



**THE STATE OF THE NATURAL ENVIRONMENT  
OF THE TEES ESTUARY  
A REVIEW OF THE BIRD CHAPTER**

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**2011**

## 1. INTRODUCTION

The first SONET review (Parham 1996) documented the changes in waterbird populations in the Tees Estuary from the early 1970s to 1994 and SONET II (Short 2009) subsequent changes to 2005. This current report continues the assessment of waterbird populations through to end of 2009.

The seven statutory protected sites (SPA / SSSI's) under the Wildlife and Countryside Act 1981 (as amended) in the lower Tees area have remained unchanged during this review period.

As in previous SONET reviews 5-year rolling averages of all of the significant waterbird species occurring in the Tees Estuary have been calculated (for methodology see Appendix 1).

## 2. WATERBIRD POPULATION REVIEW

In the period 2005 - 2009 in the Tees Estuary and surrounding marshes the population of eleven species have increased, eight have decreased, seven have remained relatively constant and one has fluctuated considerably from year to year. Five of the species that have shown moderate to significant reductions in maximum counts are those that are particularly associated with the inter-tidal areas of the estuary.

During the review period there has been no reclamation of inter-tidal habitats, however, a number of species that are relatively dependent on such habitats have continued to decline at Teesmouth. The birds most affected include Shelduck<sup>1</sup>, Knot, Bar-tailed Godwit and Dunlin.

For two wader species, Dunlin and Bar-tailed Godwit, the local decline mirrors the national trend. It seems that these species are shifting away from wintering in the UK as a whole, preferring to spend the winter in continental Europe (Austin *et al.* 2008).

There has been continuing decline of Shelduck and Knot at Teesmouth over the study period. The decline in wintering Shelduck populations has also been noted nationally, although Knot populations in the UK have remained stable (Holt *et al.* 2009). Knot is one of the most faithful waders in terms of use of roost sites (Peters & Otis 2007), although displacement of local populations have been recorded, for example in 2008 significant numbers of Knot from The Wash relocated to sites along the north Norfolk coast (Holt *et al.* 2010). The reasons for fall in the numbers of wintering Knot and Shelduck at Teesmouth are still not fully understood, but as discussed in SONET II the changing nature of the substrate on Seal Sands and the spread of *Enteromorpha* are probably important factors. The main food sources of Shelduck and waders on Seal Sands are molluscs and annelid

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<sup>1</sup> Scientific names are given in the species accounts.

worms. There is evidence that some of the larger prey species have decreased in parts of Seal Sands (Ward *et al.* 2003), but invertebrate densities, especially those of smaller species, can vary considerably from season to season.

Those birds which have increased in number have done so for a number of different reasons. Avocets are believed to have increased because of milder winters and specifically targeted conservation action, while the Black-tailed Godwit, which migrate from Iceland, are thought to be increasing because of subtle changes in farming there, possibly linked to climate change.

During the review new brackish and freshwater wetland has been created, especially in the areas around Saltholme. In addition there has been a significant increase in the number of waterbirds feeding in Dabholme Gut, no doubt reflecting the amelioration of water quality following the commissioning of the Northumbrian Water Bran Sand Treatment Works and reduced discharges from industrial companies on the Wilton International site.

## **2.1 Waterfowl**

### **Shelduck *Tadorna tadorna* [see Figure 1]**

The five-year rolling averages of maximum winter counts of Shelduck have continued to fall over the review period and the estuary continues to fail to meet the UK significance threshold for the species (i.e. 782 individual birds). Possible reasons for this decline, e.g. increases in *Enteromorpha* cover of Seal Sands, are discussed in more detail in SONET II (2009).

In recent years however, the amelioration of Dabholme Gut has resulted in more Shelducks using this site (see Section 3) but these birds have not have been included in the maximum counts used in this review<sup>2</sup>. Consequently the maximum number of Shelduck present in the Tees Estuary could at times be up to 17% more than shown.

Studies in the late 1970s showed that there was a passage of Shelduck through the Tees Estuary that exceeded twice the total number of birds recorded in any individual count (Evans 1984). If this is still the case, and there is no evidence to think otherwise, then Teesmouth is more important to Shelduck than individual counts on any given date might indicate.

Teesmouth is not a major nesting area for Shelduck. The latest estimate suggests about 64 nesting pairs in Cleveland with 25 of these in the lower river area (McAndrew 2009).

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<sup>2</sup> The maximum counts used in this report refer to those published in the relevant County Cleveland Bird reports, however the waterbirds frequenting Dabholme Gut are not included in these maxima since there is no public access to the site..

### **Wigeon *Anas penelope* [see Figure 2]**

The five-year rolling averages of maximum winter counts of Wigeon have increased significantly over the review period and are now approaching the peak counts of the mid 1990s with the 2009 maximum count being the highest since 1994. In winter Wigeon are greatly influenced by weather conditions prevailing in continental Europe and such factors could account for the recent increase in birds at Teesmouth. In addition the creation and management of wet grassland at Saltholme has benefitted these birds as Wigeon frequently utilise this habitat.

### **Gadwall *Anas strepera* [see Figure 3]**

The five-year rolling averages of maximum winter counts of Gadwall have increased significantly over the review period. The maximum counts over this period have been constantly above the UK Significance Threshold (i.e. 170 birds).

In recent years the amelioration of Dabholme Gut has resulted in increasing use of this site by Gadwall (see Section 3). These birds will not have been included in the maximum counts used in this review. Consequently the maximum number of Gadwall present in the Tees Estuary could at times considerably more than the published maximum count.

### **Teal *Anas crecca* [see Figure 4]**

The five-year rolling averages of maximum winter counts of Teal have remained relatively constant over the review period. Again, however, amelioration of Dabholme Gut has resulted in increasing use of this site by numbers of Teal (see Section 3) that will not have been included in the maximum counts used in this review. Consequently the maximum number of Teal present in the Tees Estuary could at times be up > 36% more than shown.



Gadwall



Teal

Figure 1

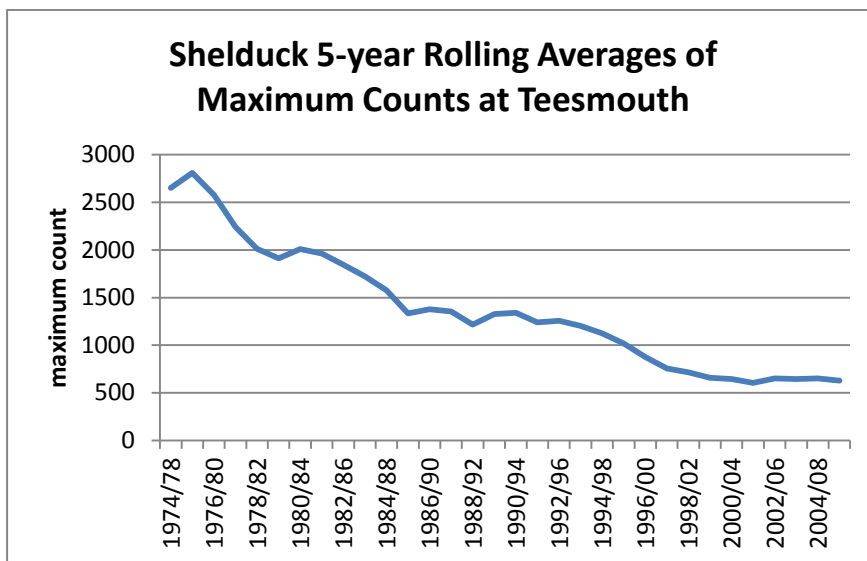


Figure 2

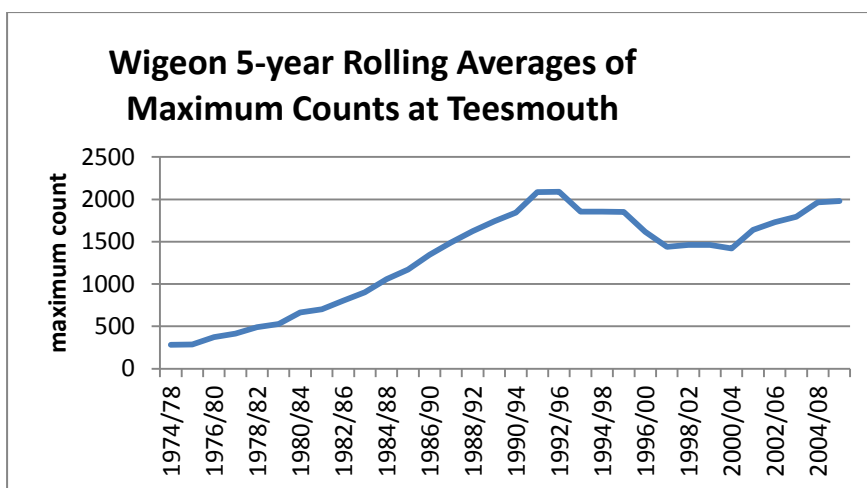
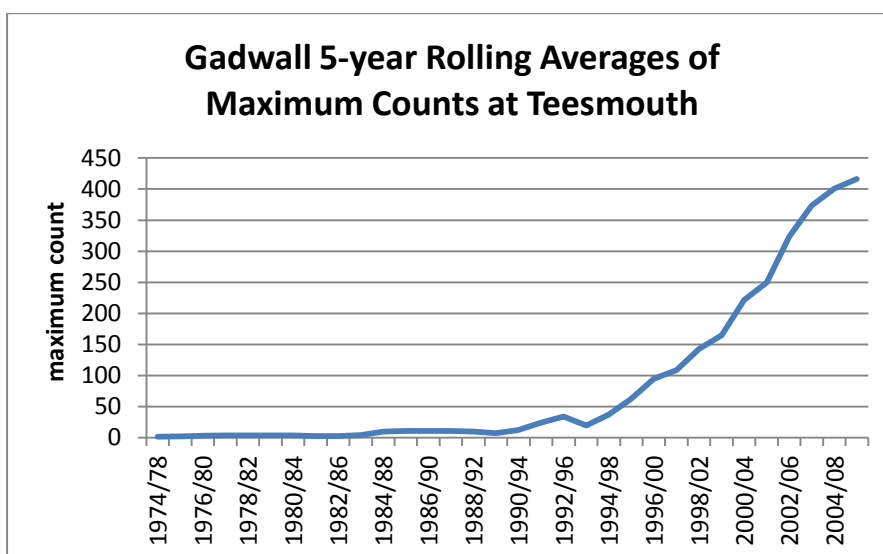


Figure 3



**Mallard *Anas platyrhynchos* [see Figure 5]**

The five-year rolling averages of maximum winter counts of Mallard have remained relatively constant over the review period, with counts well below the peaks of the late 1980s - 1990s. The Mallard population of Teesmouth has never reached the UK Significance Threshold.

