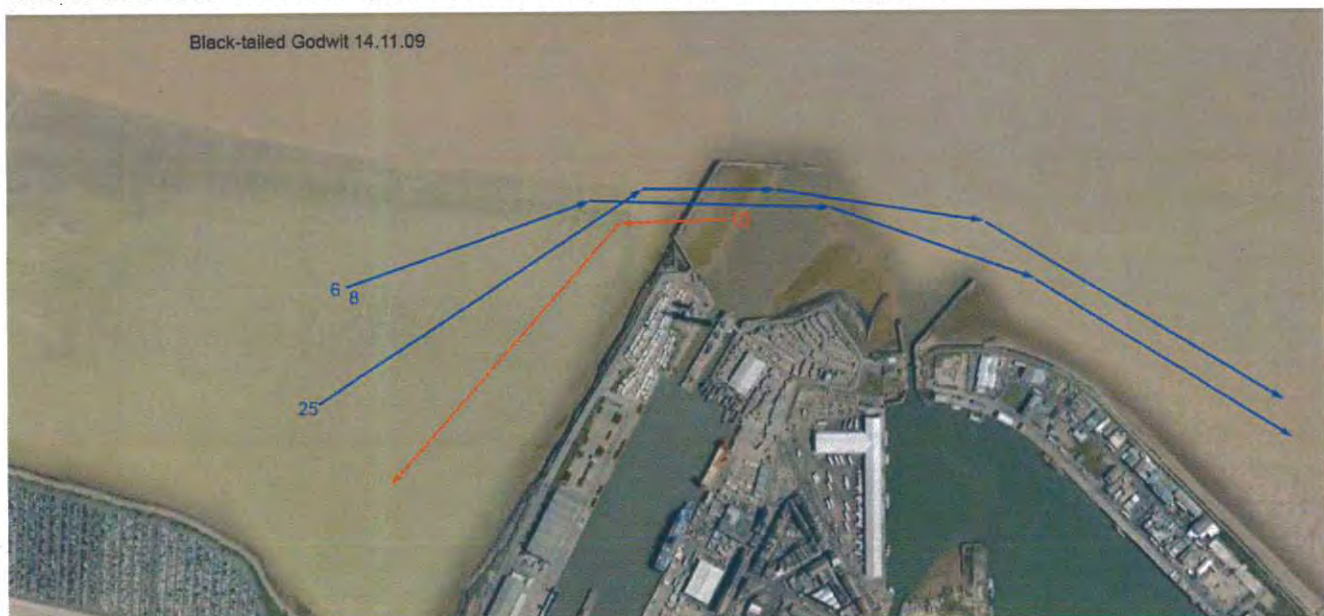
The winter Black-tailed Godwit peak in 2008 – 2009 was 3600 with a very similar 3500 being recorded in November – December 2009. From mid November onwards the bulk of the Humber Black-tailed Godwit population spends the winter in the Pywipe basin. The birds roost in the inner basin either at the head of Doig's Creek or on the adjacent stony shoreline and saltmarsh round to the Pywipe Sewage Works and move out along the mudflats to the north as far as the area north-west of the Oldfleet drain outfall where they concentrate to feed at low water gradually moving back south-east to the roost site as the tide rises. On neap and median tides they roost on the upper inter-tidal that is not covered by the tide or continue to feed through high water. On spring tides they roost either at the head of Doig's Creek or on adjacent areas of saltmarsh. On some dates from late November some of the flock, up to 550 birds, also roosted on the winter cereal field south of Stallingborough Power Station. It was also discovered that part of the flock also moved to roost to Welwick – Patrington Haven area on odd dates. The use of the Patrington roost on the 17<sup>th</sup> -18<sup>th</sup> was possibly prompted by the very strong winds that were evident on the date of the November 18<sup>th</sup> survey but to what extent the movement to this roost site is becoming more regular is not known.

There were 9 Black-tailed Godwits involved in flights on the vantage point survey on November 14<sup>th</sup>. On the 18<sup>th</sup> on the falling spring tide a total of 369 birds was noted on the vantage point survey all of which arrived in the basin from the north bank of the estuary. Although the location from which the godwits departed could not be seen directly projecting back the direction of the flights strongly points to the birds having roosted at Welwick / Patrington Haven where there is a large wader roost on the managed realignment area.

November 14<sup>th</sup> 2009

High tide 15:56 6.6m

Weather wind South West force 7; 8/8/ cloud cover with rain showers from midday 12C



Flight No.	Species	No of birds	Start time	15 sec	30	45	60 min	comments
6	BW	1	13:28	3				
8	BW	1	13:28	3				
10	BW	3	13:45	1				feeding in basin looped over jetty
25	BW	4	14:48	3	3			

Six birds left the basin heading for Cleethorpes while the three birds noted in flight 10 were feeding inside the Western Jetty and looped up over the jetty to move into the basin to roost.



November 18<sup>th</sup> 2009

High Tide 06:10 at 6.9m

Weather south-west force 7; 8/8 cloud cover with rain showers; 11C



Flight	Species	No of birds	Start time	15	30
No.			first at	sec	
3	BW	80	07:28	1	1
5	BW	34	07:29	1	1
6	BW	76	07:30	1	1
7	BW	20	07:32	1	
9	BW	36	07:53	1	
18	BW	18	08:20	1	
19	BW	34	08:21	1	
21	BW	24	08:22	1	
25	BW	15	08:33	1	
32	BW	32	08:54	1	

All of the 369 Black-tailed Godwits noted in the survey arrived from the north bank of the estuary low over the water flying into the near gale force wind as the tide fell. None of the birds passed over the Western Jetty.



**Bar-tailed Godwit *Limosa lapponica***

Humber Webs 5-year mean 3490 to 2006-2007.

Winter peaks of Bar-tailed Godwit on the Pywipe mudflats were 151 in 2008 – 2009 and 59 in November – December 2009. Bar-tailed Godwits feed in a variety of parts of the mudflats with concentrations off the Pywipe Sewage Works and around the Oldfleet Drain outfall where the bulk of the birds gather on neap and median tides often mixing with the Black-tailed Godwits.

November 14<sup>th</sup> 2009

High tide 15:56 6.6m

Weather wind South West force 7; 8/8/ cloud cover with rain showers from midday 12C



Flight	Species	No of birds	Start time	15	30
No.			first at	sec	
11	BA	18	13:57	1	1
12	BA	4	13:57	1	1

The 22 Bar-tailed Godwits left the basin passing around the Western Jetty heading for the Cleethorpes – Humberston roost.

November 15<sup>th</sup> 2009

High Tide 16:38 6.7m

Weather South-west force 4; 3/8 cloud cover; 11C

Flight	Species	No of birds	Start time	15	30	comments
No.			first at	sec		
2	BA	18	13:54	3	3	flushed by Peregrine

The single flock of 18 Bar-tails left the basin in the same direction as those on the 14<sup>th</sup> heading for the Cleethorpes – Humberston roost.



Bar-tailed Godwit 15.11.09



November 18<sup>th</sup> 2009  
 High Tide 06:10 at 6.9m  
 Weather south-west force 7; 8/8 cloud cover with rain showers; 11C

Bar-tailed Godwit 18.11.09



Flight	Species	No of birds	Start time	15
No.			first at	sec
29	BA	7	08:38	1

The birds above arrived from the north bank of the estuary on the same flight line as some of the Black-tailed Godwits and had presumably roosted in the same area.



**Curlew** *Numenius arquata*

Humber Webs 5-year mean 4221 to 2006-2007.

The vast majority of the Curlew that feed in the Pywripe basin roost at high water on the Huntsman Tioxide site adjacent to the Humber embankment where an area of derelict industrial ground has open ground and large permanent flood water pools that are free from human disturbance. A few birds can also be found roost on the upper foreshore of the inner basin between the Huntsman site and Doig's Creek but there are no regular movements out of the basin to other roosting areas. The birds noted on the vantage point surveys were actually feeding on the mudflats inside the western jetty and moving over the jetty to roosting and alternative feeding areas.

**Redshank** *Tringa totanus*

Humber Webs 5-year mean 6283 to 2006-2007.

The maximum Redshank counts in recent surveys were 805 during August 2008 – March 2009, 740 in November 2008 – February 2009 and 560 during November – December 2009. All of the Redshank that feed on the Pywripe mudflats appear to roost within the inner basin from Doig's Creek to the saltmarsh adjacent to the Huntsman Tioxide site. The precise choice of roost site depends on wind direction and strength, precipitation, tidal height and disturbance from human beings, dogs and hunting raptors. The birds move into the roost from the whole length of the Pywripe to Immingham Docks inter-tidal as the tide rises and move back out to the north-west on the falling tide.

No Redshank were recorded on the three vantage point survey dates confirming the fact that Redshank do not leave the feeding areas to roost at high water even on spring tides.

Redshanks and Dunlin roosting Grimsby North Wall November 2009 © graham catley



Graham Catley BSc Env  
Nyctea Ltd 2009



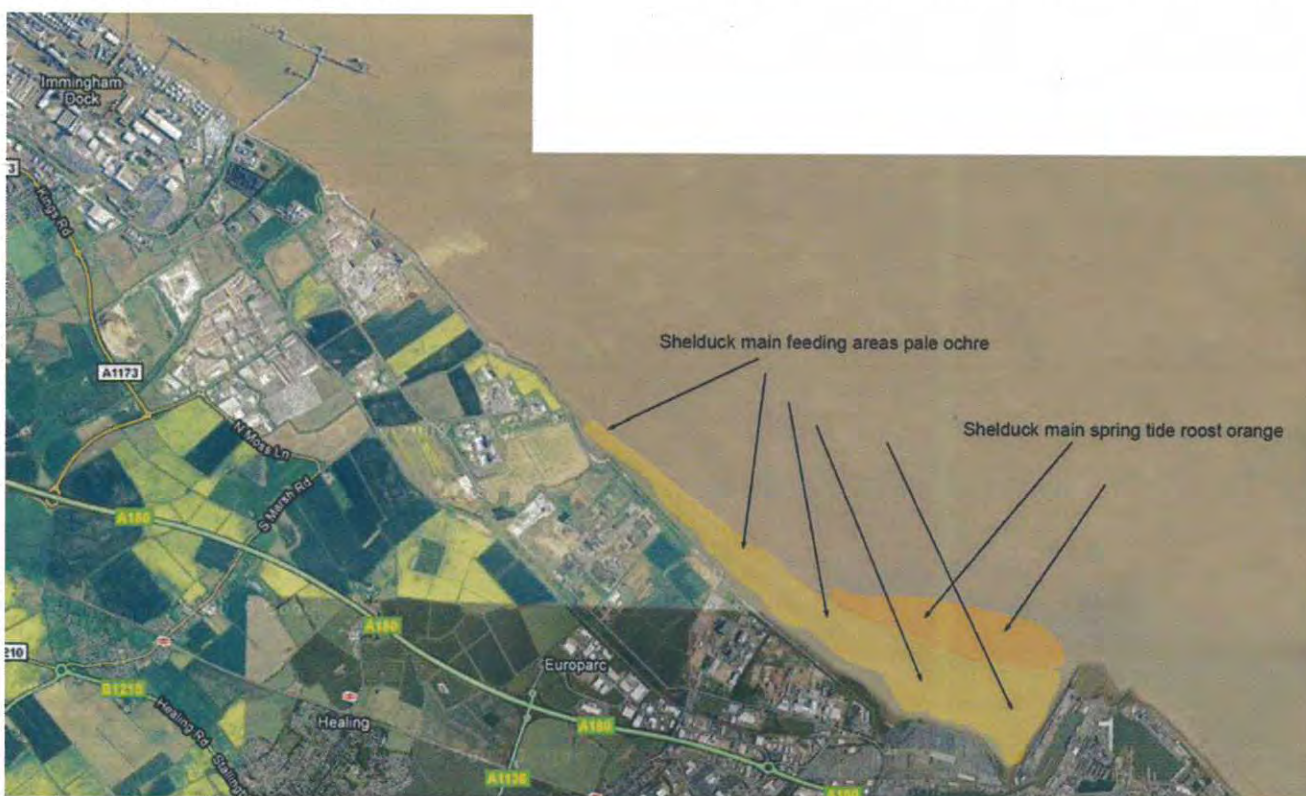
## Discussion / summary

In the most recent surveys of the Pywipe mudflats, WeBS sector Mid South A, a total of 17 species of wader and 5 of waterfowl have been recorded. Most of these occur in low numbers or on sporadic dates or over limited in migration periods. Ten species occur in significant numbers with regard to estuarine importance on the Humber and these are considered in the texts above and in the summary of movements within and between the Pywipe mudflats below.

### Shelduck *Tadorna tadorna*

During winter the majority of the Shelduck, up to 700 birds, that feed in the Pywipe basin remain in the area throughout the tidal cycle with roosting birds drifting further offshore on high spring tides. Feeding birds cover the entire mudflats although certain areas are favoured in different tide heights and in different weather conditions.

Movements of birds between the Pywipe mudflats and other parts of the estuary do occur but are not regular and seem to be dependent upon extreme weather conditions and levels of disturbance often from hunting Peregrines as few other predators hunt over the open mudflats. Vantage point surveys showed that birds moving between the basin and Cleethorpes – Tetney passed over the outer Western Jetty but usually at a considerable height, >30m, taking them above the height of the larger ships that presently use the Docks.



### Ringed Plover *Calidris hiaticula*

Small numbers of Ringed Plover winter in the Pywipe basin with the birds typically roosting on the stony areas of the inner basin by the Volvo car terminal. Certainly on during passage periods flocks of Ringed Plovers leave the basin on spring tides and arrive from the direction of Cleethorpes with Dunlin. At such times they typically pass around the outer Western Jetty or cut off the corner flying over the inner jetty at >30m.

### Golden Plover *Pluvialis apricaria*

Up to 6000 Golden Plover have been recorded from the Pywipe mudflats in winter but in the most recent two years the peak count has been 3300. High numbers only occur in the area between November and February or early March. The birds roost / loaf on the mudflats and tend to leave the area at dusk to move inland to feed. On high spring tides the birds roost in fields adjacent to the estuary embankment the choice of field depending on physical condition with winter cereals being preferred. Movements from the mudflats quickly gain height with birds tending to be flying at 50+m by the time they pass over the embankment. Known flight lines are shown on the map below.



Vantage point surveys confirmed that no Golden Plover move over the Western Jetty area on passage between roost and feeding areas.



#### Grey Plover *Pluvialis squatarola*

In an estuarine context the number of Grey Plovers feeding in the Pywipe basin is small with recent peaks of 177 birds in 2008-2009 but just 39 in November – December 2009. Although some birds roost on the inner edges of the basin on rocky areas around the Volvo car terminal some also move to the major roost at Humberston – Tetney passing around or over the Western Jetty. Grey Plover tend to move at relatively high altitudes even between roost and feeding areas with birds arriving in the basin over the inner and outer jetty at heights usually exceeding 30m.

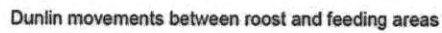
#### Lapwing *Vanellus vanellus*

Up to 3800 Lapwing have been recorded from the Pywipe mudflats in the last two winter periods but high totals have occurred in past years. The birds are usually only present in high numbers between November and February. As is the case with Golden Plover, Lapwing mainly use the mudflats for roosting / loafing leaving the area at dusk to move inland to feed. In certain conditions, notably during periods of hard frosts birds will feed on the mudflats and will remain in the area throughout the tidal cycle. On high spring tides the birds roost in fields adjacent to the estuary embankment the choice of field depending on physical condition with winter cereals being preferred. Movements from the mudflats vary in height but birds moving to feeding areas do so at heights >50m.

Vantage point surveys confirmed that no Lapwing move over the Western Jetty area on passage between roost and feeding areas.



Dunlin was the most frequent species recorded moving over and past the Western Jetty during the vantage point surveys. As the species is the smallest wader in the basin it suffers from lack of suitable roost sites on spring tides due to the physical length of its legs. Up to 3000 Dunlin feed on the Pywipe mudflats at low water and on neap and median tides most of the birds remain in the basin throughout high tide roosting or continuing to feed on the exposed upper areas of the inter-tidal if they are not subjected to disturbance. On spring tides some of the birds roost on the rubble and rocky areas of the inner basin and on the edge of the North Wall but disturbance and strong winds cause a varying percentage of the birds to move to the main roost at Cleethorpes – Tetney. These birds pass over the Western Jetty or fly around it or fly over the docks cutting the corner. Most flights are at low altitude, particularly in strong winds, but the birds climb easily over the jetty structure and tend to use it for shelter during flights in strong winds.





Black-tailed Godwit *Limosa limosa*

An internationally important population of Black-tailed Godwit winters in the Humber with the bulk of the birds remaining in the Pywipe basin from mid November to January. Detailed studies have shown that the birds feed in various parts of the mudflats but concentrate in the area around the Oldfleet Drain outfall at low water on spring tides. The birds roost in the inner basin and have recently taken to using the inner part of Doig's Creek where siltation has raised the level of the mud above that of most winter high tides. At other times the rocky foreshore and saltmarsh around the Volvo Car terminal is also used by roosting birds and on occasions arable fields adjacent to the estuary may also be utilised. In certain weather conditions on high spring tides some of the birds have also been observed moving to the north bank roost at Welwick. Vantage point surveys confirmed that there were no regular movements of birds over or around the area of the Western jetty.



