BTO Research Report No. 683

Identification of Wintering Waterfowl High Tide Roosts on the Severn Estuary SSSI/SPA
Phase 2 (Clevedon to Oldbury) & Phase 3 (Bridgwater Bay)

Authors

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EXECUTIVE SUMMARY

1. This work represents the second and third phases of a wider assessment to identify roost sites in the Severn Estuary SPA and provides information on wintering waterbird high tide roosts between Clevedon and Oldbury (Phase 2) and at Bridgwater Bay (Phase 3).

2. The work has four principal objectives. These are to, within the above study area:

   i. Capture the knowledge of local BTO WeBS counters;
   ii. Map the roost location of the SPA birds;
   iii. Describe the SPA bird assemblage at each roost;
   iv. Record the characteristics of each roost (e.g. habitat or feature).

3. With respect to those sectors currently covered by WeBS volunteers, the local knowledge of the counters was captured via a face-to-face interview to collect information on roost site locations, assemblages and their characteristics, followed by a site visit to ground truth the information provided and collect additional information.

4. With respect to those sectors not currently covered by WeBS volunteers, monthly visits were made between September 2015 and March 2016, to undertake surveys following WeBS survey methodology and to identify roost locations, assemblages and habitat characteristics.

5. The study identified a total of 51 roost sites in the 14 WeBS sectors between Clevedon and Oldbury (Phase 2) and at Bridgwater Bay (Phase 3). Of the 51 roost sites identified, 23 are considered as Primary Roost sites for the SPA, as they regularly hold more than 1% of the SPA population of one or more of the listed feature species. A further 14 roost sites can be considered as Possible Primary Roost sites, as the higher end of the estimates for these roost sites exceed 1% of the SPA population.

6. It is important to bear in mind that the perception of the WeBS counters as to what constitutes a roost site may vary according to the total numbers of birds using the sector. As a result, some roost sites used by very small numbers of birds may not have been identified by this process in sectors used by large numbers of birds (e.g. 13411 Bridgwater Bay), even though similar 'roosts' used by very small numbers of birds have been identified elsewhere in sectors used by fewer birds (e.g. 14415 River Avon at Sea Mills).

7. In addition, it is important to be aware that the Severn Estuary has a large tidal range, and the observations made during WeBS counts and site visits suggested that small areas of mud were often available away from the main roost sites close to the high tide period on neap tides in some sectors. Therefore, on certain high tides birds may sometimes use a much wider area than shown by the roost site maps.

8. In terms of the number of Primary Roost sites, the most important WeBS sectors within the area covered by this report are Littleton Warth (WeBS sector 14454; 4 out of 4 roost sites considered to be Primary Roosts or Possible Primary Roosts), Severn Shore (WeBS sector 14451; 8 out of 8 roost sites considered to be Primary Roosts or Possible Primary Roosts) and Bridgwater Bay (WeBS sector 13411; 11 out of 11 roost sites considered to be Primary Roosts or Possible Primary Roosts).

9. The maps for the individual sectors can be downloaded from the publication record.

1. INTRODUCTION

1.1 Background

The Severn Estuary is a European Marine Site (EMS), designated as a Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site, underpinned by the Severn Estuary Site of Special Scientific Interest (SSSI), and includes the following SSSIs: Bridgwater Bay; Flat Holm; Severn Estuary; Steep Holm; Sully Island; Upper Severn Estuary; and Penarth Coast (Stroud *et al.* 2001). The Severn Estuary SPA (http://jncc.defra.gov.uk/pdf/SPA/UK9015022.pdf) is designated for six qualifying species of waterfowl and the waterfowl assemblage.

This work represents the second and third phases of a wider assessment to identify roost sites in the Severn Estuary SPA and provides information on wintering waterbird high tide roosts between Clevedon and Oldbury (Phase 2) and at Bridgwater Bay (Phase 3). Phase 1 covered the WeBS sectors between Brean Down and Clevedon (Latham, 2015) Phases 2 and 3 cover ten and five Wetland Bird Survey (WeBS) Core (high tide) Count sectors, respectively:

Phase 2: 14406 (Portbury Wharf); 14407 (Royal Portbury Dock); 14408 (Avonmouth); 14409 (Severn-M5 Bridge over River Avon); 14415 (River Avon-Seamills); 14451 (Severn Beach); 14454 (Littleton Warth); 14412 (Battery Point-Redcliff Bay); 14413 (Wain's Hill-Charlcombe Bay); 14411 (Severn-Battery Point);

Phase 3: 13411 (Bridgwater Bay); 13402 (Severn-Berrow Flats); 13403 (Severn-Burnham on Sea); 13404 (River Parrett at Combwich and Pawlett); 13415 (Berrow).