**Shoveler *Anas clypeata* [see Figure 6]**

The five-year rolling averages of maximum winter counts of Shoveler have considerably increased over the review period, with maximum counts being constantly above the UK Significance Threshold (i.e. 148 birds).

Shoveler are not dependent on inter-tidal areas preferring fresh and brackish water pools such as the Reclamation Pond, Dorman Pool and the Saltholme wetlands.

**Pochard (*Aythya farina*) [see Figure 7]**

The five-year rolling averages of maximum winter counts of Pochard have remained relatively constant over the review period, with counts of about 100-120 birds.

Pochard is a scarce breeding species in the British Isles, however up to 32 pairs nest in the Tees Marshes (Dodsworth 2008). This compares favourably with a total of 482-500 breeding pairs in Great Britain and Ireland (Holling 2007, Parkin & Knox 2010).

**Tufted Duck *Aythya fuligula* [see Figure 8]**

Continuing the trend since the mid 1990s the five-year rolling averages of maximum winter counts of Tufted Duck have considerably increased over the review period. This species is not dependent on inter-tidal habitats, occurring mainly on freshwater and brackish pools.

**Goldeneye *Bucephala clangula* [see Figure 9]**

The five-year rolling averages of maximum winter counts of Goldeneye have remained relatively constant over the review period.

Figure 4

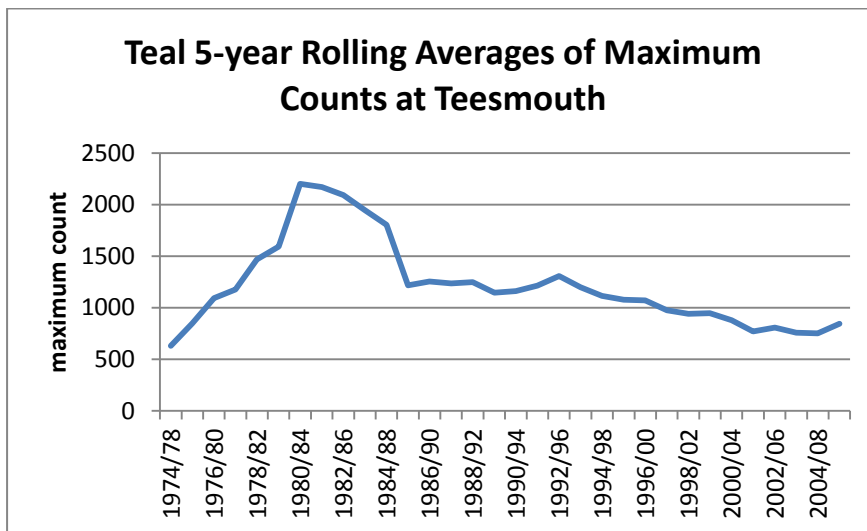


Figure 5

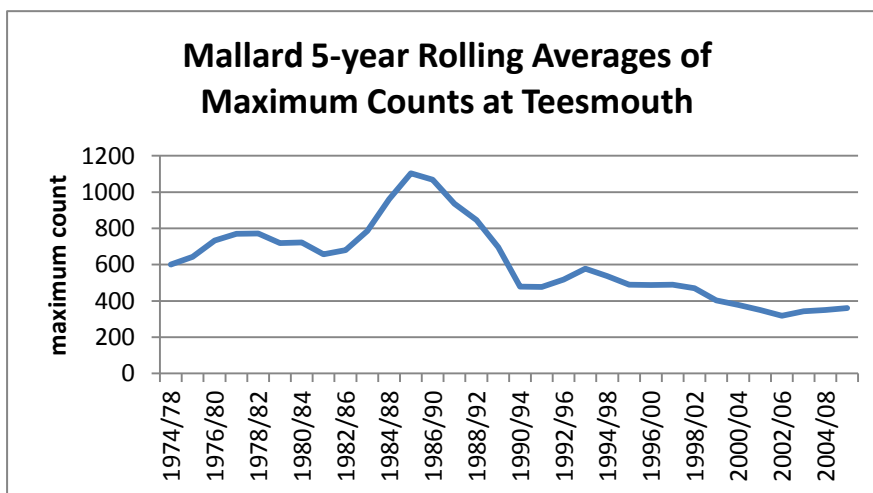


Figure 6

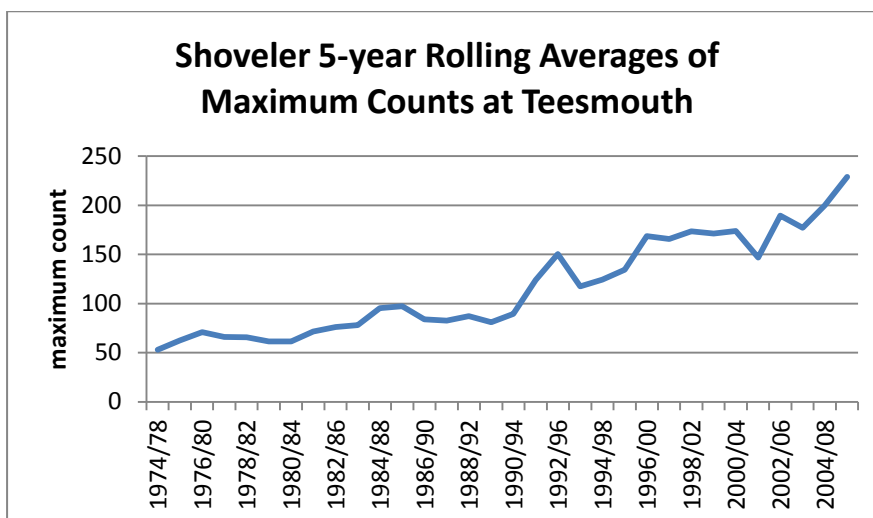


Figure 7

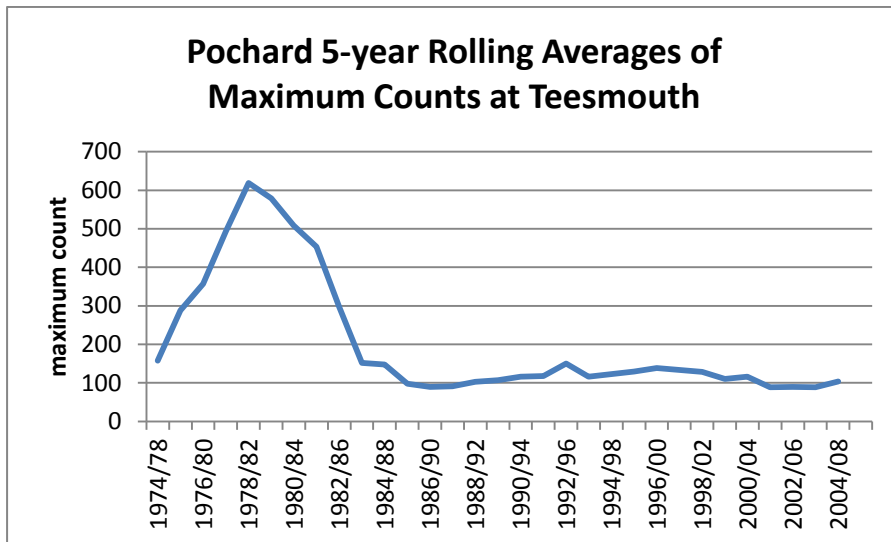


Figure 8

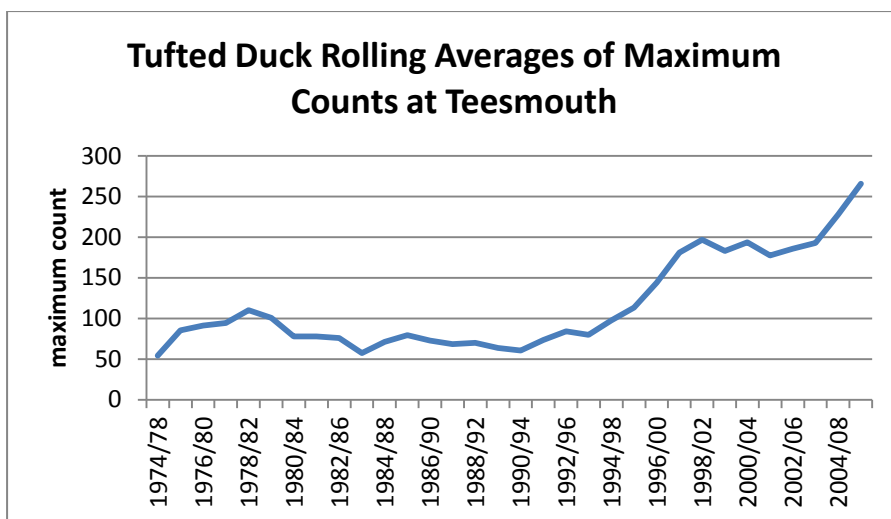
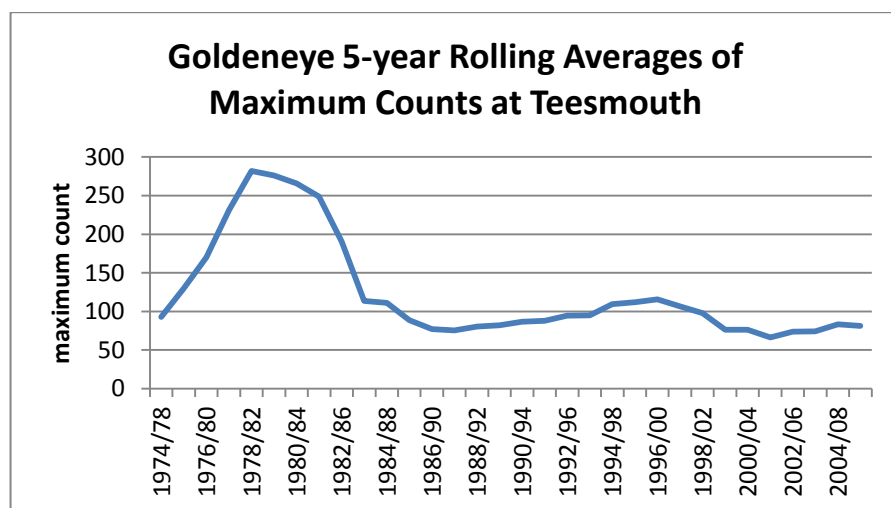


Figure 9



## 2.2 WADING BIRDS

### **Oystercatcher *Haematopus ostralegus* [see Figure 10]**

The five-year rolling averages of maximum winter counts of Oystercatcher have maintained a constant high level over the review period with a 50% increase since the end of 1990s.