Relatively small numbers of Bar-tailed Godwits feed in the Pywipe basin in winter but numbers can be higher in March. Feeding areas cover much of the mudflats but recent studies have shown concentrations in the area around the Oldfleet Drain outfall. Most of the birds roost on the rocky foreshore around the Volvo car terminal in the inner basin but there is some movement of birds between the roost at Buck Beck, Humberston, and also the north bank roost at Welwick. As strong fliers most movements between roost and feeding areas outside the basin are accomplished at heights in excess of 30m but shorter flights within the basin are usually <20m in height.





Curlew *Numenius arquata*

The majority of the Curlew that feed on the Pywipe mudflats, up to 250 birds in recent winters, roost on the derelict industrial site, adjacent to the Humber embankment, that is part of the Huntsman Tioxide complex. A few birds also roost on the areas of saltmarsh that remain around the Pywipe Sewage Works but these areas can be subject to human disturbance. Birds moving to feeding areas inland typically move west or north-west over the industrial sites to feed on fields as far inland as Healing school.

Vantage point surveys revealed that there is no significant movement of Curlew over or around the Western Jetty.





Redshank *Tringa totanus*

Vantage point surveys confirmed previous assumptions that the vast majority of the Redshank that feed in the Pywipe basin remain there throughout the tidal cycle roosting in the inner basin. The choice of precise roost site varies with weather conditions, tidal height and levels of disturbance but all of the areas used lie between the North Wall and the saltmarsh area north of the Pywipe Sewage Works. Birds move into and out of the roosts over the adjacent mudflats with movements inland of the sea wall being infrequent and usually involving very small numbers of birds that may move to feed on waterlogged fields or in ditches during periods of hard weather. There appears to be no regular movements between the basin and the outer estuary around Cleethorpes – Tetney.



### Conclusion:

In conclusion it can be stated that the proposed extension to the Western Jetty structure appears unlikely to have any major effect upon wader and wildfowl flight lines between roost and feeding areas. The present structure presents no obstacle to birds most of which pass over the jetty at considerable heights. The one species that tends to pass low over the jetty in significant numbers is the Dunlin but movements of this species are very weather and disturbance dependent and birds are quite capable of climbing quickly over the main dock buildings from the inner basin showing that they are adaptable and their movements are seldom influenced by obstacles up to 30m in height.

# Vantage Point Surveys:

November 14<sup>th</sup> 2009

High tide 15:56 6.6m

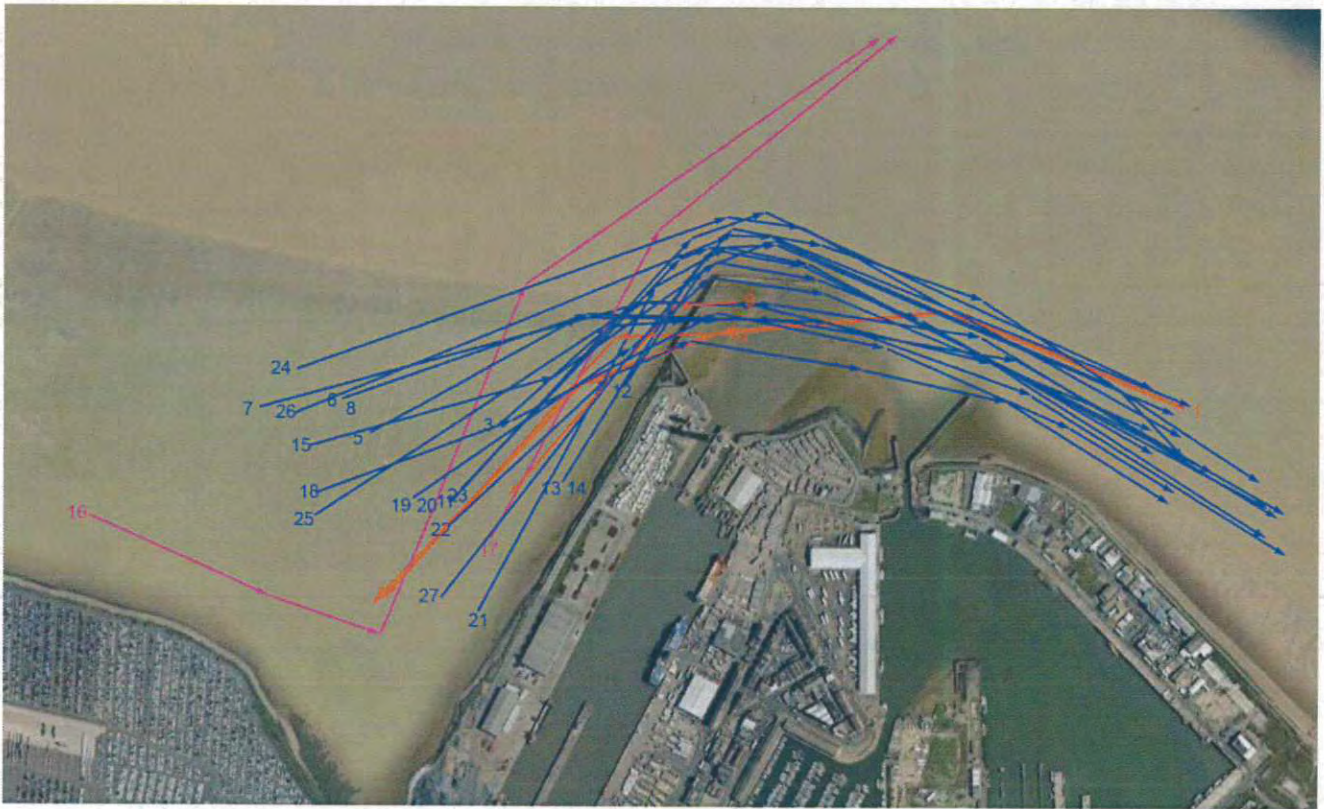
Weather wind South West force 7; 8/8/ cloud cover with rain showers from midday 12C

09:00 – 16:00

Flight No.	Species	No of birds	Start time first at	15 sec	30	45	60 min	comments
1	DN	28	12:28	1	1			
2	TT	1	12:30	1	1			
3	DN	1	12:42	1				landed in basin
4	TT	1	12:47	2				
5	KN	3	13:21	3	3			
6	BW	1	13:28	3				
7	DN	5	13:28	3				
8	BW	1	13:28	3				
9	CU	1	13:40	1				feeding in basin looped over jetty
10	BW	3	13:45	1				feeding in basin looped over jetty
11	BA	18	13:57	1	1			
12	BA	4	13:57	1	1			
13	DN	26	13:58	1	1			
14	DN	380	13:58	1	1			
15	SU	1	13:58	2	1			
16	DN	76	14:06	1	2	2	3	pushed out by hunting Peregrine
17	DN	25	14:15	1	1	1		
18	SU	3	14:17	2	2	2		
19	SU	10	14:19	3	3	3		
20	SU	58	14:21	2	3	3		
21	DN	190	14:25	1	1	1		
22	SU	5	14:25	3	3			
23	SU	19	14:28	3	3			
24	SU	9	14:30	3	3			
25	BW	4	14:48	3	3			
26	SU	23	14:53	3	3	1		
27	SU	14	14:59	2	2	2		



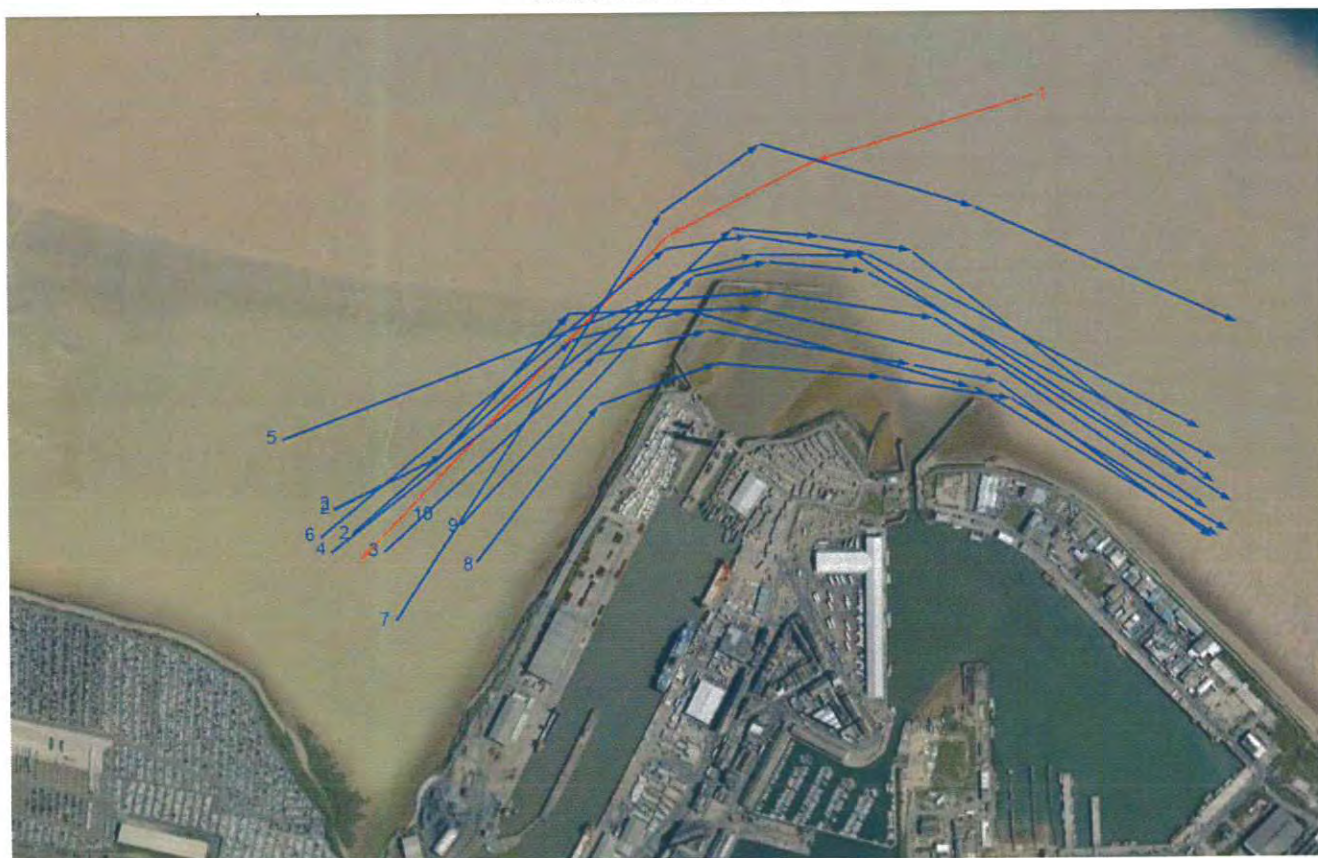
All movements 14.11.09



November 15<sup>th</sup> 2009  
 High Tide 16:38 6.7m  
 Weather South-west force 4; 3/8 cloud cover; 11C  
 11:00 – 16:30

Flight No.	Species	No of birds	Start time first at	15 sec	30	45	60 min	comments
1	SU	3	12:31	1	1	1		
2	BA	18	13:54	3	3			flushed by Peregrine
2	GV	2	13:54	3	3			flushed by Peregrine
2	DN	8	13:54	3	3			flushed by Peregrine
3	DN	32	13:56	2	2			
4	DN	120	14:06	3	3			
5	SU	2	14:13	3	3	3		
6	SU	3	14:21	3	3	3		
7	DN	32	14:29	1	1	1		
8	DN	650	14:32	3	3			
9	SU	18	14:34	3	3	3		
10	SU	38	15:03	3	3	3		

All movements 15.11.09





November 18<sup>th</sup> 2009

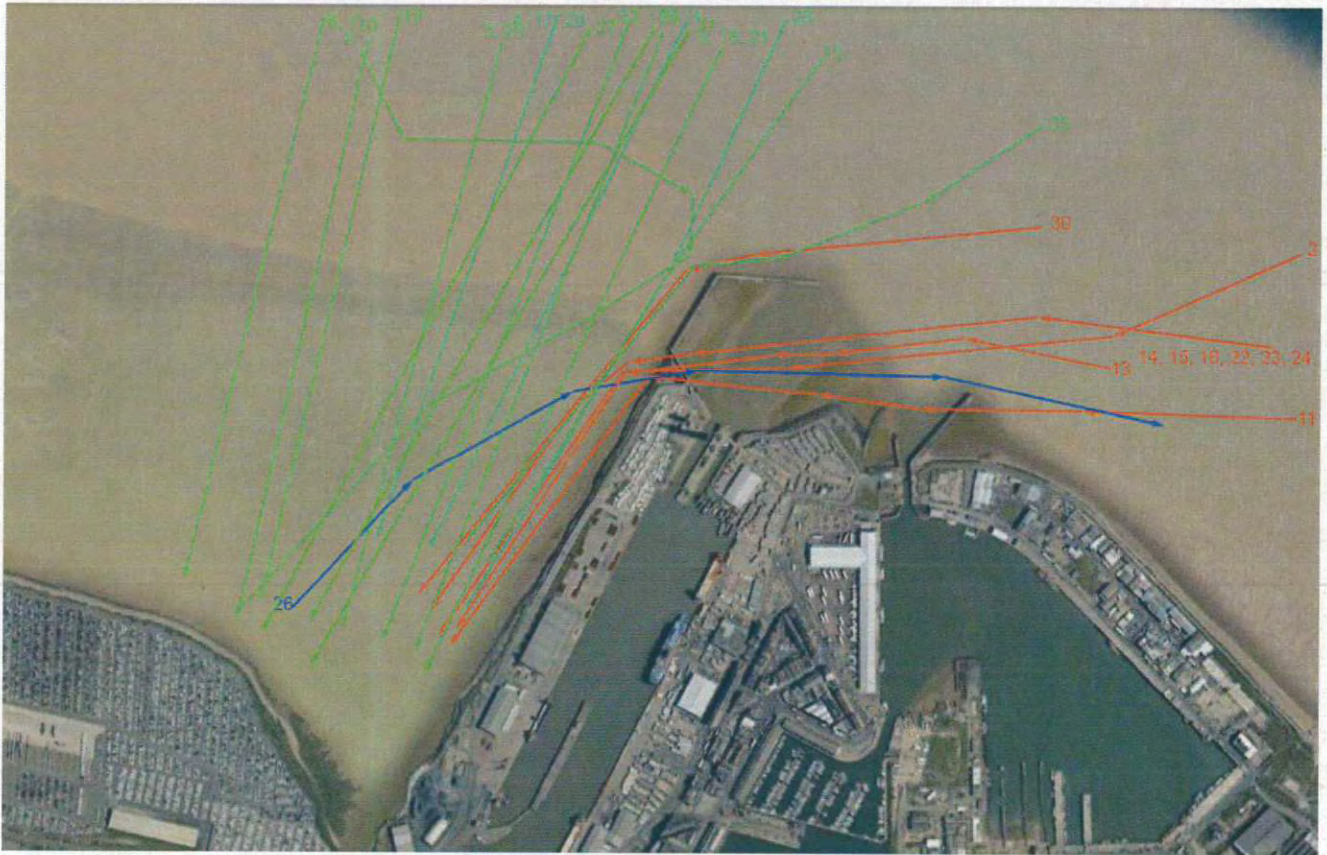
High Tide 06:10 at 6.9m

Weather south-west force 7; 8/8 cloud cover with rain showers; 11C

07:00 – 12:00

Flight No.	Species	No of birds	Start time first at	15 sec	30
1	DN	5	07:22	1	1
2	DN	14	07:33	1	2
3	BW	80	07:28	1	1
4	DN	16	07:28	1	1
5	BW	34	07:29	1	1
6	BW	76	07:30	1	1
7	BW	20	07:32	1	
8	OC	2	07:46	1	1
9	BW	36	07:53	1	
10	CU	1	07:55	1	
11	DN	4	08:07	1	
12	SU	2	08:08	1	
13	ET	1	08:10	1	
14	DN	90	08:11	1	
15	DN	100	08:11	1	
16	DN	38	08:12	1	
17	DN	19	08:16	1	
18	BW	18	08:20	1	
19	BW	34	08:21	1	
20	DN	11	08:22	1	
21	BW	24	08:22	1	
22	DN	25	08:23	1	
23	DN	24	08:25	1	
24	DN	38	08:30	1	
25	BW	15	08:33	1	
26	CU	1	08:36	3	
27	GV	7	08:37	1	
28	DN	13	08:38	1	
29	BA	7	08:38	1	
30	DN	4	08:42	1	1
31	GV	1	08:44	1	
32	BW	32	08:54	1	
33	SU	7	09:02	1	1

All movements 18.11.09





# Appendix 3

**Black-Tailed Godwits on the  
Humber Estuary 1989-2009**

# Black-tailed Godwits *L. islandica* on the Humber estuary

Status, distribution and behaviour 1989 - 2009

Graham P Catley BSc Env  
NYCTEA Ltd December 2009



Nyctea Ltd.



Black-tailed Godwits on the Humber  
Sally H. Dunnington and John A. Dunnington  
October 1999  
Black-tailed Godwits on the Humber



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4	Historical status on the Humber estuary
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7	Importance of the Humber population
7 - 10	Status and distribution on the Humber
10 - 13	Behaviour of autumn and winter flocks
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23	Explanation of colour-ring combinations
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# Black-tailed Godwits *Limosa limosa* on the Humber estuary;

## Status, distribution and habitat use -- a paper for Associated British Ports

G P Catley BSc Env Nyctea Ltd 2009

### Introduction:

G P Catley of Nyctea Ltd was contracted by Associated British Ports, Grimsby, to produce a report detailing the status, distribution, movements and habitat choice of the of the Black-tailed Godwit populations that occur on the Humber estuary with particularly reference to the areas on the south bank of the estuary adjacent to the ports of Grimsby and Immingham.

Historical information and details of surveys undertaken by GPC over a twenty-year period were used in conjunction with surveys during October – December 2009 to obtain the information included in this report.

### Historical status

Wintering Black-tailed Godwits in the UK are of the race *L I islandica*, the bulk of the population of which breeds in Iceland with small numbers in the Northern Isles of the UK. The British wintering status of this race was described by Cranswick; Cranswick 1999. According to that author less than 100 Black-tailed Godwits wintered in the UK during the 1930's but numbers rose from then onwards, the increase being attributed to climatic amelioration in the breeding areas in Iceland. It was also suggested that a subsequent rapid decline during the early 1970's may have been attributed to the cooling of the spring climate during the late 1960's. Since the mid-1970's the number of wintering Black-tailed Godwits in the UK had risen steadily to an all time high in the winter of 1996-97. Davidson (1998) suggests that the species has shown an increase of 62% since the mid-1980's. More recent studies by Gill et al have revealed that the Icelandic population is still increasing and they have suggested reasons for the increase while noting that the drivers of the increase have not been fully identified.

Suggested reasons noted by Gill et al are as follows:

- " A) Climatic amelioration in Iceland may have improved breeding conditions and increased the area available for breeding godwits;
- B) Changes in habitat structure in Iceland may have improved breeding conditions;
- C) climatic and habitat changes in the non-breeding range may have improved survival and condition for breeding;
- D) changes in hunting pressures may have improved survival rates.

*From the 1930s to the 1980s, the rate of colonisation of Iceland is correlated with the number of drainage ditches installed, indicating that large-scale habitat changes may have positively influenced godwit-breeding distribution.*

*Since the 1980s, there has been a strong positive correlation between Iceland spring temperatures and the index of Icelandic godwits wintering in the UK (as recorded by the Wetland Bird Survey, Banks et al. 2006). Colour-ring information has shown that the majority of the UK population increase has involved birds from the recently occupied east and north-east of Iceland (Gunnarsson et al. 2005b); strongly suggesting that recent climatic amelioration has allowed these coldest parts of the country to be occupied.*

*In the non-breeding range, there are few indications of improvements to habitat quality, but changing rainfall patterns may be altering the timing of availability of grassland foraging sites. This may be particularly true of sites in eastern England and the Netherlands, use of which has increased substantially in recent years (Gerritsen & Tijssen 2003, Gill et al. 2001). The reduced frequency of cold winters in NW Europe also may be influencing survival rates."*

### Historical status on the Humber estuary:

The overall description of the status of *islandica* in the UK accords well with information published in the most recent county avifaunas that cover the north and south banks of the Humber estuary; Yorkshire to the north and Lincolnshire to the south.

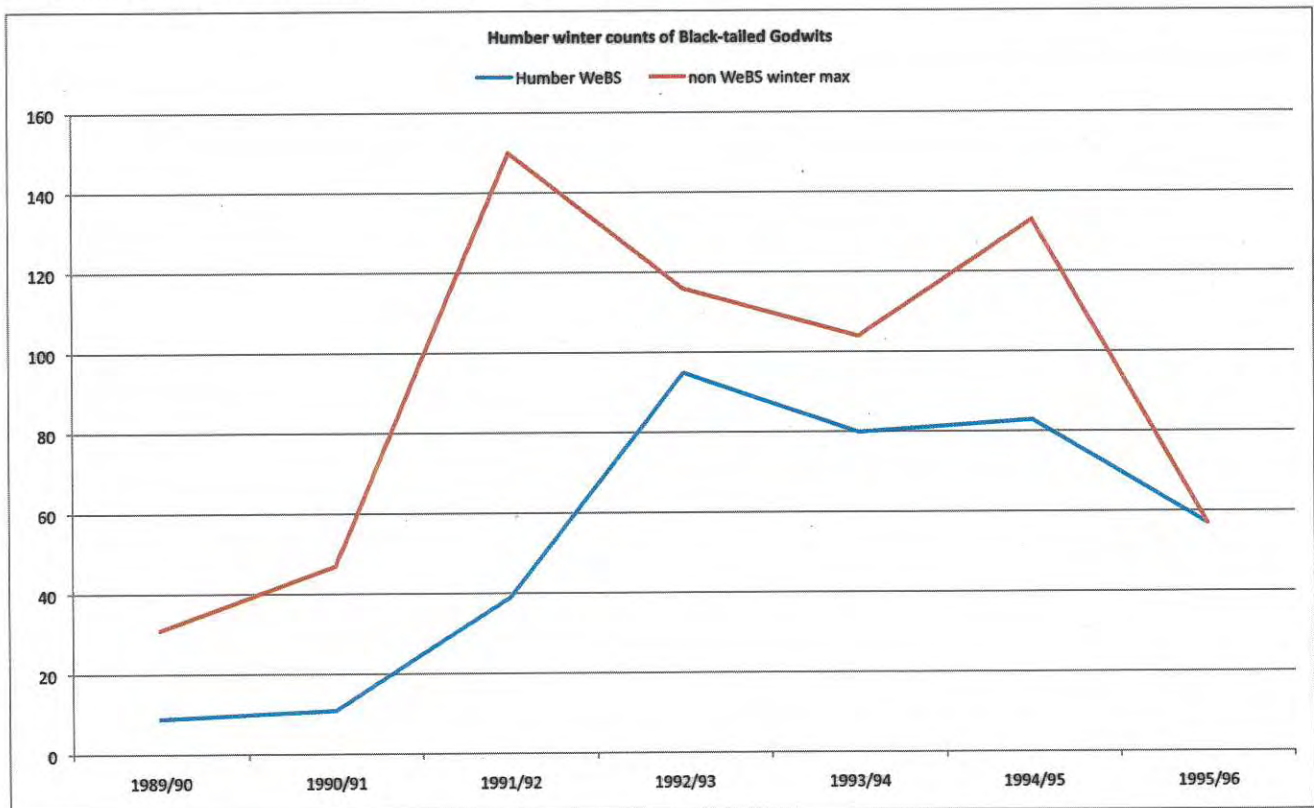
Mather (1986), dealing with the historical county of Yorkshire, states that in the 1940's and 1950's the maximum Humber count of Black-tailed Godwit was of six birds at Spurn. An exceptional party of 46 spring passage birds is mentioned at Marishes Vale of Pickering on April 26<sup>th</sup> 1947. A flock of 21 birds at Cherry Cobb on October 22<sup>nd</sup> 1961 is the only notable autumn/winter party recorded for the Humber estuary. Similarly Atkin and Lorand (1991), dealing with the historical county of Lincolnshire, and the annual Lincolnshire reports, prior to 1989, reveal Humber maxima for the species of only 18 birds at Grainthorpe on September 28<sup>th</sup> 1980 with 20 at Tetney in April 1983.



In the past a few Black-tailed Godwits of the race *limosa* occurred on the Humber during passage periods and nominate birds have occasionally summered and rarely bred successfully the most recent such occurrence being on Read's Island in 1974. It is not clear if any *L l limosa* still occur in the area but if they do then they form a very small percentage of the total number of Black-tailed Godwits recorded as most are identifiable as *L l islandica*.

#### Recent status on the Humber 1989 - 1996

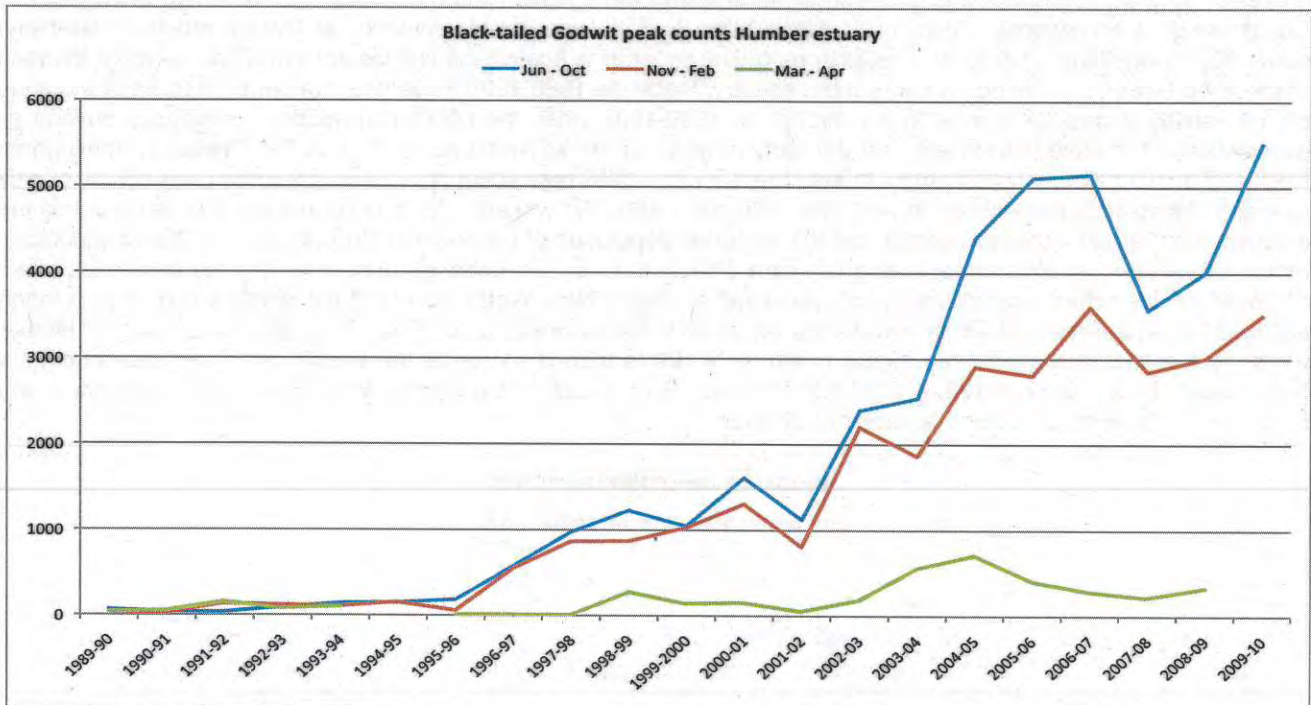
The autumn of 1989 produced the first of the present series of exceptional autumn occurrences on the estuary when a peak of 63 Black-tailed Godwits occurred at North Killingholme Haven pits on October 27<sup>th</sup> declining to 25 birds by November 8<sup>th</sup>. Subsequently a flock of 31 Black-tailed Godwits was located wintering at Pywipe mudflats (Grimsby) between January and March 1990. The latter record is, as far as is known, the first instance of a flock of more than ten Black-tailed Godwits wintering on the Humber estuary. Since the 1989-1990 winter the number of Black-tails wintering on the estuary increased in most years through to 1996-1997 when the population suddenly increased beyond all expectations. It is most unfortunate that the early fortunes of the wintering population on the Pywipe to Immingham Dock section were poorly documented. Indeed the relevant WeBS core count data recorded winter peak counts of only nine and eleven birds respectively in the 1989-1990 and 1990-1991 winters. The core counts are only as robust as the counters involved and it was apparent that the wintering population of Black-tailed Godwits was not being accurately monitored by the relevant counter during this early period. A subsequent change of counter had the immediate effect of increasing the winter peak counts by a considerable margin. Non- WeBS counts of this same wintering population obtained during the relevant winter months are tabulated in the enclosed chart. From these it is clear that the Humber winter flock in fact increased more rapidly in the early 1990's than is shown by the WeBS data. The flock reached a November-February peak of 133 in 1992 and reached 150 in March of the same year. These counts compare to the maximum WeBS core count for that winter of 39 birds.



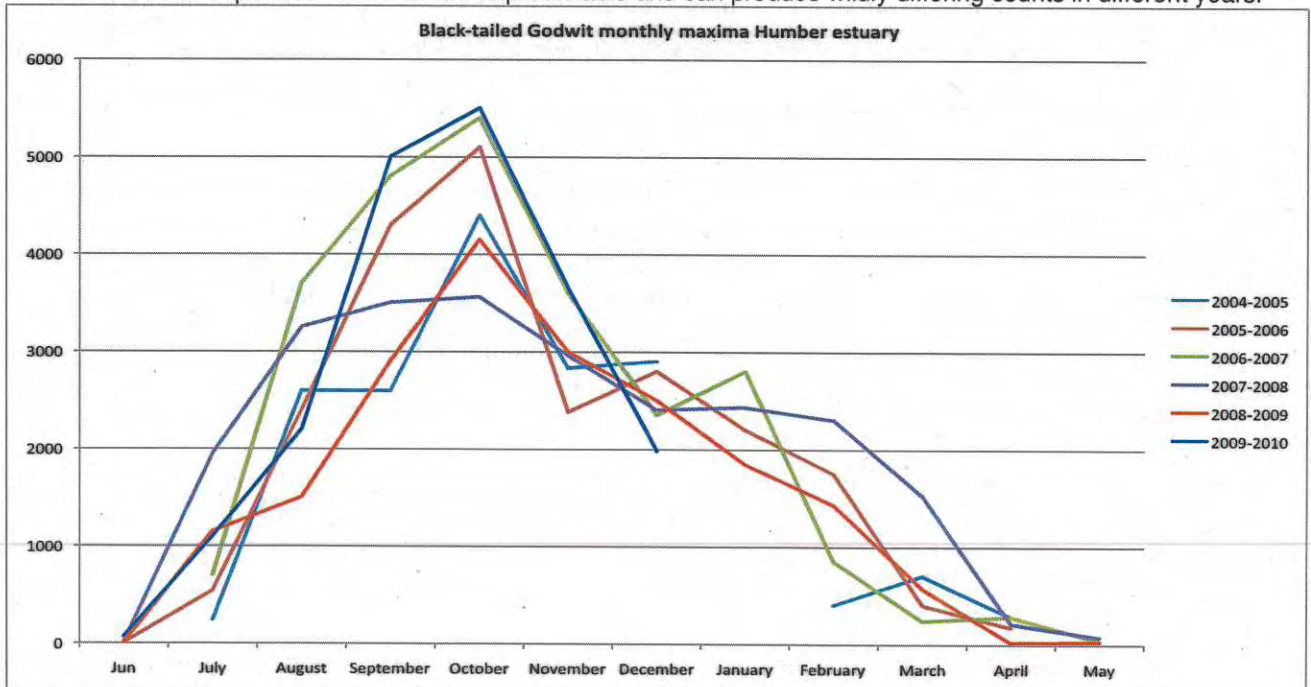


## Occurrence patterns on the Humber 1996 – 2009

The charts below shows the maximum counts of Black-tailed Godwits on the Humber in the main passage periods of July – October and March – April compared with the winter peaks in November – February from 1989 to 2009; the 2009 – 2010 winter counts only include the months of November and December 2009. As shown there is a strong correlation between the data for the most recent six autumn – winter periods in terms of monthly occurrence with variations in abundance between years still echoing the expected pattern of abundance.



The dramatic rise in numbers in autumn and winter from the 1996-1997 winter is clearly apparent; it is not clear if the apparent dip in 2007-2008 was real or was an artefact of less intense surveys in that autumn – winter period. By contrast the number of birds recorded in March - April has not shown the same pattern but appeared to show a peak in 2003 – 2006 with a subsequent decline. The number of birds recorded in this period of the year is rather variable and appears to depend on the two factors the continued presence of wintering birds in some years and also the arrival of northbound passage flocks in April that can make sudden differences to overall numbers; these arrivals of passage birds are often weather dependent and thus are unpredictable and can produce wildly differing counts in different years.