Oystercatcher remains a scarce breeding species with only 3-4 pairs nesting at Teesmouth and a total of ca. 14 in the whole of Cleveland (Parker 2008).

### **Ringed Plover *Charadrius hiaticula* [see Figure 11]**

Peak counts of Ringed Plover frequently show considerable fluctuation from season to season with the five-year rolling averages of maximum counts over the review period decreasing to the level of the mid 1990s. Numbers of migrant birds however, have still consistently exceeded the threshold for national importance (i.e. 300 birds).

Breeding birds in the Teesmouth area remain low with an estimated 15 pairs contributing to the Cleveland total of about 33 pairs (Smith 2009). Nesting birds are now absent or very rare on industrial sites comparing unfavourably with the situation in mid 1980s when >30 nesting territories were present on a single industrial site (Smith 2009).

### **Golden Plover *Pluvialis apricaria* [see Figure 12]**

With some temporary fluctuations the five-year rolling averages of maximum winter counts of Golden Plover have significantly increased over the review period. Golden Plover are not dependent on inter-tidal habits with small numbers occurring on the mudflats only during very severe weather. The birds are particularly attracted to wet grassland and the increased maintenance of this habitat, especially at Saltholme, has benefitted these birds.

### **Grey Plover *Pluvialis squatarola* [see Figure 13]**

After a decline in numbers at the end of the 1990s the five-year rolling averages of maximum winter counts have shown a recovery over the review period. This species is almost totally dependent on inter-tidal habitats with very few birds recorded away from the mudflats.

### **Lapwing *Vanellus vanellus* [see Figure 14]**

The five-year rolling averages of maximum winter counts of Lapwing have shown a slight up-turn in recent years but numbers are significantly lower than the all time peak counts of the early to mid 1990s. Only during severe weather do Lapwings regularly frequent the inter-tidal areas of the estuary preferring wet grassland or agricultural fields. The creation and management of additional grassland habitat at Saltholme has benefitted these birds, however winter numbers are often dependent on weather conditions in continental Europe.

Lapwing is a widespread nesting species in Cleveland in habitats ranging from moorland edges to coastal marshes and industrial sites. The latest county estimate is about 590 breeding pairs of which up to 90 pairs nest around the lower estuary (Askew 2009).

Figure 10

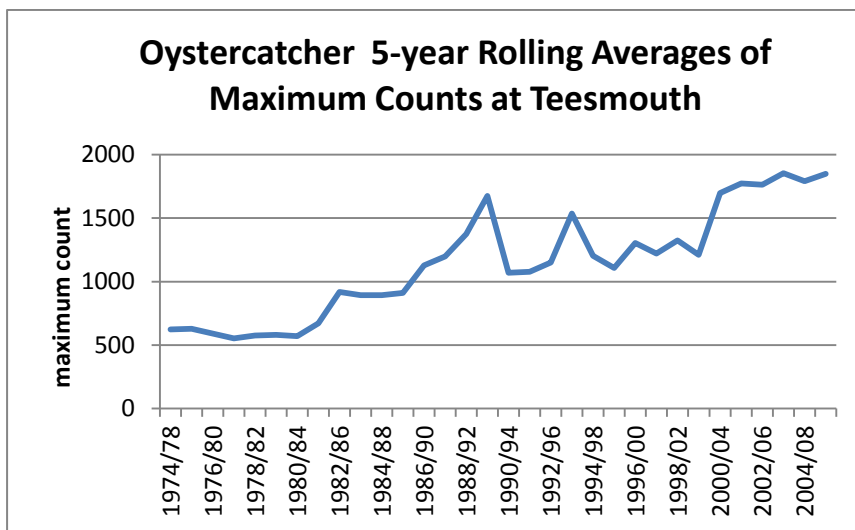


Figure 11

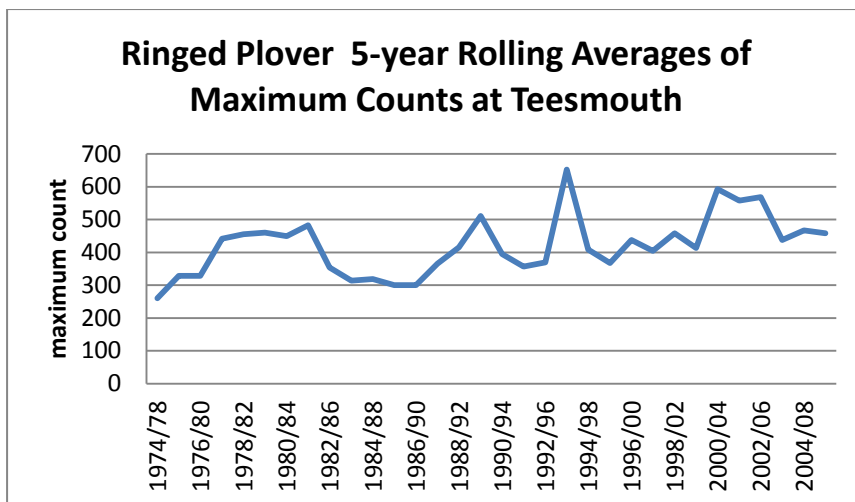


Figure 12

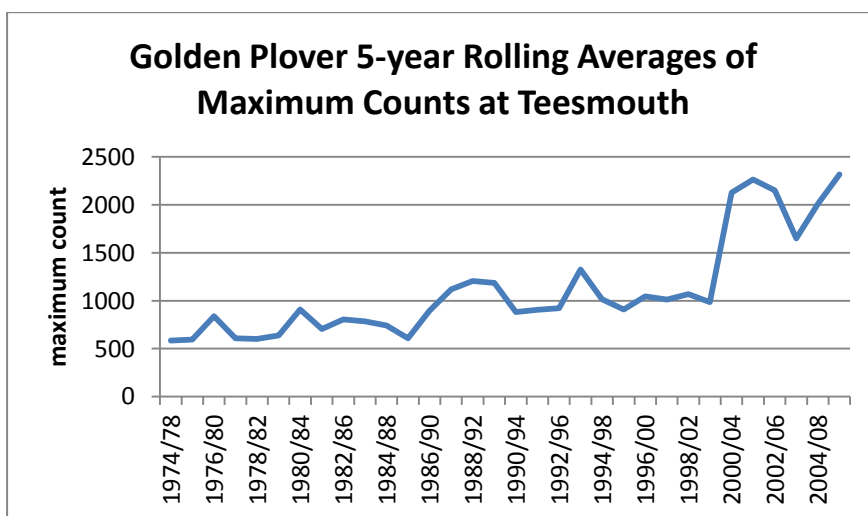


Figure 13

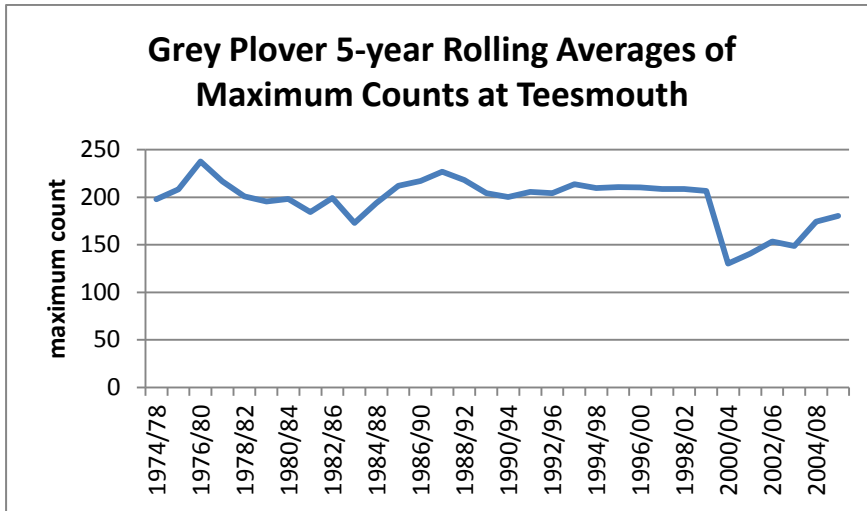


Figure 14

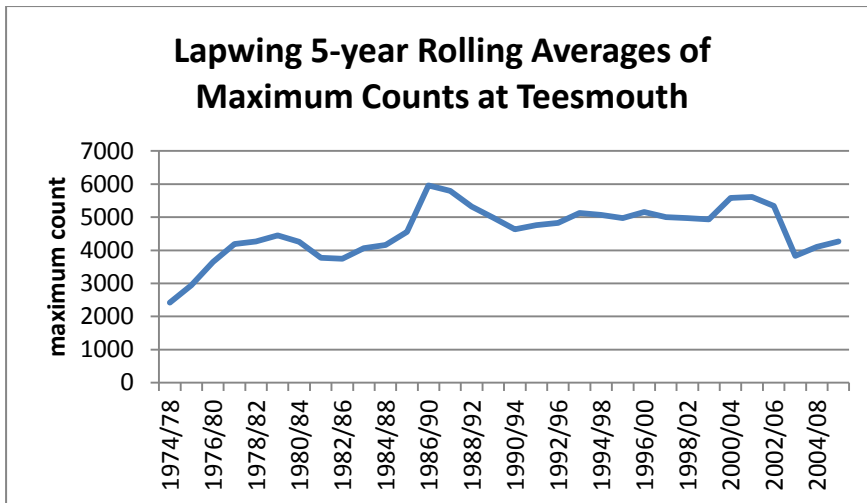
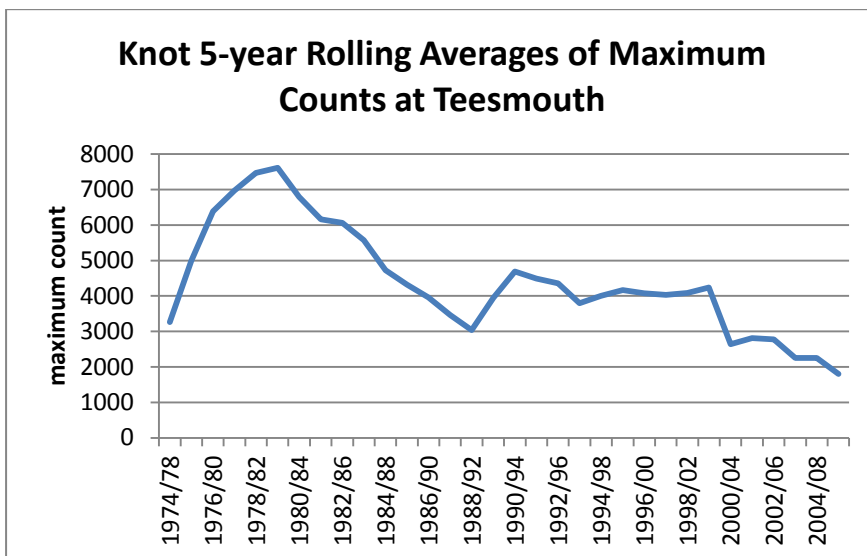


Figure 15



### **Knot *Calidris canutus* [see Figure 15]**

After maintaining a constant  $\pm$  4000 birds from mid 1990s to the mid 2000s the five-year rolling averages of maximum winter counts of Knot have once again decreased during the review period and in recent years have failed to reach the national importance threshold (i.e. 2,800 birds).