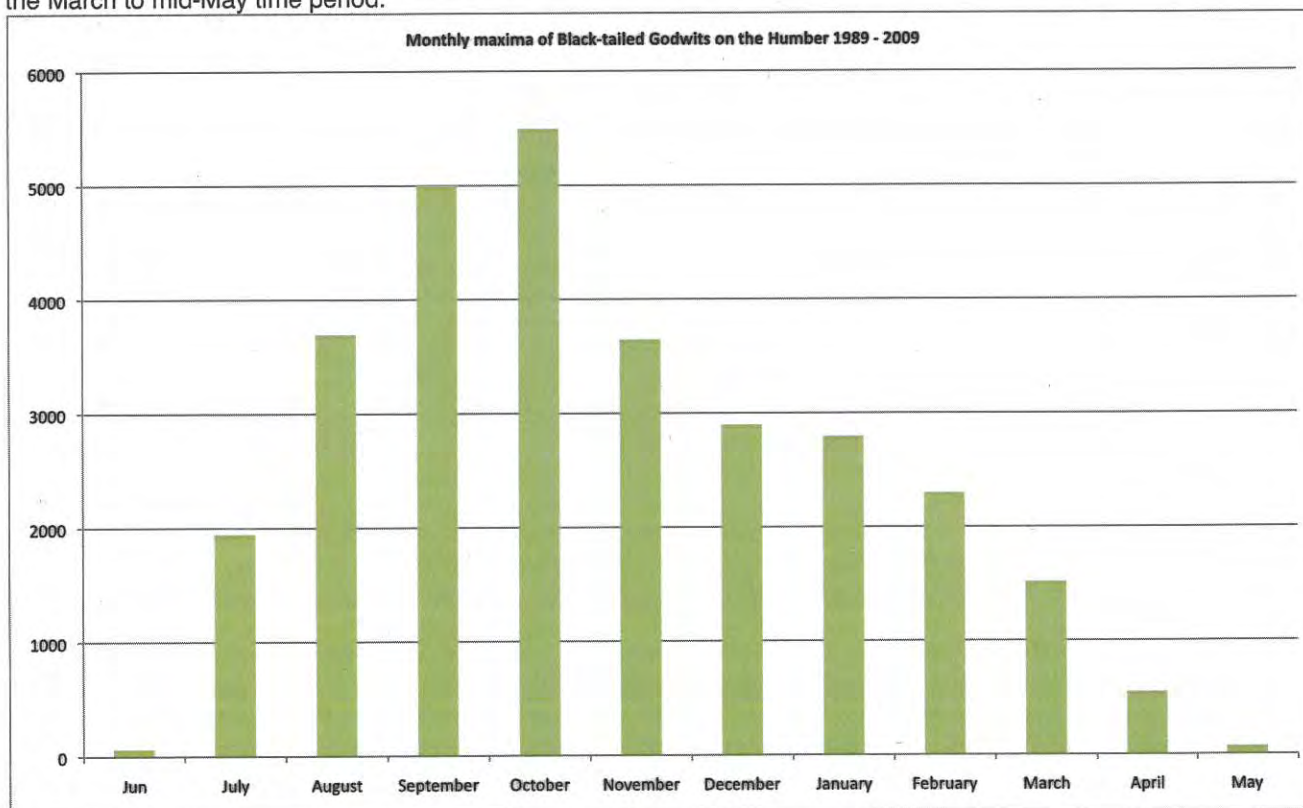
### Importance of the Humber population:

In the latest Wetland Bird Survey (WeBS) report for the 2006-2007 autumn – winter the international threshold for Black-tailed Godwit is 470 birds. The latest five-year mean for the Humber estuary is calculated at 3361 and thus the species easily qualifies as being of **International Importance**. Some of the maximum counts included for the Humber are below the totals obtained from the North Killingholme Haven pits roost alone in some of these winters so the five-year mean should be higher. The threshold is derived from an estimate of the Icelandic population size suggested at 50,000 birds up to 2002. In a more recent paper Gunnarson T G et al estimate that the population may be in the region of 50-75,000 birds. With a minimum Humber peak count of 5500 birds in October 2009 this flock formed 7% to 11% of the total *islandica* population on one date. Taking into account the turnover of birds in the autumn and winter populations on the estuary the Humber may well hold up to 15% of the entire Icelandic Black-tailed Godwit population in the course of an autumn – winter period.

### **Status and distribution on the Humber:**

#### **Autumn arrivals**

Black-tailed Godwits have occurred on the Humber in all months of the year but the main occurrence period is between late June and mid-March with a variable spring movement involving passage flocks that may occur at any time during the March to mid-May time period.



The first returning *islandica* of the 'autumn' appear during June still in their striking summer plumage. Flocks at this time can be scattered around the estuary with regular feeding/roosting sites being on the upper estuary at Blacktoft Sands (RSPB), Alkborough Flats, Winteringham Haven - Read's Island and on the middle estuary from Barton to North Killingholme on the south bank and on the north bank from Saltend and Cherry Cobb to Patrington Haven and the Spurn basin. The most favoured areas have changed over the time period involved in this paper as new sites have been developed mainly through managed realignment. The major developments at Paul, Alkborough Flats and Welwick have all attracted Black-tailed Godwits in their early stages of development. During the early autumn period, June to August there is considerable movement between sites as newly arrived birds swell the population. The turnover of birds at this time is also important as birds arrive and feed before moving to moulting areas in the Wash while others join the birds already in autumnal residence. Observations of individual colour ringed birds have proven the speed with which birds move from different sites around the estuary over short time periods. The distance from sites at the head of the estuary to those on the middle estuary is relatively small at 40 kms following the estuary; a distance that a godwit can cover in



40 minutes so daily movements between different feeding areas and favoured roost sites is well within the expected ergonomics of the species. Following the coast it is only 100 kms to the south-west corner of the Wash a distance that godwits could easily cover in two hours so it is to be expected that birds could move between the two major locations over the course of a few days if needed.

On spring tides most of the birds in the early autumn still roost at Alkborough Flats / Blacktoft and North Killingholme Haven pits but smaller numbers have adopted the newly created sites at Paul and Welwick. Movements of birds between these different areas of the estuary are confirmed by sightings of colour-ringed individuals at differing locations over short periods of time. Other colour-ringed birds seen on the estuary in the early autumn have however, never been seen again on the Humber in spite of extensive observations of the wintering flock which confirms that some of the flocks seen on the estuary during the early autumn are transient groups that subsequently move on to winter in other parts of the species range. This is also of significance with regard to the importance of some of the sites on the estuary that are used during the autumn but do not hold regular flocks of wintering birds.

The upper Humber has been in a very dynamic state throughout the 1990's and 2000's with extensive erosion and deposition occurring between Blacktoft and Barton-on-Humber, in particular, and this could have affected the suitability of the area for feeding Black-tailed Godwits. In addition major developments with regard to managed realignment schemes around the estuary have also affected the distribution of the species through the creation of new feeding and roosting sites.

As the species very much a recent addition to the estuarine wader population there have thus been considerable differences in the number of birds recorded at some of the sites around the estuary during the past twenty years. On the upper estuary the Blacktoft Sands reserve has attracted passage flocks of varying size in both spring and autumn throughout with numbers being quite variable between years. At Winteringham/Read's Island a flock of 40 birds that occurred in September 1990 was the largest flock recorded in that part of the estuary. Subsequently autumnal peak counts varied between seven and 28 birds between 1991 and 1996 inclusive. There was then a sudden increase in the importance of the area with autumn peaks reaching 193 in 1997 and 167 in 1998 before falling again to a maximum of 36 during 1999 to 2001. The construction of saline lagoons on Read's Island in 1997 had a profound effect upon the status of the site as a staging area for passage waders but as these lagoons disappeared through erosion in the early 2000's the site lost its attraction to godwits. More recently the development of the managed realignment site at Alkborough Flats has again altered the areas available to feeding waders on the upper estuary and the site has attracted growing numbers of Black-tailed Godwits on passage with a more stable wintering population now becoming apparent. At Saltend a maximum of 148 birds was feeding in 1995 with 356 in 1996 and 725 in 1997. These birds were part of the same flock that roosted at North Killingholme Haven pits during the same period. Subsequently few birds from this flock have been recorded from Saltend but as Paul Holme Strays was developed that site also attracted birds from the North Killingholme pits roost. On the outer estuary managed realignment schemes at Welwick / Patrington Haven have also attracted feeding and roosting Black-tailed Godwits and these may be the birds that have started to feed in the Spurn basin. Morris (1990) suggested that the distribution of feeding birds within the Dee estuary may have altered due to changes in the sand-flats and mud-flats on that estuary. Clearly there have been obvious reasons for some of the changes in distribution around the Humber estuary but the increasing number of birds that now use the site in the autumn and winter also appear to be forcing birds to use a wider range of sites around the estuary.

By mid September and increasingly through October the bulk of the Humber population becomes concentrated in the area adjacent to North Killingholme Haven pits where the birds roost. Feeding birds concentrate on the inter-tidal mudflats to the south of the roost between the Haven and Immingham Docks but also start to move further south-east to the mudflats around the Oldfleet Drain outfall between Immingham Docks and Pywipe. The birds return to the roost at North Killingholme pits during this period at high tide and if undisturbed will remain in the roost for up to four to five hours around high tide. With long hours of daylight and generally mild conditions the energy requirements of the birds seems to be met through a concentrated period of about two hours feeding between each tide. The number of birds remaining at Alkborough Flats has steadily increased in recent years during this period of the year but still remains small compared to the number recorded at Killingholme. From late October passage birds leave the estuary and the wintering population becomes more stable although there is still some possible interchange between other wintering areas on the East coast. Up to 2007 from mid November the wintering birds abandoned the North Killingholme roost site and moved to the inter-tidal mudflats between Immingham Docks and Grimsby Docks roosting on the inner Pywipe basin. In the last three autumn periods birds have tended to remain longer in the North Killingholme area using the roost through to late November but feeding more extensively in the Pywipe area. By December the vast majority of the wintering birds are generally found in the Pywipe area feeding on the inter-tidal mudflats and roosting on the upper inter-tidal around Doig's Creek. Wintering birds start to depart from the Humber as early as mid December with the total number of birds falling rapidly during January and typically few remaining in February. From repeated observations of colour ringed birds it has been shown that many of these wintering birds move south and south-east to areas in East Anglia and Cambridgeshire where they feed on grasslands prior to spring departures for Iceland.

An explanation for the early departure of wintering birds is found in the paper by Gill et al 2007 where they address the conservation of the two European Black-tailed Godwit populations. The issue of food depletion in the inter-tidal feeding areas could also be implicated in the change of feeding areas from the Killingholme area to Pywipe from the autumn to winter.



*"Key non-breeding season issues:*

*After the breeding season, Icelandic godwits migrate south to the UK, Ireland and France. Small numbers of birds also appear to migrate directly to Portugal from Iceland. The moulting sites in the north-west and east of England have seen particularly large increases in use in recent decades, especially the Wash, Humber and Dee estuaries. The vast majority of Icelandic godwits use estuarine mudflats during the autumn months. By winter many birds have moved south to estuaries in France and Portugal and, in Ireland and England, they start to forage on grasslands."*

*"In spring, most godwits from Portugal and France migrate to the Netherlands or eastern England, where they forage primarily on grasslands. At the same time, many birds from coastal sites around the UK move inland to forage on flooded grasslands. Studies of energetic intake rates on mudflats and grasslands suggest that godwits move to grasslands when estuarine food supplies are no longer sufficient to support them, and that they frequently use both mudflats and grasslands throughout winter and spring. This seems to be particularly common in the northern part of their range, where estuarine prey are often subject to strong seasonal depletion (e.g. Gill et al. 2001b) and where grassland foraging appears to be a necessary addition to compensate for insufficient estuarine food supplies."*

Movements of wintering birds to East Anglia have been shown by numerous colour-ringed birds recorded on the Humber with some examples being shown in appendix 1,

**Spring passage:**

The number of birds recorded on the Humber through late February to April appears to depend upon the number of wintering birds that stay on in the wintering area and the occasional arrival of spring passage flocks en route to Iceland from East Anglia or the near continent. In recent springs the number of wintering birds that are recorded through March has in general increased in line with the increase in the overall total wintering. Most of these birds are likely to be 2cy birds that will not move back to Iceland in the subsequent spring but will summer in the UK. This has been proven by observations of birds in 2cy plumage in the late spring flocks that have remained for extended periods on the Humber and also from re-sightings of colour ringed birds. Summer plumage adults are easily identified and flocks of birds in bright summer dress tend to be recorded briefly in April often during periods of poor weather when migration has been blocked by strong head winds. As the population has increased in the UK so larger numbers have occurred more frequently on the Humber in spring but flocks of adults are still rather spasmodic as shown by the records from the past five springs detailed below.

2004: there were only 6 birds on March 31<sup>st</sup> but 550 on April 30<sup>th</sup> with 350 on Rosper Road scrapes on May 10<sup>th</sup>.

2005: numbers declined to 37 on March 2<sup>nd</sup> but there was a large arrival of 700 on the 13<sup>th</sup> but then just 45 on the 25<sup>th</sup> before another passage of 280 on April 10<sup>th</sup>; 54 of these were adults in good summer plumage but most of the remainder were 2cy birds.

2006: wintering birds hung on late with 400 on March 11<sup>th</sup> and 200 on the 23<sup>rd</sup> but there was a very low spring peak of 38 on April 25<sup>th</sup>.

2007: there were 102 on March 5<sup>th</sup> with 237 on the 18<sup>th</sup> but 280 on April 1<sup>st</sup> with 90 2cy birds remaining to the 22<sup>nd</sup> and 36 to May 10<sup>th</sup> including a colour ringed 2cy that had wintered on the Humber.

2008: most of the spring passage birds were found at Alkborough Flats with 67 to April 22<sup>nd</sup>, 210 28<sup>th</sup>, 72 May 1<sup>st</sup>, 33 May 16<sup>th</sup> and 4 28<sup>th</sup>.

2009: Alkborough Flats held 20 on April 20<sup>th</sup> with 24 2cy birds still there on May 10<sup>th</sup>;



Icelandic Black-tailed Godwits feeding on wet grassland Barton-on-Humber April 17<sup>th</sup> 2002  
photos © graham catley





### Behaviour of autumn and winter flocks:

During the early autumn period, late June – early September flocks of Black-tailed Godwits often move considerable distances up and down the estuary to favoured feeding areas some of which are seldom exploited at other times of year. A generalised map of movements is presented below with approximate distances between feeding and roosting areas. the main roost is still at North Killingholme Haven pits and the bulk of the Humber population are still concentrated at this site from July onwards on spring tides.



Since its development the Alkborough Flats managed realignment site has tended to attract good numbers of godwits in the early autumn with birds feeding and roosting within the site. Movements to and from the area have been observed with birds passing up and down the estuary and passing Read's Island, Barton and Goxhill Skitter en route between Alkborough Flats and North Killingholme. One of the notable discoveries at Alkborough Flats has been the occurrence of a number of colour-ringed birds that have not subsequently been recorded elsewhere on the estuary and are presumed to be short –staying passage birds. These have included birds ringed in Portugal and France. The site also seems to be attracting a higher percentage of newly arrived juvenile *islandica* than other parts of the estuary. A count of 62 birds on August 11<sup>th</sup> included 22 juveniles and the percentage of juveniles increased with 168 juveniles out of 194 birds on the 14<sup>th</sup>.

Juvenile *islandica* Black-tailed Godwits Alkborough Flats 14.8.09 © graham catley





During this period three juveniles colour ringed in northern Iceland in July 2009 were seen at Alkborough Flats along with an adult ringed on its wintering grounds in Portugal in 2008. Two of these juveniles have subsequently been seen through to late November at different sites on the Humber while one has not been seen since October 9<sup>th</sup> but the latter bird ON YRflag was seen feeding at Goxhill Skitter Ness and roosting at North Killingholme between visits to Alkborough Flats. The Portuguese ringed bird was not seen subsequently presumably having moved back to Iberia for the winter. The high percentage of juvenile birds at Alkborough Flats in August is unprecedented on the East coast and shows the value of this site for newly arrived birds of this population.