Knot are highly dependent on inter-tidal mudflats and rocky shores for feeding and roosting. The decline at Teesmouth suggests a degradation of such habitats. The possible reasons for the birds decline are discussed more fully in SONET II (Short *et al.* 2009).

### **Sanderling *Calidris alba* [see Figure 16]**

With some slight fluctuations the 5-year rolling averages of maximum winter counts of Sanderling have continued to decline. Whilst Sanderling do occasionally frequent inter-tidal mudflats sandy beaches are the favoured feeding areas. The reasons for declining numbers of Sanderling are not fully understood, but increased recreational use of beach areas resulting in the disturbance of feeding birds could be a major factor.

### **Purple Sandpiper *Calidris maritima* [see Figure 17]**

This bird feeds exclusively on rocky shores. Numbers of wintering birds in the UK have fluctuated over the years, peaking in the mid 1980s and stabilising in the 2000s although recent population increases have been noted in the northwest (Holt *et al.* 2010). During the review period there has been a decline in the five-year rolling averages of maximum winter counts at Teesmouth with individual counts rarely exceeding 100 birds. The reasons for the decline are not fully understood. Teesmouth birds could have re-located to other sites in the UK or remained in northern Europe. Purple Sandpipers winter further north than other waders (Summers *et al.* 1998) and it is possible that climate change result in larger wintering populations in Scandinavia. At Teesmouth declining Purple Sandpiper numbers could also be due increased human disturbance and possibly a reduction in invertebrate food following reduced sewage discharges (Short *et al.* 2009).

### **Dunlin *Calidris alpina* [see Figure 18]**

Dunlin numbers in the Tees Estuary have continued to decline with peak counts rarely exceeding 1000 birds. The maximum counts are during the spring and autumn migration periods with winter populations remaining low. Possible reasons for the decline in wintering birds are discussed in SONET II.

### **Black-tailed Godwit *Limosa limosa* [see Figure 20]**

Black-tailed Godwit was once a relatively scarce passage migrant at Teesmouth but there was steep increase in the local population during the late 1990s and these high numbers have been maintained. The new and better managed fresh and brackish water pools, especially at Saltholme, have benefitted this species. Black-tailed Godwits however have become increasingly more frequent in some of the inter-tidal areas. At times Black-tailed Godwits now outnumber Bar-tailed Godwits.

In 1999 the number of birds at Teesmouth exceeded for the first time the criteria for National Importance (i.e. 70 birds) and numbers are now nearly twice the national threshold.

Figure 16

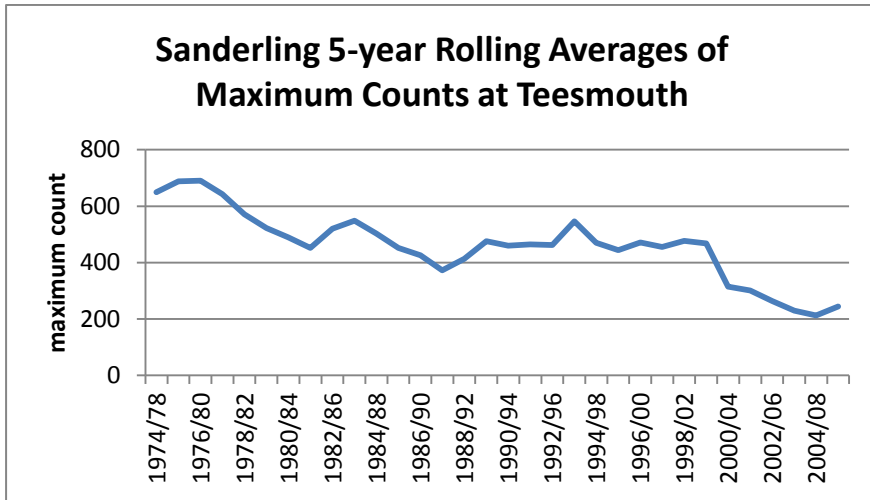


Figure 17

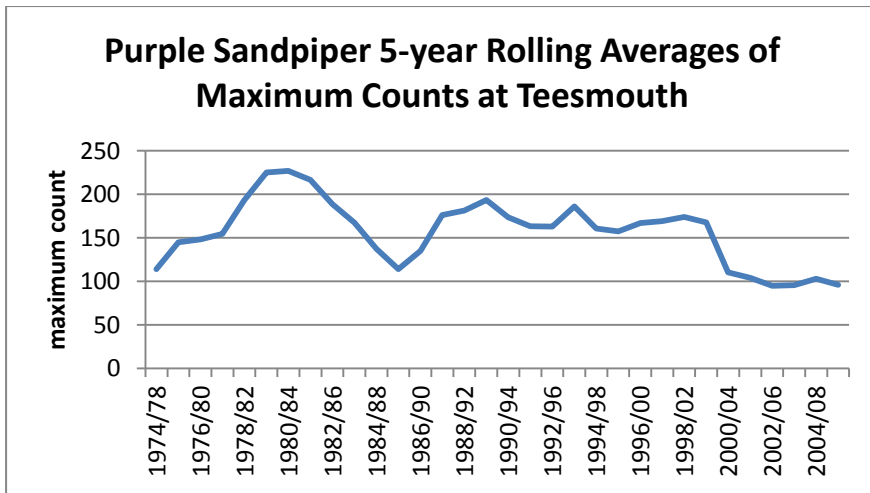
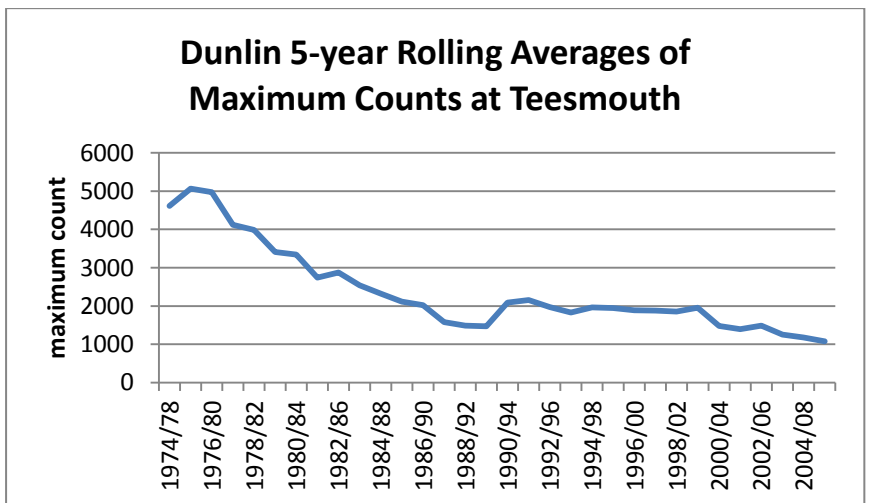


Figure 18



### **Bar-tailed Godwit *Limosa lapponica* [see Figure 21]**

The steep decline in Bar-tailed Godwit numbers recorded in the late 1990s has continued through this review period. Since SONET II the five-year rolling averages of maximum winter counts have declined by about 66%. A decline in large invertebrate prey in the inter-tidal areas and possibly increased disturbance of feeding birds on sandy beaches could be reasons for the decline in this species. In recent year there has been an increase in the number of Black-tailed Godwits feeding on intertidal areas of the estuary. Studies in the Humber Estuary have shown that both of these species feed on the same prey items (Stillman *et al.* 2005) and inter-specific aggression between these two species on their feeding grounds has been recorded although the relative dominance of either species is unclear (Ward & Bullock 1988).

### **Curlew *Numenius arquata* [see Figure 22]**

Five-year rolling averages of maximum counts continue to show peak numbers of > 1000 birds although this is below the threshold for national importance (i.e. 1500 birds).

### **Redshank *Tringa totanus* [see Figure 23]**

Whilst increasing to an all time maximum during the period of SONET II five-year rolling averages of maximum counts of Redshank have fallen during the present review period, although the maximum counts are still above the threshold of national importance (i.e. 1200 birds).

The annual total of 27 breeding pairs recorded between 1999-2006 (Hague 2009) has probably now been exceeded with 23 pairs nesting at Saltholme alone in 2010 (D. Braithwaite pers. com.) The improved management of wet grassland habitats on the Saltholme reserve has obviously benefitted Redshank and the North Tees Marshes are of regional importance for this species.

### **Turnstone *Arenaria interpres* [see Figure 24]**

The moderate increase Turnstone numbers reported in SONET II have been maintained during the present review period, although maximum counts are still considerably lower than the peaks recorded in the early and late 1990s.

### **Ruff *Philomachus pugnax* [see Figure 25]**

Ruff were not included in SONET II but are considered in this review since based on five-year rolling averages of maximum counts have shown a steep increase. The increased management and pools in the Saltholme area have benefitted this species.

### **Snipe *Gallinago gallinago***

Snipe were not included in SONET II, but recent winter surveys on at least two sites zoned for possible future industrial development have shown that such areas can hold numbers of wintering Snipe. Five-year rolling averages of maximum counts have not been calculated for this species since the secretive nature of the birds make such counts unreliable.

**Table 1**

**Snipe Records for Potential Development Sites in the North Tees Area**

Site	Period	Number of Birds	Comments
A	Autumn / Winter 2009 -2010	Up to 15	Almost certainly an under estimate
B	February – March 2010	Up to 18	Almost certainly an under estimate

Based on published data for 2008 and 2009 (Joynt *et al.* 2008, 2010) each of these sites would account for 4.5% to up to 30% of the Snipe recorded for the North Tees area.

On both sites [A] and [B] Snipe were flushed from temporary water-logged grassland.

**Woodcock *Scolopax rusticola***

Woodcock is another species that was not included in SONET II but, like Snipe, recent winter surveys have shown small but significant number on potential development sites. Woodcock are also very secretive so as with Snipe no reliable maximum counts were available on which to base rolling five-year averages.

**Table 2**

Site	Period	Number of Birds	Comments
A	Autumn / Winter 2009 -2010	Present on 4 out of 10 visits	Almost certainly an under estimate
B	February – March 2010	Up to 9	Almost certainly an under estimate

Based on the small amount of published data available such concentrations are a significant portion of the Woodcock population wintering in the North Tees area.