Colour ringed Black-tailed Godwit ON YRflag when ringed as a chick in Iceland July 2009 and feeding at Goxhill Skitter October 2009

In the later autumn the flocks of godwits appear to be able to obtain their energy requirements from the Humber mudflats in a relatively short period of time between high tides and this allows the birds to roost and loaf during the post-breeding moult. Movements between the North Killingholme roost site and favoured feeding areas are quite small; 2.5 kms to the mudflats between the Calor Gas jetty and the Immingham Docks HIT terminal, 10 kms to the Oldfleet drain feeding area and 13 kms to north end of Pywipe roost and 14 kms to inner basin roost. Such distances are covered in a few minutes flight and presumably have rather low energy consumption. Birds spend long periods sleeping and bathing / preening in the North Killingholme roost during this period but in recent autumns have spent longer periods on the inter-tidal undertaking the same activities as the roost has suffered from more frequent disturbance. \* (see note on roost degradation)



Black-tailed Godwits concentrating in inter-tidal by Calor Jetty S Killingholme October © graham catley

Movements to and from the roost are accomplished by flights of varying length. On falling tides birds tend to move first to the mudflats by the South Killingholme lighthouses where they may feed for 30 minutes to an hour before roosting for short periods. These feeding sessions may be followed by onward movements to the mudflats south of Immingham Docks, a flight that entails passing over the Docks area at a height in excess of 50m. Detailed observation of birds adopting this strategy suggests that there is a leapfrog movement of birds from the roost to intermediate feeding sites where those that feed first then roost while later arrivals feed; the former birds being the first to move on to the more southerly feeding areas. The differences between groups of birds could be age related but this theory has not been tested. When the birds are concentrated in the Pywipe area they adopt a different strategy. From the roost in the inner basin at Doig's Creek birds will walk out following the falling tide and feeding on the edge of the mudflat. As the tide drops further flocks will start to fly north-west to the favoured feeding areas around the Oldfleet Drain outfall returning to the roost as the tide rises. With shorter hours of daylight and more severe weather condition the godwits feed for



much longer than in the autumn often only roosting for 1 -2 hours over high tide depending on the tidal height. These movements and strategies are modified if the birds are disturbed by hunting Peregrines but the same roosting and feeding areas are generally used with the flock seldom leaving this section of the Humber.



Black-tailed Godwits moving between North Killingholme roost and Pywipe basin © graham catley



Black-tailed Godwits following the falling tide Pywipe © graham catley

Small numbers of wintering birds have been encountered feeding on flooded arable fields adjacent to the estuary and also in permanent pastures where they have associated with Curlew, Lapwings, Golden Plover and Ruff. One colour ringed juvenile bird ringed in Northern Iceland in July 2006 was first recorded on pools at Waters' Edge Barton in November 2006 then spent all of January and February 2007 feeding in a flooded oilseed rape field adjacent to East Halton pits. In autumn 2009 a flock of 161 mainly juvenile birds was found feeding on a field of cereal stubbles inland from East Halton pits on August 31<sup>st</sup>. Black-tailed Godwits are thus capable of exploiting other feeding areas around the estuary but the vast majority of the birds feed exclusively on the inter-tidal mudflats.







## Roosts:

There are two main Black-tailed Godwit roosts on the Humber estuary with a number of other sites holding variable but usually limited parts of the population during the autumn and early winter.

### North Killingholme Haven lagoons:

The saline lagoons at North Killingholme Haven (TA167199) have been the most consistent high tide roost for Black-tailed Godwits since 1989. During June - October the majority of the birds that feed on the estuary roost and loaf at North Killingholme. At this time of year the birds spend long periods roosting and loafing while they undergo their complete post-breeding moult. Feeding appears to take up a relatively short period of available daylight hours. Movements to feeding areas are often delayed until two to three hours after high water with birds returning to the roost site up to two to three hours prior to high water.

The majority of the birds roost in the large lagoon that lies adjacent to the Humber; in the autumn of 2009 water levels fell so low that birds were also exploiting the inland lagoon west of the railway tracks but in most years the water is too deep in this lagoon and reed growth is rapidly infilling the remaining open water in the inner lagoon.



North Killingholme Haven pits with Black-tailed Godwit roost areas highlighted

Water levels in the main roost site are regulated by the operation of a sluice system but as this is dependent upon tides periods of heavy rain can lead to a rapid rise in water depth and make the roost unsuitable until drainage can take place. The water in the lagoon is shallow over most of the area but is most suitable for roosting birds in the north-west corner adjacent to Haven Road and the railway track. In recent years frequent disturbance of the roosting birds has occurred due to the presence of hunting Sparrowhawks *Accipiter nisus* in the overgrown hedgerows along the Haven Road and railway embankment. The integrity of the roost is being affected by the frequency of these disturbance events and management of the site needs to incorporate cutting of the hedges to <1m in height to prevent their use by Sparrowhawks. Confirmation that raptor presence can dissuade waders from using roosts is found in many studies including a PhD study (Daniel Hayhow) that "has shown that godwits foraging on grasslands (in Southern Ireland) avoid small fields and fields with tall hedges, and this is irrespective of actual levels of raptor activity. In other words, just the perception of risk of predator attack can strongly influence the extent to which sites are used". J Gill pers com

Attacks by Peregrines at this roost are infrequent and this may be another factor involved in the choice of roost site. Black-tailed Godwits remain in the roost over-night in spite of the intrusive lighting of adjacent industrial areas. One of the obvious problems with the roost is the lack of alternative roosting areas in close proximity to the chosen area at times when the lagoons are flooded or disturbance is excessive and at such times flocks of godwits may spend long periods in flight over the Humber and adjacent hinterland with the obvious disadvantage of energy consumption at a time when birds should be conserving fat reserves.





Black-tailed Godwits North Killingholme roost © graham catley



Black-tailed Godwits North Killingholme pits © graham catley



Pywipe basin – Doig's Creek and inner basin sites:

The majority of the Humber wintering flock of Black-tailed Godwits has traditionally roosted and fed on the inter-tidal mudflats between Grimsby Docks north wall and the Middle Drain outfall. On median and neap tides birds roosted on the exposed upper reaches of the mudflats between the saltmarsh at TA 260113 and the inner part of the basin at the Union Dock outfall / Doig's Creek. On spring tides the birds were forced onto the upper parts of the saltmarsh and the rubble-strewn embankment around what is now the Volvo car storage area. Spring tides in mid winter are much lower than the autumn tides and thus the upper inter-tidal areas used for roosting were usually available for Black-tailed Godwits with the exception of days with gale force north-easterly winds that force waves onto the area.



Traditional Black-tailed Godwit roost areas Pywipe basin

During November – December 2009 it has been particularly obvious that siltation of Doig's Creek has effectively raised the inner level of the mudflats by the Union Dock outfall well above that of the adjacent mudflats. This fact has been exploited by the roosting Black-tailed Godwits that have started to use the area as a high tide roost on winter high spring tides. The godwits are able to stand, belly-deep, in water on tides with a height of 6.4m and remain in the area throughout the high tide period. *Spartina* is spreading around the northern edge of Doig's creek outfall and this is limiting the roosting area available for waders as the vegetation is too tall and rank for waders to use it.

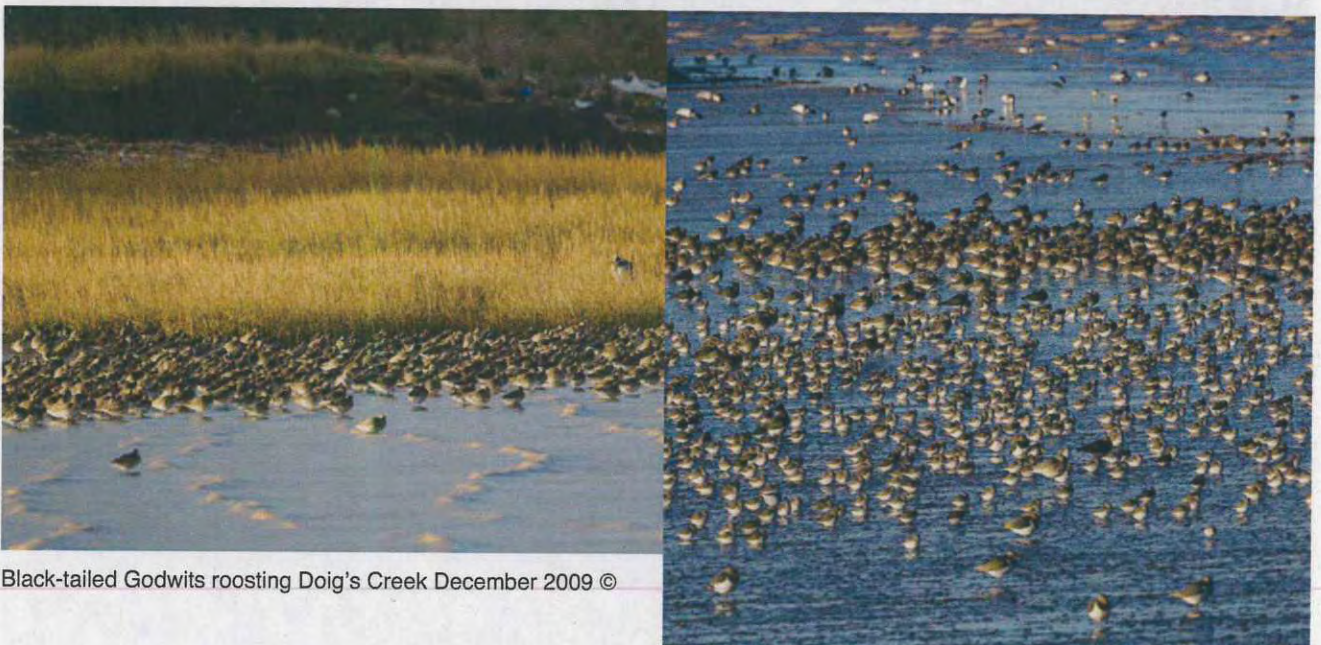
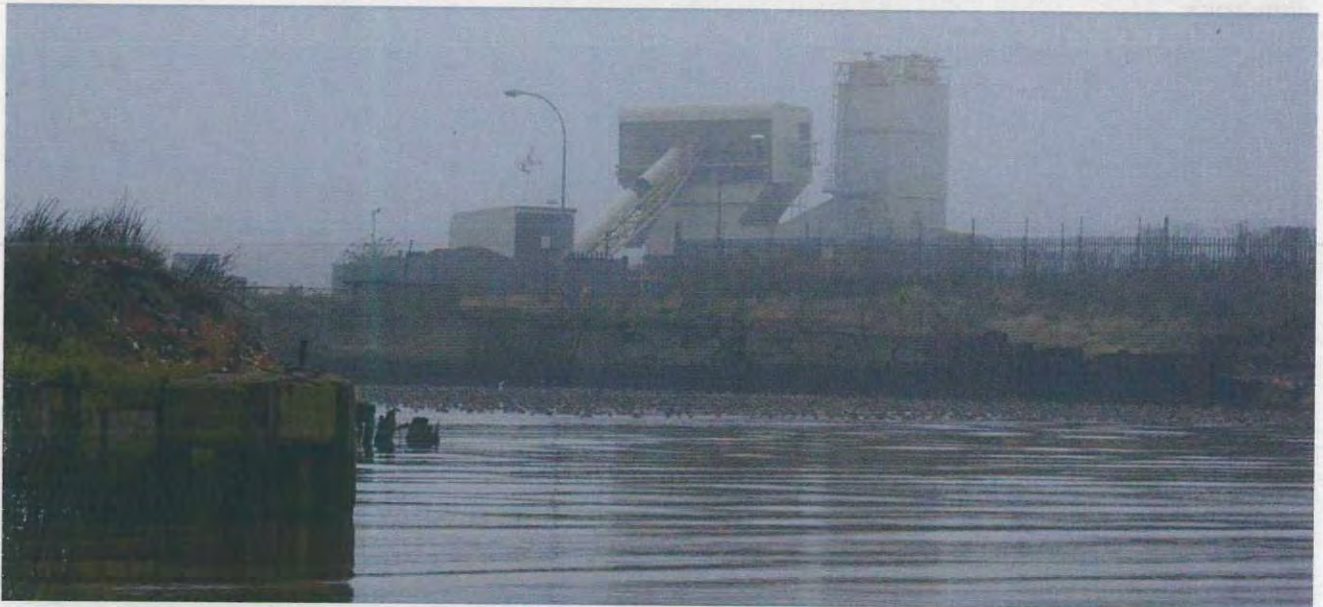


Black-tailed Godwit roost in inner Doig's Creek November - December 2009





Black-tailed Godwits roosting Doig's Creek December 2009 © graham catley



Black-tailed Godwits roosting Doig's Creek December 2009 ©



While this roost site offers advantages for the roosting godwits it also exposes them to attack from predators and the roost is occasionally disturbed by hunting Sparrowhawks and occasionally by Peregrines. During times of disturbance the flock often splits with some birds moving to the rubble-strewn areas of the upper inter-tidal off the Volvo terminal, the site favoured by Redshank and Bar-tailed Godwits. Some Black-tailed Godwits also still roost on the saltmarsh around the New Cut drain outfall but this site is often subjected to disturbance from dog walkers and dogs.

Following torrential rain on December 6<sup>th</sup> 2009 part of the Black-tailed Godwit flock, 550 birds, moved from Doig's Creek to the field south of Stallingborough Power Station at TA233131 where they bathed in shallow pools created by the heavy rain and subsequently roosted. This site was used again on December 12<sup>th</sup> by 560 Black-tailed Godwits in spite of the fact that the flood-water pools had disappeared. The birds that roosted on the field on the 12<sup>th</sup> had been feeding around the Oldfleet Drain outfall and moved over the sea embankment with flocks of Lapwings and Golden Plovers roosting over high tide amongst the Golden Plover flocks. Counts revealed that there were 3800 Lapwing and 3300 Golden Plovers on the field as well as the Black-tailed Godwits. It seems likely that the godwits only used this site due to the presence of the other waders as there is no standing water and the habitat is not that typically used by Black-tailed Godwits. However, if the site were developed with lagoons and a safe roost site created in the field then the Black-tailed Godwits would no doubt use the area and it would form an alternative roosting area to the Doig's Creek site at times of disturbance.



Black-tailed Godwits Pywpe December 2009 © graham catley





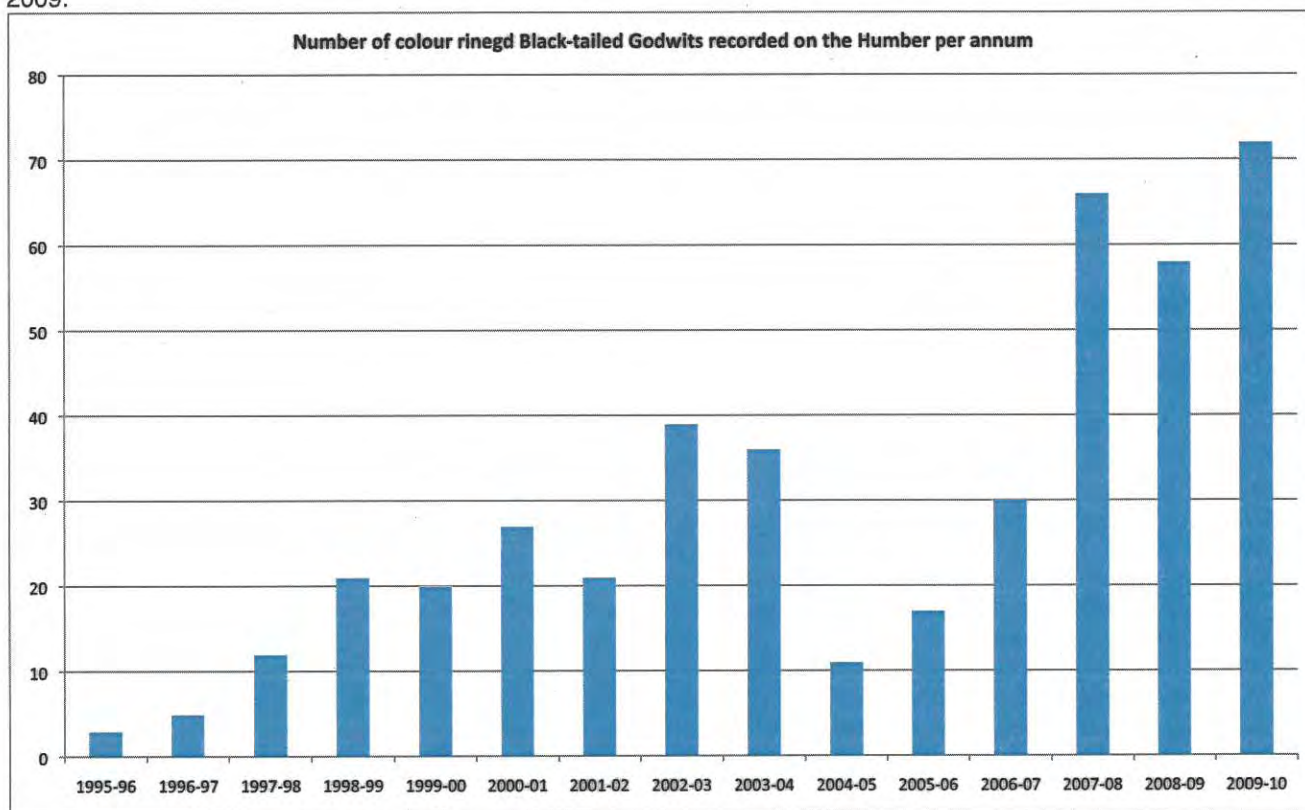
### Observations of colour-ringed birds on the Humber:

Several colour-ringing schemes concentrated on wintering Black-tailed Godwits have been in operation in the UK and mainland Europe since the early 1990's in relation to studies on the species' population dynamics and status. The Icelandic breeding population *L. islandica* has been well studied on the breeding grounds and in its different wintering areas with birds being colour-ringed in Portugal, Spain, France, Britain and Iceland. The bulk of the birds ringed in the UK have been marked in the Wash but other ringing schemes in the Montrose basin, Langstone Harbour and east Suffolk have also ringed several birds in recent years.