Woodcock were flushed from temporary water-logged ground but preferred habitats with some scrub cover of willow and birch.



Snipe

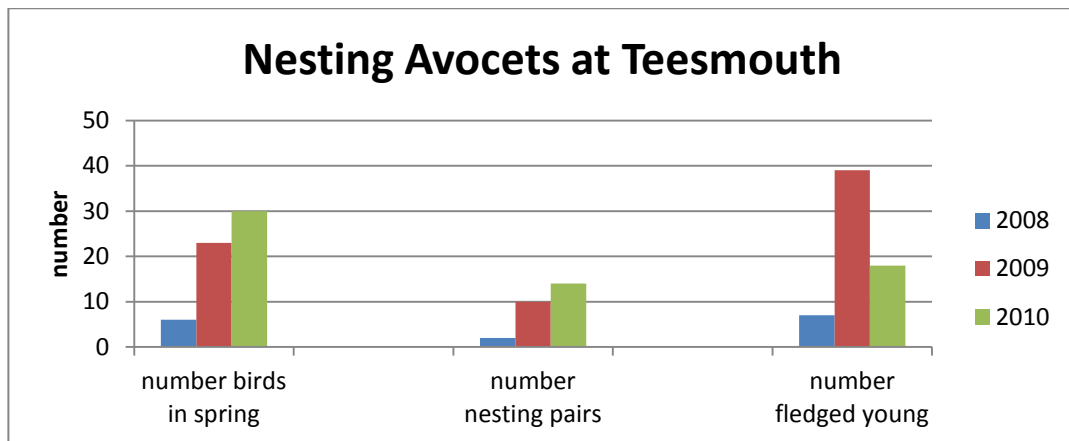


Woodcock

**Avocet *Recurvirostra avosetta***

Up to the period included in SONET II Avocet was scarce / rare visitor to Teesmouth and was not included in the review. Since 2008 however, in line with the general expansion of its range in England, Avocet has established itself as a successful nesting species in small numbers in the area, and to date all nests have been on industrially owned land.

Figure 20



Avocet is a Schedule 1 protected species under the Wildlife and Countryside Act 1981 (as amended) and the birds, their nests and eggs are protected by special penalties against destruction or disturbance.



Avocet

Figure 21

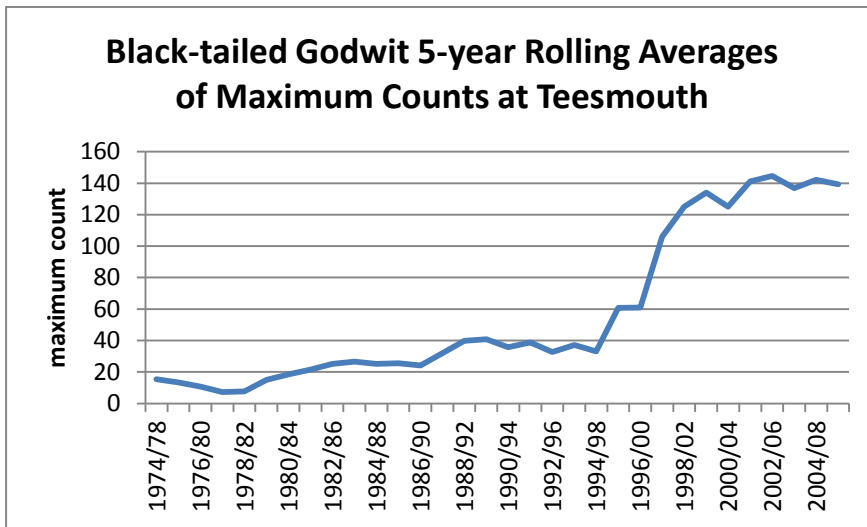


Figure 22

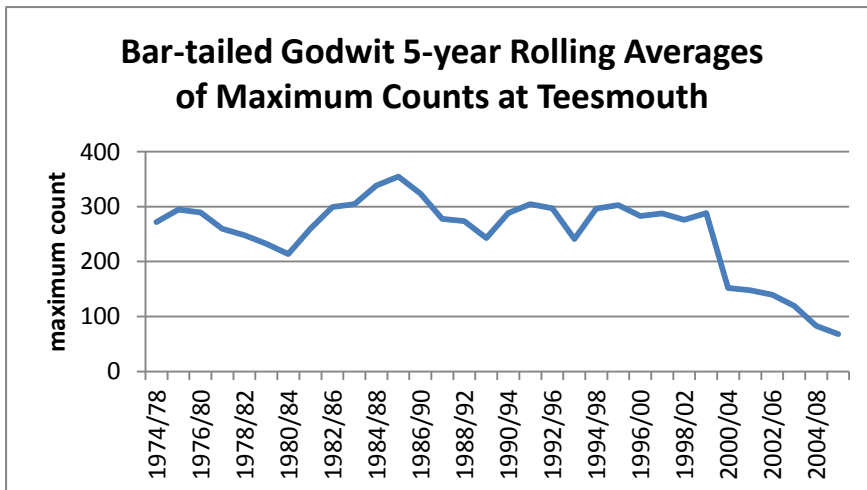


Figure 23

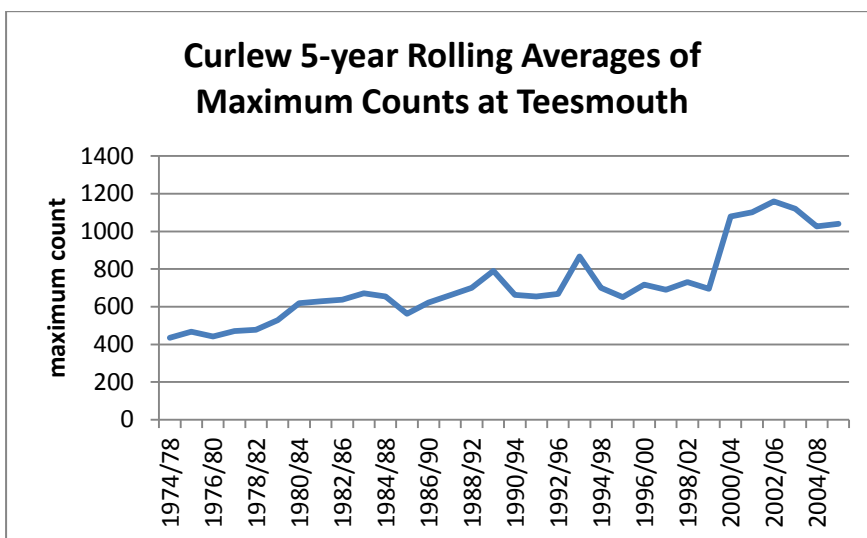


Figure 24

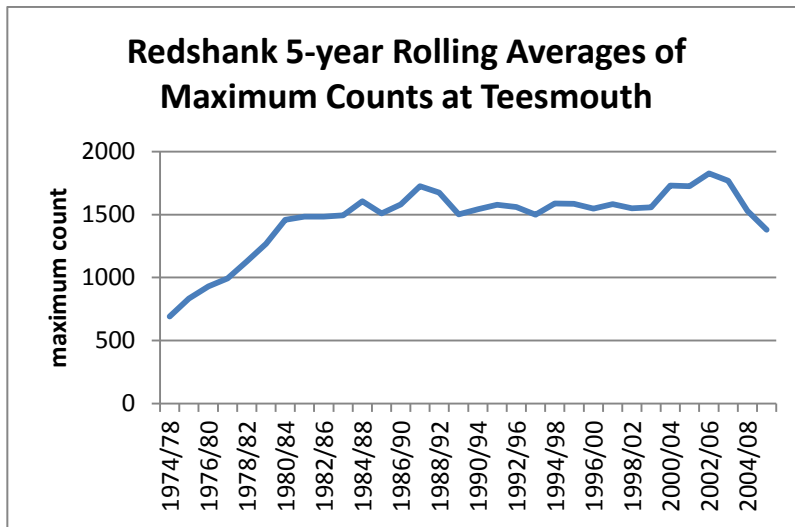


Figure 25

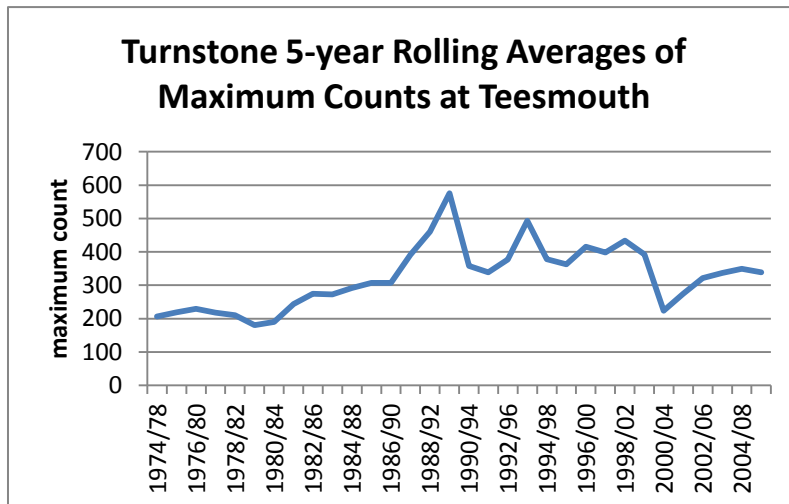
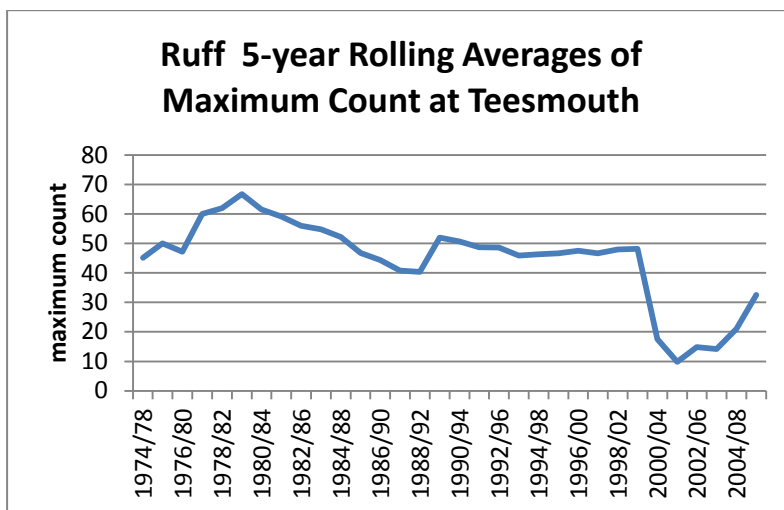


Figure 26



## 2.3 OTHER WATERBIRDS

### **Cormorant *Phalacrocorax carbo* [See Figure 28]**

Cormorant numbers at Teesmouth increased steadily from the 1980s and peaked at > 500 birds in late 1990s. During the present study period however, Cormorant numbers at the estuary have fallen, although the five-year rolling averages of maximum counts are still >350 birds.