Observations of 185 different colour-ringed godwits on the Humber, since 1994, have revealed extensive information regarding the movements of these birds between wintering and passage sites and their breeding grounds. These movements can theoretically be extrapolated to the bulk of the wintering population on the Humber. In addition to putting movements into a National and International context re-sightings of colour ringed birds around the Humber estuary can be used to demonstrate movements between favoured feeding areas and roost sites.

Colour-ringed birds seen on the Humber have been re-sighted in a wide variety of localities from the Netherlands to Spain, Portugal, Ireland, Fife, Hampshire, Norfolk, Suffolk, north-east Scotland, Cambridgeshire, Lancashire and on the breeding grounds in Iceland. The majority of the birds seen on the Humber had been ringed originally on the Wash (J. Gill pers comm) with others being ringed in Fife, Suffolk, Langstone Harbour, Brittany, the Tagus estuary Portugal and on their breeding grounds in Iceland.

The chart below shows the annual number of colour-ringed Black-tails Godwits seen on the Humber from 1995 to 2009.



Form the total of 165 birds that can be analysed 156 birds have occurred in the autumn period, June – October, 76 in winter November – February and 67 in both autumn and winter; nine birds have been exclusively recorded in the winter period but not in autumn. This means that 80 birds have only been recorded on autumn passage showing the high rate of turnover of birds during this part of the year.

During the autumn passage period a large number of birds have shown a strong site fidelity occurring on the Humber in numerous autumns. A smaller number of birds have shown the same fidelity to the wintering area but winter observations have always been more limited than those in the autumn due to the smaller number of birds involved and differences in observation effort.



Repeated patterns of movements shown by individual colour-ringed birds can be categorised as follows:

- 1 movements of wintering birds to pastures and feeding areas in East Anglia in mid winter – early spring
- 2 arrivals on the Humber in autumn followed by post-breeding moult and onward movements to wintering areas further south
- 3 short stay autumn passage
- 4 autumn arrivals followed by regular wintering on the Humber
- 5 irregular occurrence in some autumn periods
- 6 irregular occurrence in some winters but wintering at other sites in other years
- 7 protracted stays on the Humber of juveniles that arrived in the previous autumn
- 8 arrivals on the Humber of birds that have moulted in the Wash earlier in the autumn
- 9 movements from west coast to east coast
- 10 occurrence on the Humber over long time periods

Examples of all of these movements are shown in Appendices 2 - 9

Analysis of records from the Humber show that autumn arrivals occur either directly from the breeding grounds in the summer and early autumn or later in the autumn via moulting grounds in the Wash. (1, 2, 4, 8).

Several birds trapped and observed in the Wash in July and August (8) have subsequently moved north to winter on the Humber.

The Humber winter population is relatively stable in number from late October through to late December or early February when a sudden decline occurs sometimes with a slight resurgence in March. Colour-ringed birds have revealed that there is a notable and obvious movement from the Humber to spring staging sites in East Anglia (7) where birds may stay from February through to April prior to their northward migration to Iceland. Several birds have been observed on the Ouse and Nene Washes and at various sites in North and East Norfolk in the February to April period.

A few birds have also been tracked from the Humber moving south into East Anglian wintering sites during the autumn period. (1)

A well-travelled adult female that demonstrates the above migration strategy (3, 7, 8,) is ringed with Yellow over Red left tibia, Yellow right tibia. This bird ringed on the Wash on August 2<sup>nd</sup> 1996 appeared at North Killingholme on October 18<sup>th</sup> 1996 being seen there again on the 27<sup>th</sup> before moving to Pywipe where it was observed between December 4<sup>th</sup> and February 13<sup>th</sup>. A spring movement to the south saw it on the Nene Washes on March 22<sup>nd</sup> whence it moved quickly east to Breydon Water by the 26<sup>th</sup>. Following her return trip to Iceland she reappeared on the Wash at Holbeach on August 21<sup>st</sup> where she moulted before returning to North Killingholme on October 31<sup>st</sup> and then wintered at Pywipe. The following year, 1998, she returned from Iceland being seen on Read's Island on July 29<sup>th</sup> and wintered again at Pywipe. Subsequent sightings suggest that she now arrives directly on the Humber in the early autumn to moult, winters at Pywipe and moves to North Norfolk or the washes in the spring.

The above demonstrates that the Black-tailed Godwits that occur on the Humber estuary through the year reflect a wide range of migration and wintering strategies and very few birds fit into a simple category of just passage or wintering bird. While juveniles are out-competed by adults for prime feeding and roosting sites and can be expected to occur in sub-optimal habitats in their first year some birds subsequently return to the same areas in successive years while others move to different wintering areas in the UK and south to Spain and Portugal. Adults have also wintered in widely separated areas in different years and have also occurred on passage in different parts of the country with birds moving from west to east coasts for example.



Peregrine and Black-tailed Godwits © graham catley



## Conservation / summary:

The Black-tailed Godwit has produced the greatest increase in status shown by any wader species on the Humber estuary in the latter half of the twentieth century and first decade of the 21<sup>st</sup> century. From a very scarce passage species Black-tailed Godwit has increased to the point where an Internationally Important passage and wintering population has become established. The wintering flock has increased to form an impressive 6.5% - 10% of the Great Britain winter population.

There are a number of implications for the protection of the population of Black-tailed Godwits that occurs on the Humber estuary, during the winter and autumn passage periods, evident from the occurrence patterns described in the above summary.

The wintering population is almost entirely dependent upon the restricted area of mudflats and the high tide roost site in the Pywipe basin. In addition the autumn passage flocks and aggregations of moulting birds show strong site fidelity to favoured feeding areas noted above. The high tide roost sites and moulting area at North Killingholme Haven pits and at Alkborough Flats and Blacktoft Sands are also of great importance with the former site having been the most important site on the estuary during the 1990's and 2000's.

Studies on other estuaries around the UK have shown that the Black-tailed Godwit may be prone to sudden changes in status in particular sites due to its preference for restricted feeding and roosting areas. If these sites are disturbed or reclaimed the status of the species may undergo dramatic alterations. Low water studies on the Stour revealed that the Black-tailed Godwit was the one species whose numbers and distribution changed dramatically between the winters 1988/89 and 1989/90 (Coombes 1991). This change was probably due to reclamation of a section of the Stour, previously a major feeding area.

In their recent paper on the two West Palearctic populations of Black-tailed Godwit, Gill et al 2007, have produced conservation recommendations for both populations repeated below:

### *CONSERVATION RECOMMENDATIONS FOR L.L. ISLANDICA*

- 1. Improve conservation of winter habitat mosaics, particularly in areas, such as Ireland, England and France, where grasslands, coastal lagoons and salinas may be necessary to maintain populations when estuarine food supplies are depleted.**
- 2. Reduce impact of afforestation and building developments in Iceland on godwits and other shorebird species, by conserving key breeding areas.**
- 3. Improve protection of coastal habitats in areas where development and associated disturbance levels are high**

Points 1 and 3 are clearly applicable to the Humber estuary. With regard to point 1 the Humber population appears to be reflecting food depletion movements away for the estuary and these may be occurring earlier in the winter than previously recorded possibly as a result of the increase in the number of birds that are now occurring on the estuary.

While the areas of inter-tidal mudflats have for many years been finite the recent development of managed realignment sites around the estuary has already increased the areas where godwits occur and roost and further site development could also benefit the species; particular reference to creating roost sites free from human disturbance within newly developed areas is essential for this species. Studies at Pywipe have shown that only the parts of the shoreline where human disturbance is minimal, on areas with restricted access, regularly hold roosting birds while the small areas of saltmarsh and fields within 200m of the Humber embankment fail to attract birds due to frequent human and dog disturbance.

Disturbance of feeding godwits in winter is also increasing due to the proliferation of sea angling along the embankment during October – March. At the northern end of the Pywipe basin where the mudflats are narrow anglers now walk out onto the mudflats even at low water and this has implications for reducing the areas that can be exploited by feeding waders. A less obvious implication of the amount of sea angling is the amount of discarded nylon fishing line and hooks that are left on the mudflats. A number of birds have been seen in recent weeks with injured and even missing legs something which can occur through entanglement and bare par strangulation.

Provision of wet grasslands adjacent to the estuary may well increase the ability of godwits to remain on the estuary for longer periods in the winter and early spring. If such areas were large enough to exclude possible human incursions and incorporated shallow pools alternative roost sites could be created.

The major roost site at North Killingholme Haven pits currently suffers from variations in water depth and major disturbance events caused by Sparrowhawks using the fringing hedgerows. Simple cutting and thinning of the hedgerows would



reduce the impact of disturbance events at this roost site while a more efficient method of water level control would also be beneficial.

Graham P Catley  
Nyctea Ltd  
December 2009

Black-tailed Godwits Humber estuary © graham catley





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Black-tailed Godwit feeding in Pywipe mud © graham catley





Colour ringed combinations:

In the examples that follow the only dates and locations are included.

The standard method for reading colour ring combinations is upper left tibia to lower left to left tarsus followed by upper right tibia to right tarsus.

Y = yellow R = red W = white N = black L = lime G = green O = orange X = white ring with black X symbol Rflag = red ring with flag Lflag = lime ring with flag Oflag = orange ring with flag (examples of different combinations are shown in the photographs below.



Yellow Orange Lime Green YO LG

Colour-ringed Black-tailed Godwit L GY // W Lime Green Yellow // White



Oflag Y LW Orange flag Yellow Lime White

GOY GYG Suffolk Green Orange Yellow Green Yellow Green



## Appendix 1

Examples of colour ringed birds wintering on the Humber and moving to East Anglian grasslands for the following spring:

### YR Y/W

18.10.96	Killingholme
27.10.96	Killingholme
4.12.96	Pywipe
13.2.97	Pywipe
22.3.97	Nene Washes
26.3.97	Breydon Water
21.8.97	Holbeach
31.10.97	Killingholme
8.11.97	Pywipe
29.7.98	Read's Island
04.02.99	Pywipe
05.09.99	Killingholme
17.10.99	Killingholme
08.04.00	Cley
12.08.00	Killingholme
13.10.00	Killingholme
31.01.01	Ouse Washes
12.03.01	Fen Drayton
28.03.01	Ouse Washes
16.04.01	Ouse Washes
23.04.01	Ouse Washes

### YR YW

21.07.97	rd Terrington
29.8.97	Killingholme
3.9.97	Killingholme
15.9.97	Killingholme
27.9.97	Killingholme
8.11.97	Pywipe
31.1.98	Pywipe
16.4.98	Ouse Washes
10.12.98	Pywipe
22.03.99	Nene Washes
15.04.99	Ouse Washes
22.9.99	Killingholme
23.9.99	Killingholme
11.04.00	Nene Washes
12.04.00	Nene Washes
01.08.00	Killingholme
17.08.00	Killingholme
30.08.00	Killingholme
09.09.00	Killingholme
19.09.00	Killingholme
13.10.00	Killingholme
25.10.00	Killingholme
02 & 03 01	Ouse Washes
04 01	Nene Washes
08 & 09 01	Killingholme
08.10.01	Killingholme
14.10.01	Killingholme
28.10.01	Killingholme
05.03.02	Ouse Washes
27.04.02	Killingholme
28.04.02	Killingholme
26.07.02	Killingholme



05.08.02	Killingholme
07.08.02	Killingholme
07.09.02	Killingholme
21.09.02	Killingholme
07.10.02	Killingholme
25.10.02	Killingholme
24.01.2003	Killingholme
07.07.2003	Killingholme
09.07.2003	Killingholme
30.07.2003	Killingholme
02.08.03	Killingholme
25.08.03	Killingholme
08.10.03	Killingholme
09.04.04	Ouse Washes, Cambridgeshire, E England
25.08.04	Humber estuary, Lincolnshire, E England
13.09.04	Humber estuary, Lincolnshire, E England
13.08.05	Humber estuary, Lincolnshire, E England
20.08.05	Humber estuary, Lincolnshire, E England
31.08.05	Humber estuary, Lincolnshire, E England
16.09.05	Humber estuary, Lincolnshire, E England
19.02.06	Welney, Ouse Washes, Norfolk, E England
26.04.06	Lower Derwent Valley, N Yorkshire, NE England
08.08.06	Humber estuary, Lincolnshire, E England
03.09.06	Humber estuary, Lincolnshire, E England
06.04.07	Welney, Ouse Washes, Norfolk, E England
13.08.07	Humber estuary, Lincolnshire, E England
16.09.07	Humber estuary, Lincolnshire, E England
05.11.07	Humber estuary, Lincolnshire, E England
26.08.08	Roach estuary, Essex, E England
06.10.08	Humber estuary, Lincolnshire, E England
15.10.08	Humber estuary, Lincolnshire, E England
21.10.08	Pywipe
12.11.08	Pywipe
11.02.09	Swavesey, Cambridgeshire, E England
26.02.09	Swavesey, Cambridgeshire, E England
27.02.09	Swavesey, Cambridgeshire, E England
15.11.09	Killingholme Pywipe
26.11.09	Pywipe
12.12.09	Pywipe

# Y WG/W

30.08.96	rd Holbeach
8.11.97	Pywipe
31.1.98	Pywipe
Mar-Apr 98	Cley
19.10.99	Killingholme
15.02.00	Cley
25.10.00	Killingholme
30.11.00	Marshside Marsh Ribble
22.02.01	Cley
26.02.01	Ouse Washes
13.04.01	Cley
22.08.01	Holbeach
14.04.02	Snettisham
27.04.02	Snettisham, the Wash estuary, Norfolk, E England
18.12.02	Killingholme
24.01.03	Humber estuary, Lincolnshire, E England
08.02.03	Humber estuary, Lincolnshire, E England
14.01.04	Humber estuary, Lincolnshire, E England
07.03.04	Cley, Norfolk, E England
16.03.04	Cley, Norfolk, E England
23.03.04	Cley, Norfolk, E England

24.03.04	Cley, Norfolk , E England
25.03.04	Cley, Norfolk , E England
28.03.04	Cley, Norfolk , E England
29.03.04	Cley, Norfolk , E England
31.03.04	Cley, Norfolk , E England
12.02.05	Cley, Norfolk , E England
13.02.05	Cley, Norfolk , E England
24.03.05	Cley, Norfolk , E England
26.03.05	Cley, Norfolk , E England
28.03.05	Cley, Norfolk , E England
30.03.05	Cley, Norfolk , E England
31.03.05	Cley, Norfolk , E England
10.04.05	Cley, Norfolk , E England
11.04.05	Cley, Norfolk , E England
26.03.06	Cley, Norfolk , E England
27.03.06	Cley, Norfolk , E England
28.03.06	Cley, Norfolk , E England
29.03.06	Cley, Norfolk , E England
31.03.06	Cley, Norfolk , E England
01.04.06	Cley, Norfolk , E England
02.04.06	Cley, Norfolk , E England
08.04.06	Cley, Norfolk , E England
09.04.06	Cley, Norfolk , E England
10.04.06	Cley, Norfolk , E England
22.02.07	Cley, Norfolk , E England
23.02.07	Cley, Norfolk , E England
24.02.07	Cley, Norfolk , E England
26.02.07	Cley, Norfolk , E England
27.02.07	Cley, Norfolk , E England
28.02.07	Cley, Norfolk , E England
13.03.07	Cley, Norfolk , E England
14.03.07	Cley, Norfolk , E England
15.03.07	Cley, Norfolk , E England
17.03.07	Cley, Norfolk , E England
22.03.07	Cley, Norfolk , E England
26.03.07	Cley, Norfolk , E England
27.03.07	Cley, Norfolk , E England
29.03.07	Cley, Norfolk , E England
30.03.07	Cley, Norfolk , E England
31.03.07	Cley, Norfolk , E England
01.04.07	Cley, Norfolk , E England
02.04.07	Cley, Norfolk , E England
03.04.07	Cley, Norfolk , E England
04.04.07	Cley, Norfolk , E England
05.04.07	Cley, Norfolk , E England
06.04.07	Cley, Norfolk , E England
07.04.07	Cley, Norfolk , E England
08.04.07	Cley, Norfolk , E England
09.04.07	Cley, Norfolk , E England
10.04.07	Cley, Norfolk , E England
11.04.07	Cley, Norfolk , E England
17.04.07	Cley, Norfolk , E England
18.04.07	Cley, Norfolk , E England
19.04.07	Cley, Norfolk , E England
20.04.07	Cley, Norfolk , E England
21.04.07	Cley, Norfolk , E England
22.04.07	Cley, Norfolk , E England
23.04.07	Cley, Norfolk , E England
24.04.07	Cley, Norfolk , E England
23.01.08	Killingholme
26.11.09	Pywipe
12.12.09	Pywipe



## Appendix 2

Arrivals on the Humber in autumn followed my post-breeding moult and onward movements to wintering areas further south

RR YX

18.04.03	Voglaekur, Mýrar, W Iceland
22.04.03	Hofsstaðir, Mýrar, W Iceland
24.04.03	Hofsstaðir, Mýrar, W Iceland
17.11.03	Keyhaven, Lymington, Hampshire, S England
19.11.03	Keyhaven, Lymington, Hampshire, S England
24.11.03	Keyhaven, Lymington, Hampshire, S England
06.12.03	Hurst Beach, Hampshire, S England
27.12.03	Keyhaven, Lymington, Hampshire, S England
14.02.04	Keyhaven, Lymington, Hampshire, S England
14.02.04	Keyhaven, Lymington, Hampshire, S England
28.02.04	Keyhaven, Lymington, Hampshire, S England
12.03.04	Keyhaven, Lymington, Hampshire, S England
22.03.04	Keyhaven, Lymington, Hampshire, S England
02.04.04	Keyhaven, Lymington, Hampshire, S England
11.04.04	Keyhaven, Lymington, Hampshire, S England
25.08.04	Humber estuary, Lincolnshire, E England
19.11.04	Keyhaven, Lymington, Hampshire, S England
22.11.04	Keyhaven, Lymington, Hampshire, S England
26.11.04	Keyhaven, Lymington, Hampshire, S England
01.12.04	Keyhaven, Lymington, Hampshire, S England
01.01.05	Keyhaven, Lymington, Hampshire, S England
21.01.05	Keyhaven, Lymington, Hampshire, S England
20.02.05	Ouse Washes, Cambridgeshire, E England
26.03.05	Keyhaven, Lymington, Hampshire, S England
07.04.05	Keyhaven, Lymington, Hampshire, S England
10.04.05	Keyhaven, Lymington, Hampshire, S England
12.04.05	Keyhaven, Lymington, Hampshire, S England
13.04.05	Keyhaven, Lymington, Hampshire, S England
20.04.05	Keyhaven, Lymington, Hampshire, S England
24.07.05	Humber estuary, Lincolnshire, E England
21.07.05	Humber estuary, Lincolnshire, E England
09.08.05	Humber estuary, Lincolnshire, E England
13.08.05	Humber estuary, Lincolnshire, E England
19.08.05	Humber estuary, Lincolnshire, E England
31.08.05	Humber estuary, Lincolnshire, E England
16.09.05	Humber estuary, Lincolnshire, E England
04.11.05	Keyhaven, Lymington, Hampshire, S England
07.11.05	Keyhaven, North West Solent, Lymington, Hampshire
26.12.05	Milford On Sea inside Hurst Spit
07.01.06	Keyhaven, North West Solent, Lymington, Hampshire
12.01.06	Keyhaven, North West Solent, Lymington, Hampshire
13.01.06	Keyhaven, North West Solent, Lymington, Hampshire
26.01.06	Keyhaven, North West Solent, Lymington, Hampshire
09.02.06	Keyhaven, North West Solent, Lymington, Hampshire
16.03.06	Keyhaven, North West Solent, Lymington, Hampshire
16.03.06	Keyhaven, North West Solent, Lymington, Hampshire
16.03.06	Keyhaven, North West Solent, Lymington, Hampshire
26.03.06	Keyhaven, North West Solent, Lymington, Hampshire
27.03.06	Keyhaven, North West Solent, Lymington, Hampshire
04.11.06	Keyhaven, near Lymington, Hampshire, S England
04.03.07	Titchfield Haven, Fareham, Hampshire, S England
10.08.07	Killingholme, Humber estuary, Lincolnshire, E England
13.08.07	North Killingholme, Humber estuary, Lincolnshire, E England
17.09.07	North Killingholme, Humber estuary, Lincolnshire, E England
05.10.07	North Killingholme, Humber estuary, Lincolnshire, E England
14.10.07	North Killingholme, Humber estuary, Lincolnshire, E England
09.07.09	North Killingholme, Humber estuary, Lincolnshire, E England

## YO LG

26.10.01	Golfe du Morbihan, Vannes, southern Brittany
29.10.01	Le Duer Sarzeau France
30.10.01	Le Duer Sarzeau France
02.11.01	Truscat Sarzeau France
18.11.01	Anse du Ruault Sarzeau France
24.11.01	Le Duer Sarzeau France
24.11.01	Bénance Sarzeau France
16.12.01	Traicts Le Croisic France
28.07.02	Killingholme
07.08.02	Killingholme
07.09.02	Killingholme
21.09.02	Killingholme
25.10.02	Killingholme
15.11.02	Bénance Sarzeau France
21.11.02	Bénance Sarzeau France
02.12.02	Kergeorget Sarzeau France
31.07.03	Killingholme
02.08.03	Killingholme
05.08.03	Killingholme
23/08/2003	Humber estuary NORTH KILLIGHOLME Lincolnshire England 53°37'38"N 00°11'17"E
04/09/2003	Humber estuary NORTH KILLIGHOLME Lincolnshire England 53°37'38"N 00°11'17"E
24/09/2003	Humber estuary NORTH KILLIGHOLME Lincolnshire England 53°37'38"N 00°11'17"E
26/10/2003	Le Ruault SARZEAU 56 France 47°32'53"N 0 2°46'50"W
27/10/2003	Fournevay SARZEAU 56 France 47°32'35"N 0 2°48'04"W
31/10/2003	Fournevay SARZEAU 56 France 47°32'35"N 0 2°48'04"W
27/11/2003	Petit Traict GUERANDE 44 France 47°18'38"N 02°29'07"W
07/01/2004	Gros Banc Grand Traict LE CROISIC 44 France
16/07/2004	Humber estuary NORTH KILLIGHOLME Lincolnshire England 53°37'38"N 00°11'17"E
02/08/2004	Humber estuary NORTH KILLIGHOLME Lincolnshire England 53°37'38"N 00°11'17"E
04/08/2004	Humber estuary NORTH KILLIGHOLME Lincolnshire England 53°37'38"N 00°11'17"E
25/08/2004	Humber estuary NORTH KILLIGHOLME Lincolnshire England 53°37'38"N 00°11'17"E
14/12/2004	Fournevay SARZEAU 56 France 47°32'35"N 0 2°48'04"W
03/01/2005	Le Duer SARZEAU 56 France 47°32'30"N 2°44' 14W
31/03/2005	Pijnacker ROTTERDAM Zuid-Holland The Netherlands 52°00'N 04°27'E
09/04/2005	Cley Nature Reserve CLEY Norfolk England 52°57'N 01°4'E
06/12/2005	Gros Banc LE CROISIC 44 France 47°17'55" N 02°30'08"W
23/01/2006	Pen Bron LA TURBALLE 44 France 47°18'36"N 02°30'00"W
28/07/2006	Netherfield Lagoons NOTTINGHAM Nottinghamshire England 52°58'N 01°03'W
06/01/2007	Bénance SARZEAU 56 France 47°32'33"N 02° 46'18"W
06/01/2007	Kergeorget SARZEAU 56 France 47°32'27"N 02°45'21"W
04.09.07	Killingholme
08.09.07	Killingholme
24.09.07	Killingholme
09.10.07	Killingholme
27.10.07	Kergeorget SARZEAU 56 France 47°32'27"N 02°45'21"W
06.10.08	Killingholme
09.10.09	Killingholme
18.10.09	Killingholme
26.10.09	Killingholme



### Appendix 3

#### Short stay autumn passage

R LN // W

31.07.00	rd Terrington
12.04.01	Ouse Washes
24.04.01	Ouse Washes
13.10.01	Killingholme
14.10.01	Killingholme
07.09.02	Killingholme
21.09.02	Killingholme
19.11.03	Killingholme

Y WN

30.08.96	Holbeach
03.02.97	Chichester Harbour, Sussex
18.04.97	Chichester Harbour, Sussex
17.08.97 to	Chichester Harbour, Sussex
19.04.98	Chichester Harbour, Sussex
06.08.98 to	Chichester Harbour, Sussex
25.04.99	Chichester Harbour, Sussex
30.10.99 to	Chichester Harbour, Sussex
19.04.00	Chichester Harbour, Sussex
07.09.00 to	Chichester Harbour, Sussex
19.02.01	Chichester Harbour, Sussex
07.10.01	Snettisham
20.11.01 to	Chichester Harbour, Sussex
07.04.02	Chichester Harbour, Sussex
24.10.02 to	Chichester Harbour, Sussex
18.04.03	Chichester Harbour, Sussex
25.08.03	Killingholme
08.09.03	Killingholme
27.09.03	Chichester Harbour, Sussex
11.10.03	Chichester Harbour, Sussex

### Appendix 4

#### Autumn arrivals followed by regular wintering on the Humber

YR YW

21.07.97	rd Terrington
29.8.97	Killingholme
3.9.97	Killingholme
15.9.97	Killingholme
27.9.97	Killingholme
8.11.97	Pywipe
31.1.98	Pywipe
16.4.98	Ouse Washes
10.12.98	Pywipe
22.03.99	Nene Washes
15.04.99	Ouse Washes
22.9.99	Killingholme
23.9.99	Killingholme
11.04.00	Nene Washes
12.04.00	Nene Washes
01.08.00	Killingholme
17.08.00	Killingholme
30.08.00	Killingholme

09.09.00	Killingholme
19.09.00	Killingholme
13.10.00	Killingholme
25.10.00	Killingholme
02 & 03 01	Ouse Washes
04 01	Nene Washes
08 & 09 01	Killingholme
08.10.01	Killingholme
14.10.01	Killingholme
28.10.01	Killingholme
05.03.02	Ouse Washes
27.04.02	Killingholme
28.04.02	Killingholme
26.07.02	Killingholme
05.08.02	Killingholme
07.08.02	Killingholme
07.09.02	Killingholme
21.09.02	Killingholme
07.10.02	Killingholme
25.10.02	Killingholme
24.01.2003	Killingholme
07.07.2003	Killingholme
09.07.2003	Killingholme
30.07.2003	Killingholme
02.08.03	Killingholme
25.08.03	Killingholme
08.10.03	Killingholme
09.04.04	Ouse Washes, Cambridgeshire, E England
25.08.04	Humber estuary, Lincolnshire, E England
13.09.04	Humber estuary, Lincolnshire, E England
13.08.05	Humber estuary, Lincolnshire, E England
20.08.05	Humber estuary, Lincolnshire, E England
31.08.05	Humber estuary, Lincolnshire, E England
16.09.05	Humber estuary, Lincolnshire, E England
19.02.06	Welney, Ouse Washes, Norfolk, E England
26.04.06	Lower Derwent Valley, N Yorkshire, NE England
08.08.06	Humber estuary, Lincolnshire, E England
03.09.06	Humber estuary, Lincolnshire, E England
06.04.07	Welney, Ouse Washes, Norfolk, E England
13.08.07	Humber estuary, Lincolnshire, E England
16.09.07	Humber estuary, Lincolnshire, E England
05.11.07	Humber estuary, Lincolnshire, E England
26.08.08	Roach estuary, Essex, E England
06.10.08	Humber estuary, Lincolnshire, E England
15.10.08	Humber estuary, Lincolnshire, E England
21.10.08	Pywipe
12.11.08	Pywipe
11.02.09	Swavesey, Cambridgeshire, E England
26.02.09	Swavesey, Cambridgeshire, E England
27.02.09	Swavesey, Cambridgeshire, E England
15.11.09	Killingholme Pywipe
26.11.09	Pywipe
12.12.09	Pywipe

#### GL GW

07.09.98	rd Holbeach
7.10.98	Imm Dock
10.12.98	Pywipe
04.02.99	Pywipe
03.03.99	Cley
15.04.99	Welney
08.04.00	Cley



20.02.01	Ouse Washes
24.02.01	Breydon water
09.04.01	Ouse Washes
21.04.01	Ouse Washes
04.04.02	Welney
30.04.02	Hofn East Iceland
25.10.02	Killingholme
18.12.02	Killingholme
19.02.06	Welney, Ouse Washes, Norfolk, E England
03.09.06	Humber estuary, Lincolnshire, E England
31.07.07	Humber estuary, Lincolnshire, E England
24.09.07	Humber estuary, Lincolnshire, E England
29.07.08	North Killingholme
06.10.08	North Killingholme
26.11.08	Humber estuary, Lincolnshire, E England
15.04.08	Ouse Washes, Cambridgeshire, E England
19.09.09	Humber estuary, Lincolnshire, E England
19.10.09	North Killingholme
26.10.09	Killingholme
12.12.09	Pywipe

## Appendix 5

Irregular occurrence in some autumn periods

### RL G // W

07.09.98	Holbeach
02.05.99	Thorvaldseyri, Rangárvallasýsla, S Iceland
12.09.99	Humber estuary, Lincolnshire, E England
17.10.99	Humber estuary, Lincolnshire, E England
22.04.00	Keyhaven, Lymington, Hampshire, S England
17.01.03	Réserve Naturelle du Marais d'Yves, Charente-Maritime, W France
26.03.03	Baie de l'Aiguillon, W France
22.04.03	Hofsstaðir, Mýrar, W Iceland
24.04.03	Hofsstaðir, Mýrar, W Iceland
24.04.03	Leirulækur, Mýrar, W Iceland
24.04.03	Hofsstaðir, Mýrar, W Iceland
07.05.03	Blanda river, N Iceland
22.11.03	Réserve Naturelle du Marais d'Yves, Charente-Maritime, W France
22.01.04	Réserve Naturelle du Marais d'Yves, Charente-Maritime, W France
02.12.04	Réserve Naturelle du Marais d'Yves, Charente-Maritime, W France
21.12.04	Réserve Naturelle du Marais d'Yves, Charente-Maritime, W France
27.12.04	Réserve Naturelle du Marais d'Yves, Charente-Maritime, W France
22.04.05	Vogalækur, Mýrar, W Iceland
04.03.06	Beaulieu estuary, Hampshire, S England
18.03.06	Beaulieu estuary, Hampshire, S England
11.10.06	Humber estuary, Lincolnshire, E England

### GO GL

24.04.00	Grafarvogur, Reykjavík, SW Iceland
29.08.00	Rogerstown estuary, Co. Dublin, E Ireland
13.04.02	R. IJssel, Overijssel, C Netherlands
01.05.02	Álftafjörður, E Iceland
03.05.02	Álftafjörður, E Iceland
03.05.02	Álftafjörður, E Iceland
03.05.02	Álftafjörður, E Iceland
11.10.06	Killingholme Haven, Humber estuary, Lincolnshire, E England
02.01.07	Cley, Norfolk, E England
03.01.07	Cley, Norfolk, E England
04.01.07	Cley, Norfolk, E England
04.01.07	Cley, Norfolk, E England



05.01.07	Cley, Norfolk, E England
09.01.07	Cley, Norfolk, E England
10.01.07	Salthouse, Norfolk, E England
11.01.07	Salthouse, Norfolk, E England
11.01.07	Cley, Norfolk, E England
13.01.07	Cley, Norfolk, E England
14.01.07	Cley, Norfolk, E England
14.01.07	Cley, Norfolk, E England
17.01.07	Cley, Norfolk, E England
27.01.07	Cley, Norfolk, E England
29.01.07	Cley, Norfolk, E England
01.02.07	Cley, Norfolk, E England
02.02.07	Cley, Norfolk, E England
21.04.07	Vogalækur, Mýrar, W Iceland
04.08.07	The Hythe Lagoons, Colchester, Essex, E England
08.11.07	Killingholme Haven, Humber estuary, Lincolnshire, E England
06.10.08	Killingholme Haven, Humber estuary, Lincolnshire, E England

#### Appendix 6

Birds with irregular occurrence located in some winters but wintering at other sites in other years

#### RG R/W

15.08.95	Rd Terrington
16.8.96	Killingholme
27.10.96	Killingholme
10.12.98	Pywipe
19.12.98	Pilling Lane Lincs
22.08.01	Holbeach, the Wash estuary, Lincolnshire, E England
29.10.03	Réserve Naturelle du Marais d'Yves, Charente-Maritime, W France
14.11.03	Réserve Naturelle du Marais d'Yves, Charente-Maritime, W France
27.02.04	Swale estuary, Kent, SE England
09.08.06	Snettisham, the Wash estuary, Norfolk, E England
31.03.07	Medway estuary, Kent, SE England
03.04.07	Medway estuary, Kent, SE England
07.04.07	Medway estuary, Kent, SE England
12.04.07	Medway estuary, Kent, SE England
13.04.07	Medway estuary, Kent, SE England
02.07.07	Snettisham, the Wash estuary, Norfolk, E England
21.09.07	Medway estuary, Kent, SE England
23.10.07	Killingholme
03.09.08	Medway estuary, Kent, SE England
06.09.08	Medway estuary, Kent, SE England
27.01.09	Swale estuary, Kent, SE England
29.01.09	Swale estuary, Kent, SE England
28.03.09	Medway estuary, Kent, SE England
18.10.09	Killingholme
26.10.09	Killingholme
15.11.09	Killingholme Pywipe