### **Little Grebe *Tachybaptus ruficollis* [see Figure 29]**

The small decrease noted towards the end of the SONET II study period has now reversed with a moderate improvement in numbers based on five-year rolling averages of maximum counts. With counts of 70-80 birds the Teesmouth population at times exceeds the criteria for national importance accounting for approximately 1% of the British winter population (Parkin & Knox 210).

### **Coot *Fulica atra* [see Figure30]**

The very steep rise in the Coot population recorded from the end of the 1990s has stabilised at an all time maximum of >1400 birds during the present study period. The Reclamation Pond is a major site for this species (See also Section 4).

### **LittleTern *Sterna albifrons* [see Figure 27]**

Over the years there has been considerable movement in location of the main nesting sites of Little Terns at Teesmouth; for a number of years however, most birds have nested on Crimdon Dene Beach at the extreme northern boundary of the SONET study area. Many factors affect the breeding success of this species the most significant being :

- Weather and tide heights
- Natural predation
- Human disturbance

These factors are reflected in the numbers of young produced in any one season (see Figure 27).

The Teesmouth colony is of national importance for the species and in “good years” has been one of the most productive sites in eastern UK.



Little Tern

Figure 27

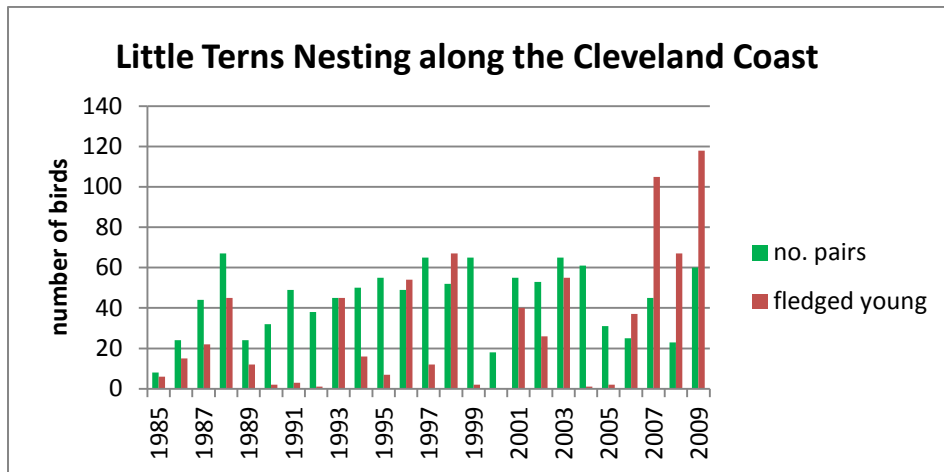


Figure 28

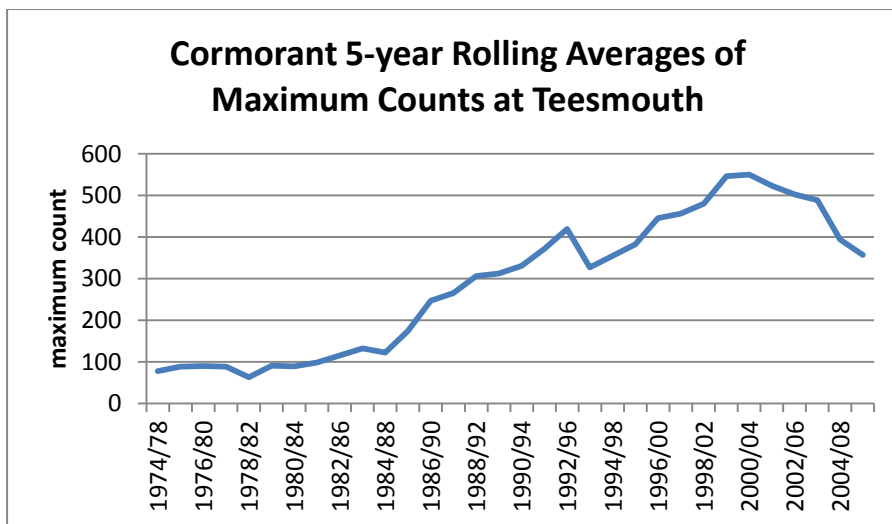


Figure 29

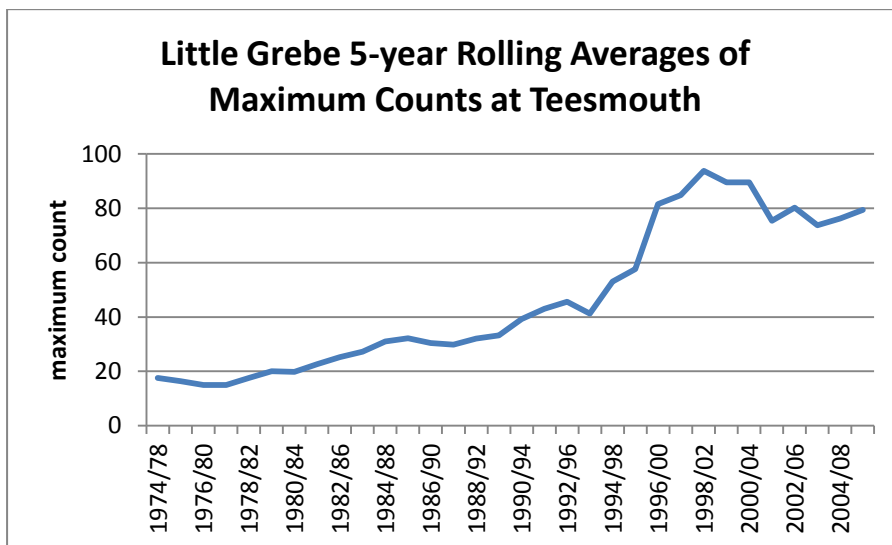
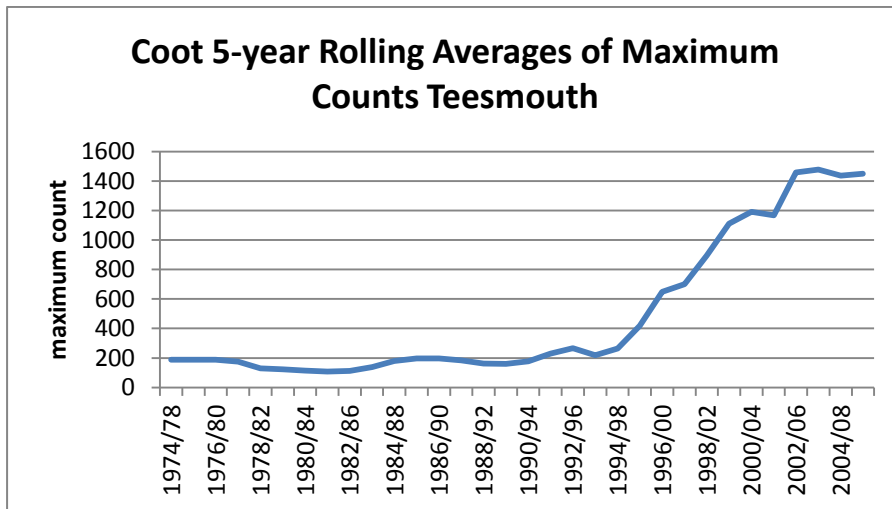


Figure 30



**Common Tern *Sterna hirundo* [ see Figures 31-34]**

The Teesmouth nesting colonies have retained their status for national significance, representing between 3 - 4 % of the total British breeding population (Mavor *et al.* 2006).

The majority of nesting birds are now located on protected sites on the Saltholme RSPB Reserve with up to 20 additional pairs occupying breeding rafts at Cowpen Marsh SPA / SSSI. The productivity of the Teesmouth birds remains high although recent comparable national data were not readily available. Birds from Saltholme generally fish either in the Tees Estuary or within 12 km from the river mouth (B. Braithwaite pers. com.)