#### WY W/W

02.08.96	rd Terrington
4.12.96	Pywipe
12.04.98	Cley, Norfolk, E England
28.08.98	Breydon Water, Norfolk, E England
26.4.99	Pollengi Iceland
13.08.00	Breydon Water, Norfolk, E England
09.09.00	Breydon Water, Norfolk, E England
14.10.00	Breydon Water, Norfolk, E England
04.03.01	Breydon Water, Norfolk, E England
12.03.01	Breydon Water, Norfolk, E England
29.04.02	Höfn, A-Skaftafellssýsla, E Iceland



18.07.02	Breydon Water, Norfolk, E England
25.08.02	Breydon Water, Norfolk, E England
06.07.03	Breydon Water, Norfolk, E England
20.07.03	Breydon Water, Norfolk, E England
11.08.03	Breydon Water, Norfolk, E England
05.02.05	Cley, Norfolk, E England
06.02.05	Cley, Norfolk, E England
28.02.05	Southwold, Suffolk, E England
20.03.05	Cley, Norfolk, E England
21.03.05	Cley, Norfolk, E England
22.03.05	Cley, Norfolk, E England
16.10.05	Breydon Water, Norfolk, E England
19.02.06	Berney Marshes, Norfolk, E England
18.07.06	Breydon Water, Norfolk, E England
18.02.07	Fen Drayton, Cambridgeshire, E England
20.02.07	Fen Drayton, Cambridgeshire, E England
26.02.07	Fen Drayton, Cambridgeshire, E England
07.03.07	Swavesey, Cambridgeshire, E England
10.03.07	Paxton Pits, Cambridgeshire, E England
12.03.07	Fen Drayton, Cambridgeshire, E England
31.07.07	Breydon Water, Norfolk, E England
09.11.07	Berney Marshes, Norfolk, E England
09.03.08	Nene Washes, Cambridgeshire, E England
12.04.08	Minsmere, Suffolk, E England
20.04.08	Minsmere, Suffolk, E England
22.04.08	Minsmere, Suffolk, E England
25.02.09	Fen Drayton, Cambridgeshire, E England
06.09.09	Blyth estuary, Suffolk, E England
6.11.2009	Killingholme
15.11.09	Killingholme
21.11.09	Pywipe

#### Appendix 7

Protracted stays on the Humber of juveniles that arrived in the autumn

#### RY WLflag

18.07.06	Langhus, Fljot
03.11.06	Waters' edge Barton
15.01.07	North Killingholme Haven pits
21.01.07	East Halton pits
12.02.07	East Halton pits
05.03.07	East Halton pits
08.03.07	East Halton Skitter
10.05.07	Killingholme
15.05.07	Gibraltar Point NNR, Skegness, Lincolnshire, E England
21.05.07	Gibraltar Point NNR, Skegness, Lincolnshire, E England
23.05.07	Gibraltar Point NNR, Skegness, Lincolnshire, E England
07.06.07	Cley, Norfolk, E England
08.06.07	Cley, Norfolk, E England
09.06.07	Cley, Norfolk, E England
09.06.07	Cley, Norfolk, E England
10.06.07	Cley, Norfolk, E England
11.06.07	Cley, Norfolk, E England
11.06.07	Cley, Norfolk, E England
12.06.07	Cley, Norfolk, E England
13.06.07	Cley, Norfolk, E England
13.06.07	Cley, Norfolk, E England
14.06.07	Cley, Norfolk, E England
14.06.07	Cley, Norfolk, E England
15.06.07	Cley, Norfolk, E England
15.06.07	Cley, Norfolk, E England

16.06.07	Cley, Norfolk, E England
16.06.07	Cley, Norfolk, E England
17.06.07	Cley, Norfolk, E England
17.06.07	Cley, Norfolk, E England
18.06.07	Cley, Norfolk, E England
20.06.07	Cley, Norfolk, E England
20.06.07	Cley, Norfolk, E England
22.06.07	Cley, Norfolk, E England
23.06.07	Cley, Norfolk, E England
02.07.07	Cley, Norfolk, E England
03.07.07	Cley, Norfolk, E England
06.07.07	Salthouse, Norfolk, E England
12.08.07	Gibraltar Point NNR, Skegness, Lincolnshire, E England
15.08.07	Gibraltar Point NNR, Skegness, Lincolnshire, E England
09.04.08	Mare Fen, Cambridgeshire, E England
13.04.08	Mare Fen, Cambridgeshire, E England
06.10.08	Killingholme
15.11.09	Killingholme
21.11.09	Pywipe
26.11.09	Pywipe
12.12.09	Pywipe

#### RY RRflag

11/07/2009	Langhus, Fljot, W of Siglufjordur ringed
12.08.09	Alkborough Flats
14.08.09	Alkborough Flats
18.10.09	Killingholme
3.11.09	Goxhill Skitter Ness
6.11.09	Killingholme
8.12.09	Goxhill Skitter Ness

#### Appendix 8

Arrivals on the Humber of birds that have moulted in the Wash earlier in the autumn

#### GN GW

21.07.97	rd Terrington
8.11.97	Pywipe
31.1.98	Pywipe
25.8.98	Killingholme
15.9.98	Killingholme
10.12.98	Pywipe
04.02.99	Pywipe
14.08.99	Killingholme
15.08.99	Killingholme
23.08.99	Killingholme
05.09.99	Killingholme
12.9.99	Killingholme
22.9.99	Killingholme
23.9.99	Killingholme

#### RN LW

08.08.98	rd Terrington
25.8.98	Killingholme
15.9.98	Killingholme
27.02.00	Ouse Washes
12.04.00	Nene Washes
17.04.00	Nene Washes
30.08.00	Killingholme
09.09.00	Killingholme
05.10.00	Killingholme



25.10.00	Killingholme
03 & 04 01	Ouse Washes
09 01	Killingholme
08.10.01	Killingholme
28.07.02	Killingholme
07.08.02	Killingholme
07.09.02	Killingholme
21.09.02	Killingholme
25.10.02	Killingholme
18.12.02	Killingholme

#### Appendix 9

Birds moving from west coast to east coast staging areas

#### WW RX

03.05.03	Álfatjörður, E Iceland
26.02.04	Pilling Marsh, Lancashire, NW England
28.12.04	Marshside, Ribble estuary, Lancashire, NW England
04.02.05	Mersey estuary, Lancashire, NW England
15.10.05	Dee Estuary, Cheshire, NW England
22.11.05	Dee Estuary, Cheshire, NW England
23.11.05	Dee Estuary, Cheshire, NW England
24.04.06	Newton Marsh, Preston, Lancashire, NW England
??.07.06	Humber estuary, Lincolnshire, E England
03.11.06	Thurstaston, Dee Estuary, Cheshire, NW England
06.04.07	Welney, Ouse Washes, Norfolk, E England
12.08.07	Killingholme, Humber estuary, Lincolnshire, E England
24.09.07	Killingholme, Humber estuary, Lincolnshire, E England
05.10.07	Killingholme, Humber estuary, Lincolnshire, E England

#### GO RR

21.07.01	Road 926 to Husey near Neftjarnarstadir
12.09.01	South Uist, Outer Hebrides, W Scotland
08.11.02	Dee Estuary, Cheshire, NW England
19.01.03	Wexford Slob, Co. Wexford, S Ireland
07.08.03	Marshside, Ribble estuary, Lancashire, NW England
14.10.03	Dee Estuary, Cheshire, NW England
14.12.03	Dee Estuary, Clywd, N Wales
24.07.06	Killingholme, Humber estuary, Lincolnshire, E England
03.08.06	North Killingholme, Humber, Lincolnshire, E England
12.08.07	Killingholme, Humber estuary, Lincolnshire, E England
08.09.07	Killingholme, Humber estuary, Lincolnshire, E England
24.09.07	Killingholme, Humber estuary, Lincolnshire, E England
09.10.07	Killingholme, Humber estuary, Lincolnshire, E England
01.05.08	Álfatjörður, E Iceland
02.05.08	Álfatjörður, E Iceland
21.10.08	Pywipe

#### Appendix 10

Occurrence on the Humber over long time periods

#### GL L // W

07.09.98	rd Holbeach
7.10.98	Imm Dock
12.10.98	Killingholme
10.12.98	Pywipe
30.04.00	Hofn East Iceland
13.10.00	Killingholme
02, 03 & 04 01	Ouse Washes
08.10.01	Killingholme

08.10.03	Killingholme
10.04.05	
31.08.05	Humber estuary, Lincolnshire, E England
10.03.07	Fen Drayton, Cambridgeshire, E England
12.03.07	Fen Drayton, Cambridgeshire, E England
31.03.07	Welney, Ouse Washes, Norfolk, E England
08.07.07	Killingholme Humber estuary, Lincolnshire, E England
09.10.07	Killingholme Humber estuary, Lincolnshire, E England
23.10.07	Killingholme Humber estuary, Lincolnshire, E England
23.01.08	Killingholme Humber estuary, Lincolnshire, E England
12.04.08	Ouse Washes, Cambridgeshire, E England
06.10.08	Killingholme Humber estuary, Lincolnshire, E England
18.10.09	Pywipe
21.11.09	Pywipe
26.11.09	Pywipe
12.12.09	Pywipe

WR RW

08.08.98	rd Terrington
14.08.99	Killingholme
23.08.99	Killingholme
12.9.99	Killingholme
22.9.99	Killingholme
23.9.99	Killingholme
12.08.00	Killingholme
17.08.00	Killingholme
19.08.00	Killingholme
30.08.00	Killingholme
09.09.00	Killingholme
14.10.00	Breydon Water
21.01.01	Breydon Water
29.01.01	Haddiscoe Island
10.02.01	Breydon Water
24.02.01	Breydon Water
21.04.01	Breydon Water
31.08.01	Killingholme
01.09.01	Killingholme
05.03.02	Ouse Washes
31.03.02	Cley
21.04.02	Snettisham
08.08.02	Killingholme
07.09.02	Killingholme
21.09.02	Killingholme
07.10.02	Killingholme
09.06.2003	Starrevaart Netherlands
11.06.2003	Starrevaart Netherlands
30.07.2003	Killingholme
02.08.03	Killingholme
25.08.03	Killingholme
12.09.03	Killingholme
22.09.03	Breydon Water
04.09.03	Humber estuary, Lincolnshire , E England
12.09.03	Humber estuary, Lincolnshire , E England
22.09.03	Breydon Water, Norfolk, E England
04.08.04	Humber estuary, Lincolnshire , E England
25.08.04	Humber estuary, Lincolnshire , E England
20.02.05	Ouse Washes, Cambridgeshire, E England
05.04.05	Stour estuary, Essex, E England
19.08.05	Humber estuary, Lincolnshire , E England
31.08.05	Humber estuary, Lincolnshire , E England
16.09.05	Humber estuary, Lincolnshire , E England
27.02.06	Welney, Ouse Washes, Norfolk, E England



05.03.06	Welney, Ouse Washes, Norfolk, E England
08.08.06	Humber estuary, Lincolnshire, E England
12.08.06	Humber estuary, Lincolnshire, E England
03.09.06	Humber estuary, Lincolnshire, E England
18.02.07	Paxton Pits, Cambridgeshire, E England
19.02.07	Fen Drayton, Cambridgeshire, E England
14.03.07	Fen Drayton, Cambridgeshire, E England
22.03.07	Ouse Washes, Cambridgeshire, E England
31.03.07	Welney, Ouse Washes, Norfolk, E England
31.07.07	Humber estuary, Lincolnshire, E England
12.08.07	Killingholme
13.08.07	Killingholme
08.09.07	Killingholme
24.09.07	Killingholme
05.10.07	Killingholme
09.10.07	Killingholme
14.10.07	Killingholme
08.11.07	Killingholme
30.04.08	Álftafjörður, E Iceland
02.05.08	Álftafjörður, E Iceland
16.07.08	Killingholme
2.07.09	Alkborough
25.07.09	Killingholme
06.08.09	Killingholme
09.10.09	Killingholme
18.10.09	Pywipe
26.10.09	Killingholme
6.11.09	Killingholme
15.11.09	Killingholme
21.11.09	Pywipe
26.11.09	Pywipe
12.12.09	Pywipe

## Appendix 11

### Specific surveys of the Black-tailed Godwit population during November – December 2009.

#### November 15<sup>th</sup>:

Wind SW 2, 8 octas cloud cover, rain showers at 8C clearing to a fine and mainly sunny day with winds varying from force 2 – 4 from the west-south-west and temperatures rising to 12C.

High tides 04:02 and 16:38 at Grimsby at 6.8m and 6.7m respectively.

Sunrise 07:23 and sunset 16:01.

A check on the North Killingholme roost site revealed that all the Black-tailed Godwits were present after dark on the 14<sup>th</sup>.

At 06:50 on the 15<sup>th</sup> all 3400 Black-tails were in the pits but they all left at 07:19 after being disturbed by an unseen predator. All of the birds moved to the inter-tidal mudflats between the Haven and the Calor gas jetty where they fed and roosted / loafed. At 07:58 all of the flock was disturbed and flew around with 250 birds leaving to the south over the docks towards Pywipe. The remaining birds landed again in the same area close to the Calor gas jetty where they were tightly clumped. Further flocks left the area for Pywipe leaving 2100 birds at Killingholme at 08:33 most of which were roosting.

At 08:50 a count at Pywipe revealed 800 birds on the inter-tidal opposite the Oldfleet drain outfall with an additional 52 birds closer to Pywipe and 18 birds close to the dock basin. During the low tide period further birds arrived from Killingholme eventually producing a count of 1200 birds at Pywipe. Most of these remained on the inter-tidal mudflats to 15:10 when they were forced onto the inner part of the basin where they attempted to roost. At 15:50 all of the birds moved off and joined the remainder of the flock in the roost site at North Killingholme where they all remained at dusk.

An adult male Peregrine flushed all of the waders on Pywipe at 13:10.

Disturbance of the small area of saltmarsh and upper inter-tidal by dog walkers particularly important as the tide rises and birds need to feed on the remaining mudflats prior to spring tides.

Sea angling has increased dramatically along this stretch of the Humber and this has also increased the level of disturbance and the possibility of injury through contact with detritus from fishing notably line that has been implicated in the loss of legs from waders; three different Black-tailed Godwits have been seen in the area in autumn 2009 with one leg and one an experienced old colour-ringed adult. RY RX (photos).

#### November 18<sup>th</sup>:

Wind South-west force 7 with frequent showers; 11C

High tide 06:10 a spring at 6.9m

Sunrise 07:29

A total of 368 Black-tailed Godwits arrived in the Pywipe basin as the tide fell between 07:28 and 08:54 from the north bank of the estuary from the direction of Welwick / Sunk Island.

#### November 21<sup>st</sup>:

Almost calm at dawn with mist and fog patches; Pywipe very misty to 08:45 when increasing south-westerly wind cleared the fog but brought light rain showers; Wind then increased to force 4 with 8 octas cloud cover, rain showers increasing through the day; temperatures at 8C

High tides 08:08 at 6.3m

Sunrise 07:34 and sunset 15:53

At 07:20 just 170 Black-tailed Godwits were roosting at North Killingholme pits and these birds left the site at 07:30 flying off to the south-east. These birds did not stop on the usual area of inter-tidal mudflats between the pits and the HIT but moved off towards Pywipe. At high water a total of 3500 Black-tailed Godwits was found roosting in the inner part of Pywipe basin at Doig's Creek. All of the birds were belly deep in water but most were still standing rather than swimming so this height of tide is probably the maximum that they could use for this roost site. By 09:30 the birds had been disturbed by a Sparrowhawk and flew around attempting to settle back in the original area but then using the brick and stone area off the Volvo car park area and the green shore by the sewage works. Most of the flock then left the area and moved off north-west returning as the tide fell an hour later. From the roosting areas around the sewage works shore the birds started to move out onto the inter-tidal as it was revealed by the falling tide and fed progressively further to the north-west as the tide fell. Being joined by the other part of the flock that arrived from up the estuary. An additional 41 birds arrived from the North bank of the estuary as the tide fell meaning that there were at least 3541 birds in the area. On the same date there were 104 birds at Alkborough Flats so the minimum Humber population on this date was 3645 birds.



**December 6<sup>th</sup>;**

Torrential rain with force 5 westerly wind to 09:00 then clearing to a brighter afternoon. Total of 1500 Black-tails in the Doig's Creek basin moved off north with 500 returning to the creek while 550 moved onto the former Helius field by Stallingborough power station where they roosted and bathed / fed in flood water pools at the western end of the winter cereal field.

**December 12<sup>th</sup>;**

Sunrise 08:05 sunset 15:38

High tide 14:33 6.1m

NNW 5 7C 6 octas variable cloud cover but long spells of sunshine during day

At 08:30 284 Black-tailed Godwits were feeding in first bay north of the Oldfleet Drain with 1540 in next bay by Oldfleet drain outfall and 150 opposite the Bluestar site.

Birds fed continually to 12:30 then started to move to roost sites; 560 birds roosted with Golden Plovers and Lapwings on winter cereal field by Stallingborough power station – the remaining 1400 roosted along edge of spartina marsh at Doig's Creek along with 2500 Dunlin

No disturbance to roost during survey.



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