**Common Terns**

Figure 31

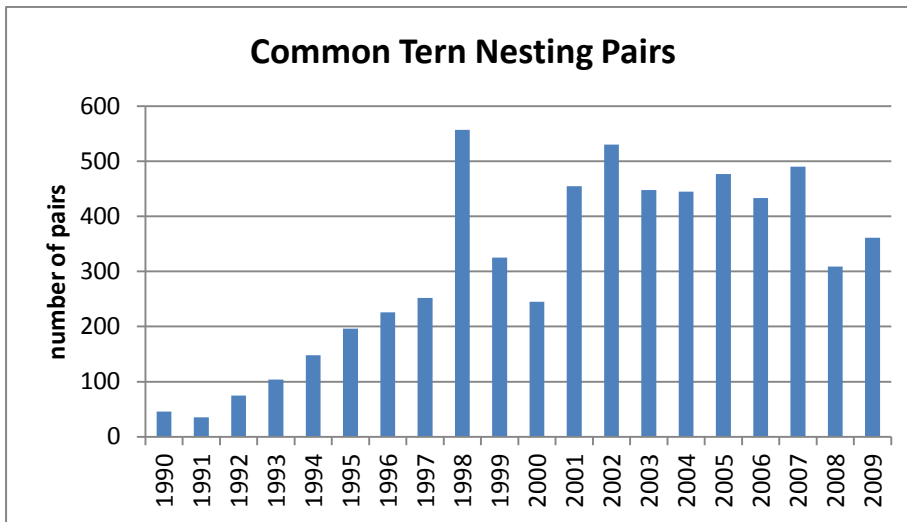


Figure 32

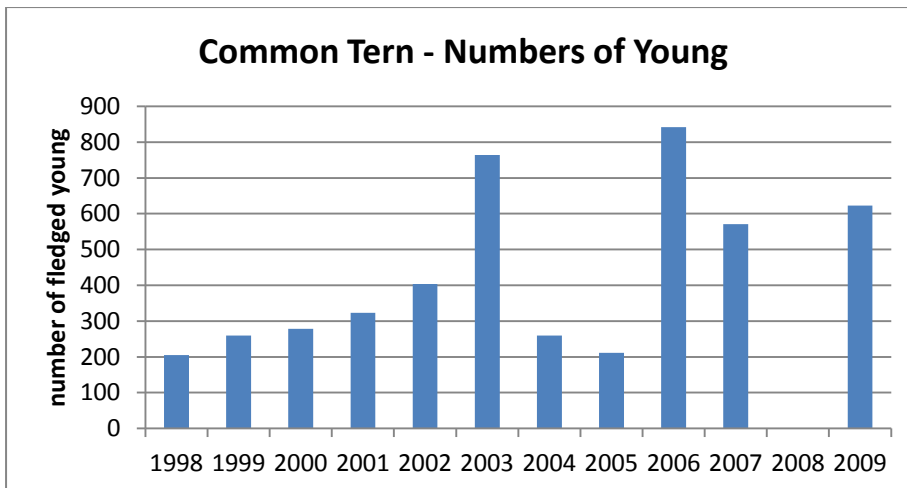


Figure 33

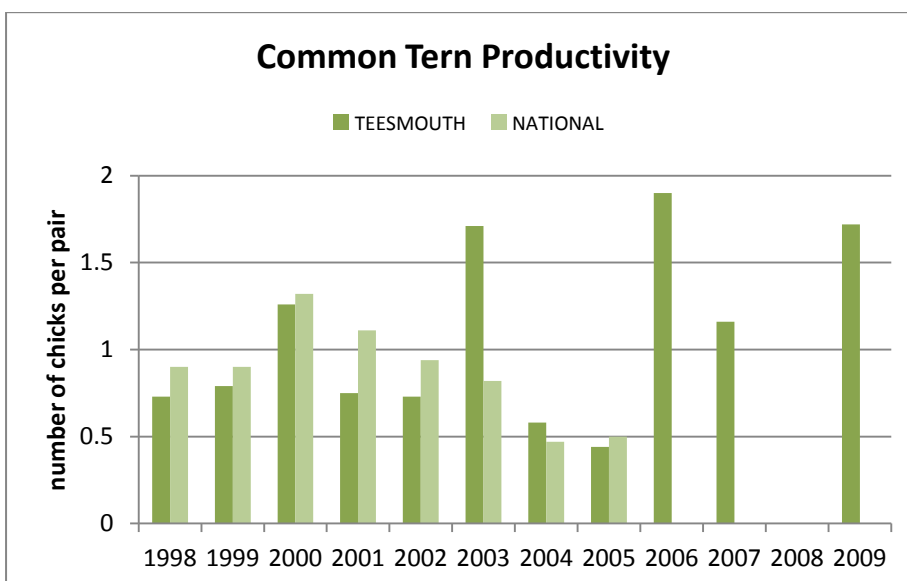


Figure 34

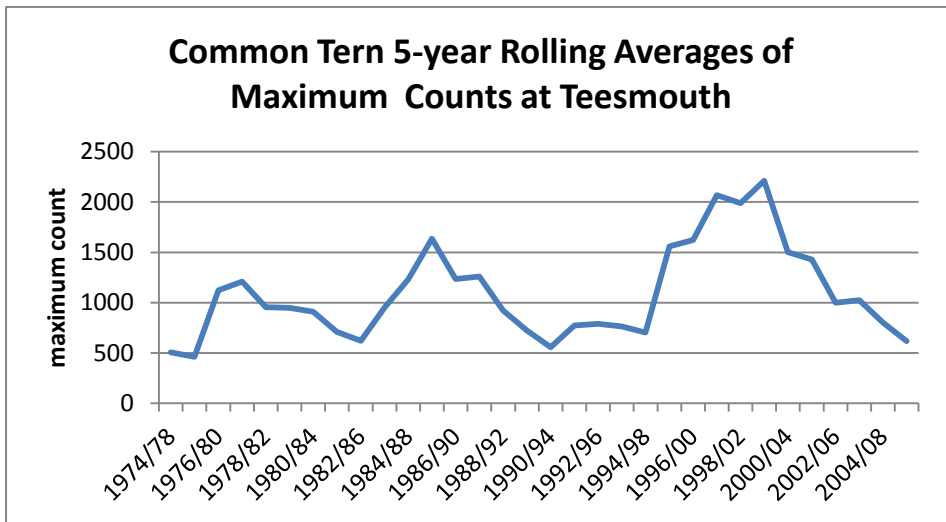


Figure 35

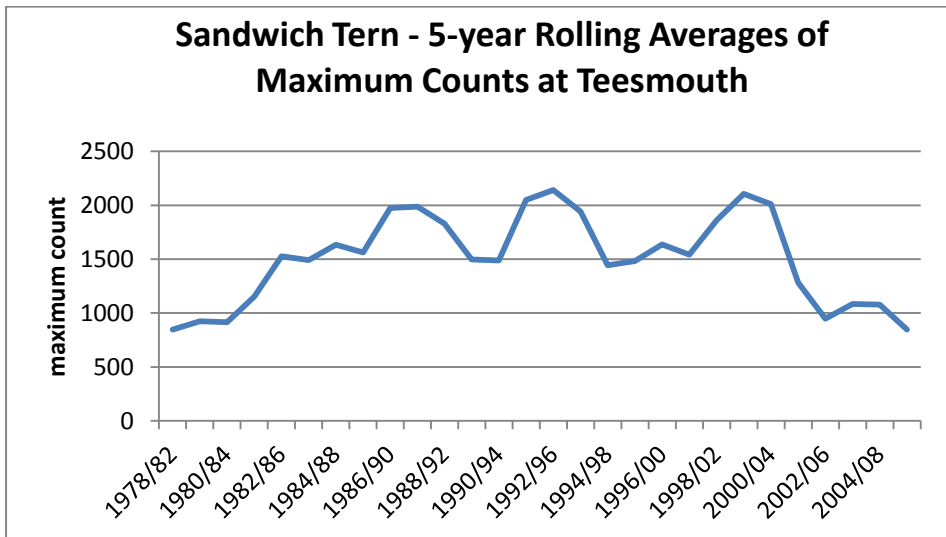
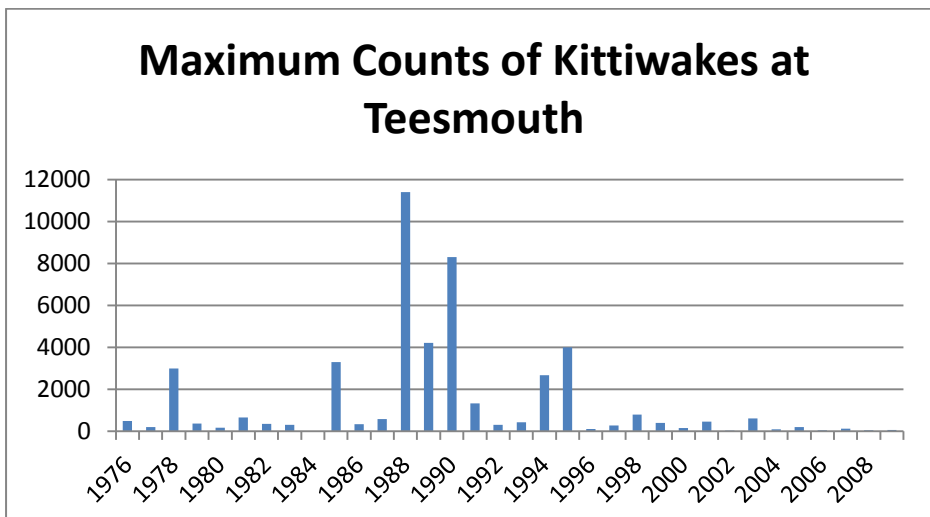


Figure 36



The late summer congregations of Common Terns in the Tees Estuary during late summer and autumn have continued during the review period. As shown in Figure 34 the number of terns present is cyclical, however there has been a steep decline since the late 1990s with current counts falling to the mid-1970s level.

**Sandwich Tern *Sterna sandvicensis* [see Figure 35]**

During each spring of the review period small numbers of Sandwich Terns were recorded on the tern nesting islands at Saltholme, however no breeding attempts were recorded. The successful nesting of up to five pairs in 2006 still remains the only local breeding records for this species at Teesmouth since 1931.

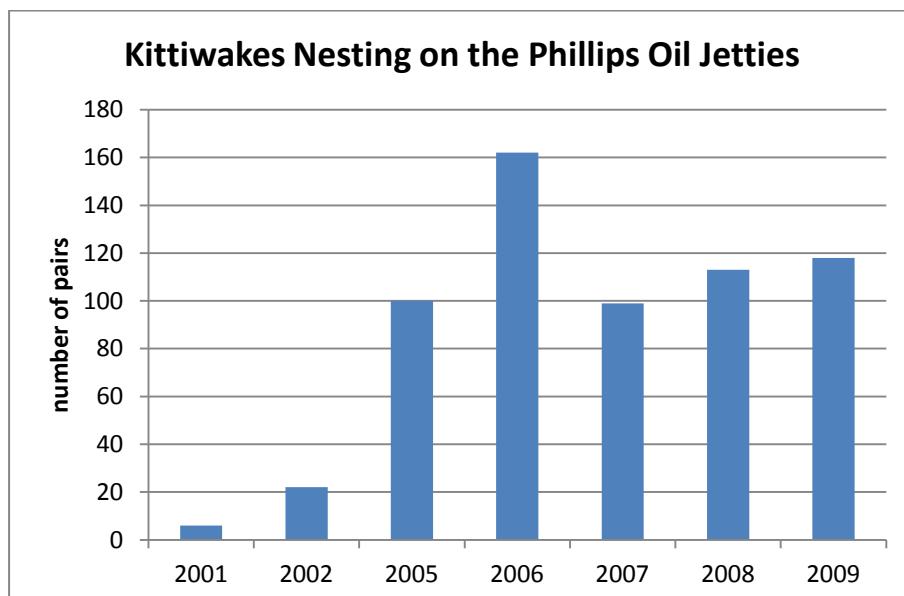
In late summer and autumn populations of Sandwich Terns continue to occur in the lower estuary. Whilst in the longer- term the number of birds recorded is cyclical there has been a steep decline during the review period.

**Kittiwake *Rissa tridactyla* [see Figure 36 & 37]**

Non-breeding Kittiwakes populations at Teesmouth are poorly documented and can vary fluctuate widely from year to year. The data that are available are shown in Figure 36. These represent peak counts in the lower estuary and do not include the > 6000 breeding pairs located in the south of the county or the regular passage of hundreds of birds often recorded moving offshore in autumn.

In addition to the thousands of birds breeding on the cliffs south of Saltburn, since 2001 Kittiwakes have nested regularly on the north Tees oil jetties (see Figure 37).

**Figure 37**



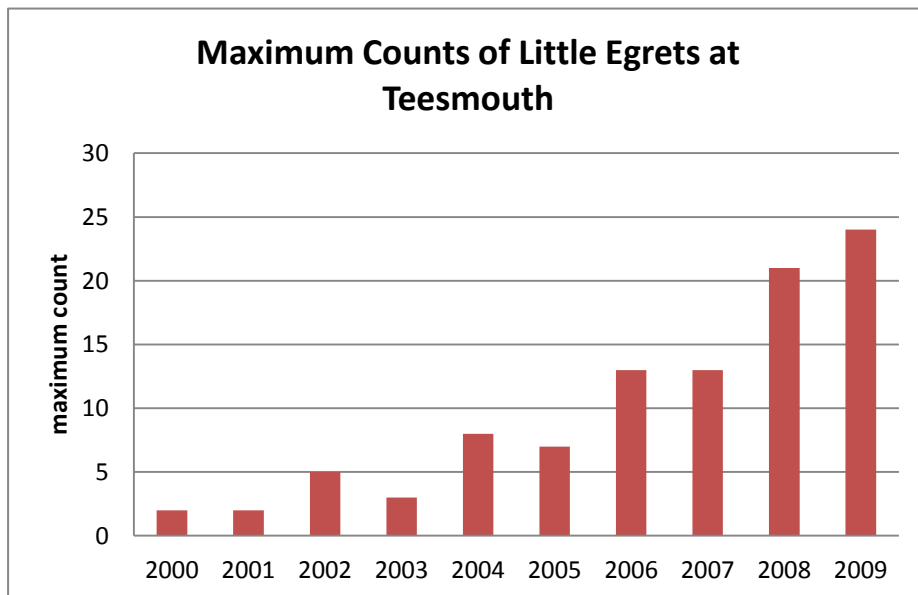
**Little Egret *Egretta garzetta* [see Figure 38]**

Prior to 1993 Little Egret had only been recorded in Cleveland on five occasions, the first being in May 1967 (Blick 2009). Subsequent, however, due to the dramatic influx of this species into the British Isles and the establishment of regular nesting colonies (Brown & Grice 2005), Little Egret became a regular visitor to Teesmouth during the early 1990s.

The numbers recorded in the Tees Marshes have steadily increased since 2000 and although the maximum numbers usually occur between July and September some birds are frequently present throughout the year.

In line with the general colonisation of the British Isles, it is possible that Little Egret will establish itself as a nesting species in the area in the near future

**Figure 38**



Little Egret

### **Cetti's Warbler *Cettia cetti***

Cetti's Warbler cannot be strictly be classed as a waterbird, however it is closely associated with reedbeds and such habitats are often present on industrial land and potential development sites in the lower Tees area.

The first record of Cetti's Warbler in Cleveland was in November 2005 (Blick 2009), but in 2009 an unprecedented influx of at least five birds were recorded around the region, with most of them remaining for a considerable time. Some birds were still present in 2010 when the first successful breeding was recorded on a protected site.

Cetti's Warbler, its nest and eggs are protected under Schedule 1 of the Wildlife and Countryside Act 1981(as Amended).



Cetti's Warbler

### **3. DABHOLME GUT / BRAN SANDS LAGOON**

The bird populations of the Dabholme Gut / Bran Sands Lagoon complex were not discussed in SONET II. Regular surveys by INCA over the present review period however have shown the increasing importance of this site for both wildfowl and wading birds.

Until the opening of the Bran Sands Treatment Works in 1997 Dabholme received all of the industrial effluents from the Wilton Site together with varying amounts of domestic sewage. These discharges were only partially treated. As a result Dabholme Gut was grossly polluted.

Dabholme Gut is intertidal and the invertebrate mud invertebrate fauna would be expected to be similar to that of other mudflats in the Tees Estuary such as those at Seal Sands and Bran Sands. Unfortunately no detailed invertebrate studies have ever been carried out at Dabholme Gut. Based on casual observations of waterbirds on the site for at least 30 years prior to the commissioning of the Bran Sands Treatment Works it must be assumed that the mudflats at Dabholme supported little or no invertebrate populations. Prior to 1997 waterfowl and wading birds were very scarce on Dabholme with no more than two or three individuals being occasionally present. Even when birds were recorded they appeared to be “accidental” visitors showing no signs of feeding activity. The lack invertebrate food must be attributed to the previously highly polluted state on the watercourse. Since Dabholme Gut is tidal it is reasonable to assume that invertebrates and their larvae are brought into the Gut on high tide, but these individuals failed to establish stable communities. Although a number of mud-dwelling invertebrates such as nematodes, oligochaete worms and polychaete worms can tolerate high levels of organic pollution and are characteristic species in the Tees Estuary. These species are important food items for waterbirds in other parts of Teesmouth so the lack of feeding waterbirds in Dabholme Gut over many years would suggest that even these pollution tolerant invertebrates were absent or present in only very small numbers. In the past direct chemical toxicity was probably an important factor in limiting the colonisation of the Dabholme mudflats by even pollution tolerant invertebrates.

Since the late 1990s however, casual observations showed that waterbirds were visiting Dabholme more frequently and were actively feeding; suggesting an increase in invertebrate food. In 2006 INCA commenced systematic twice monthly bird observations at Dabholme and the adjacent Bran Sands Lagoon and these are still ongoing.

Recent bird data on both of these sites are summarised in Tables 1 & 2.

The site must be considered as a whole since there is a regular interchange of wading birds and surface feeding ducks between Dabholme Gut and the Bran Sands Lagoon.

**Table 1****Maximum Waterbird Counts (Key Species) at Dabholme Gut and Bran Sands Lagoon****(individual maximum counts over the period in red)**

Date	Shelduck		Teal		Gadwall		Goldeneye		Redshank	
	Dabholme	Lagoon	Dabholme	Lagoon	Dabholme	Lagoon	Dabholme	Lagoon	Dabholme	Lagoon
Dec 09	-	-	120	-	-	-	-	13	26	-
Jan 10	16	-	129	154	6	21	-	29	30	30
Feb 10	61	40	189	9	12	1	-	9	115	1
Mar 10	67	58	159	-	18	-	-	-	18	-
Apr 10	24	88	52	-	28	-	-	-	8	58
May 10	16	104	-	-	-	-	-	-	-	-
Jun 10	32	63	-	-	-	-	-	-	-	-
Jul 10	25	44	-	-	-	-	-	-	27	-
Aug 10	23	38	2	-	-	-	-	-	20	-
Sept 10	25	30	64	24	-	-	-	-	21	4
Oct 10	14	16	140	18	2	-	-	-	11	86
Nov 10	7	9	227	8	1	-	-	27	48	-
Dec 10	40	10	314	176	37	-	-	31	132	2

**Table 2****Maximum Counts of Selected Species of Waterbirds Present in Dabholme Gut and the Bran Sands Lagoon as % of Teesmouth Total WeBS Counts (Counts 2010)**

Species	Species Populations as % of WeBS Counts <sup>3</sup>	
	Dabholme Gut	Bran Sands Lagoon
Shelduck	16.7 (March 2010)	31.6 (May 2010)
Teal	54.7 (December 2010)	30.7 (December 2010)
Gadwall	205.6 (December 2010)	110.5 (January 2010)
Goldeneye	-	29.0 (December 2010)
Redshank	13.7 (December 2010)	5.2 (October 2010)

**4. POSSIBLE FUTURE IMPACTS****4.1 ADVERSE IMPACT ON BIRDS**

Commercial developments have the potential to impact on bird habitats in and around the lower estuary, however statutory regulatory processes will ensure that such developments cannot have a significant adverse effect on interest features.

**Reclamation Pond**

The Reclamation Pond was formed as a result of incomplete reclamation of Seal Sands mudflats > 50 years ago. The pond is not designated as a SSSI or a Local Wildlife Site, however the pond is

<sup>3</sup> Wetland Birds Surveys (WeBS) are systematic monthly counts of waterbirds carried out on a particular day in wetland habitats throughout the British Isles.

regionally important for a number of species of waterbirds and on occasions the site has exceeded the threshold of national importance for birds such as Little Grebe.

The infilling of the Reclamation Pond was discussed for a number of years and there is an agreement that a new wetland would be created to compensate for the loss of this habitat. This new waterbody, the Port Clarence Pool is now complete and infilling of the Reclamation Pond commenced in late 2010.

The loss of the Reclamation Pond will affect a number of species in particular Little Grebe, Shoveler and Coot. Whether these species will disperse onto other wetland habitats in the area is still unclear.

#### **North Tees Mudflats SPA / SSSI**

There are plans for a power line to cross this habitat. The impact of this on bird flight-lines will need to be assessed.

#### **Loss of Wet Grassland / Scrub**

A number of areas around Teesmouth that have been highlighted for future economic development support this type of habitat. Recent surveys by INCA have shown that whilst bird diversity and abundance is relative low in these habitats, they do support wintering populations of Snipe and Woodcock.

### **4.2 POSITIVE IMPACT ON BIRDS**

As well as possible negative impacts there are also a number projects which could benefit birds around the estuary.

#### **Expansion of the RSPB Saltholme Reserve**

There is a possibility that more land will be acquired in the future. This will allow such land to be better managed for wildlife and at the same time provide long-term protection.

The current management of wet grassland habitats on the reserve could lead to the establishment of breeding Black-tailed Godwit at Teesmouth in the near future<sup>4</sup>. Another potential breeding species is Little Egret. Whilst egrets require pools and wet grassland habitats for feeding they nest mainly in shrubs and trees near water. Such habitat is scarce around the Tees Marshes but it does exist elsewhere in the county. The marshes around the estuary however, would still remain a major feeding area.

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<sup>4</sup> The only breeding record for Black-tailed Godwit at Teesmouth was in 1969 (Joynt, J., 2008).

### **Creation of Inter-tidal Marsh**

As part of the Environment Agency's Flood Risk programme additional inter-tidal marsh are likely to be created to the north of Greatham Creek. This would be of considerable benefit to waterbirds.

### **Industrial Biodiversity Action Plans**

Three companies in the North Tees area have ongoing Biodiversity Action Plans (BAPs) and it is possible that others will be produced in the near future. Such BAPs are beneficial to wildlife and help to ensure that development takes into account the nature conservation value of the site.

### **Acknowledgements**

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## APPENDIX 1

### CALCULATION OF ROLLING 5-YEAR AVERAGES OF MAXIMUM COUNTS

The maximum count in each year for each species in the Tees Estuary has a whole was obtained from the data in the annual *Birds in Cleveland* Report published by the Teesmouth Bird Club. In many, but not all cases, this was the maximum WeBS count. Using these maximum counts the Rolling 5-year Maximum Counts were calculated :

$$1^{\text{st}} \text{ Average} = \sum (C_1 \dots C_5) \div 5$$

$$2^{\text{nd}} \text{ Average} = \sum (C_2 \dots C_6) \div 5$$

$$n^{\text{th}} \text{ Average} = \sum (C_{(n-1)} \dots C_n) \div 5$$

Where "C" is the maximum number of birds of a particular species counted in any one year.

The calculated averages are plotted against each group of 5 years to produce the Rolling Averages graphs.