Maps showing the WeBS sectors are included in Appendix 4.

WWT Steart Marshes is included within the Bridgwater Bay sector in this report (section 3.13), as roost site 13K. However, it has been counted as a new separate sector since May 2015. No results have yet been reported for this new sector (site code 13303).

The work has four principal objectives. These are to, within the above study area:

i. Capture the knowledge of local BTO WeBS counters;
ii. Map the roost location of the SPA birds;
iii. Describe the SPA bird assemblage at each roost;
iv. Record the characteristics of each roost (e.g. habitat or feature).

The findings of the project will help to inform:

i. The proposed coastal footpath between Clevedon and Aust;
ii. The Severn Estuary Wintering Wader Refuge Area Plan and/or other mitigation measures for potentially disturbing activities;
iii. The SSSI Detailed Notification Review (DNR) process;
iv. The 'Coming Home to Roost Project', part of the 'A Forgotten Landscape – Restoring the Heritage of the Lower Severn Vale Levels' partnership.
v. Condition Assessment of the Severn Estuary SPA.

1.2 Species of interest

SPA Qualifying Species

In the most recent update of the Natura 2000 Standard data form for the Severn Estuary, submitted to the European Commission on 22/12/2015 (JNCC 2016), six species are specifically named as qualifying features (see Table 1.2.1). The Severn Estuary qualifies as a SPA as it supports important populations of these species, which are referred to in Article 4 of Directive 2009/147/EC and are listed in Annex II of Directive 92/43/EEC. These species are referred to in this report as 'SPA Qualifying Species'.

Table 1.2.1 SPA qualifying species listed for the Severn Estuary on the Natura 2000 standard data form (http://jncc.defra.gov.uk/pdf/SPA/UK9015022.pdf**)**.

English name	Scientific name	Type
Gadwall	*Anas strepera*	Non-breeding population[1]
European White-fronted Goose	*Anser albifrons albifrons*	Non-breeding population[1]
Dunlin	*Calidris alpina alpina*	Non-breeding population[1]
Bewick's Swan	*Cygnus columbianus bewickii*	Non-breeding population[1]
Shelduck	*Tadorna tadorna*	Non-breeding population[1]
Redshank	*Tringa totanus*	Non-breeding population[1]

[1] Specified as 'wintering' on the Natura 2000 data form, but the term 'non-breeding' is now preferred, e.g. on the Site Conservation Objectives (Natural England, 2016a).

SPA Species Assemblage

In addition, the Severn Estuary is also notified as a SPA as a result of the 'waterfowl assemblage', as it regularly supports more than 20,000 individuals. On the most recent Natura 2000 standard data form, the waterfowl assemblage population size was stated as 84,317 (http://jncc.defra.gov.uk/pdf/SPA/UK9015022.pdf).

The most recent form (http://jncc.defra.gov.uk/pdf/SPA/UK9015022.pdf) does not include a list species which make up the waterfowl assemblage for the Severn Estuary. However, the 2001 SPA Review (Stroud *et al.* 2001) listed 11 additional species (Table 1.2.2), which are referred to in this report as 'SPA Waterfowl Assemblage Species'.

Table 1.2.2 SPA Waterfowl Assemblage Species listed for the Severn Estuary by the 2001 SPA Review (Stroud *et al.* 2001).

English Name	Scientific name
Wigeon	*Anas penelope*
Teal	*Anas crecca*
Mallard	*Anas platyrhynchos*
Pintail	*Anas acuta*
Shoveler	*Anas clypeata*
Pochard	*Aythya ferina*
Tufted Duck	*Aythya fuligula*
Grey Plover	*Pluvialis squatarola*
Lapwing	*Vanellus vanellus*
Whimbrel	*Numenius phaeopus*
Curlew	*Numenius arquata*

Other species considered part of the SPA Species Assemblage

Two additional species are also considered as part of the SPA Waterfowl Assemblage Species in this report (Table 1.2.3). Although not listed in the 2001 SPA Review (Stroud *et al.* 2001), they are both mentioned in the original 1993 citation (Natural England 2016).

Table 1.2.3 Additional SPA Waterfowl Assemblage Species listed on the 1993 SPA citation (Natural England 2016b).

English Name	Scientific name
Ringed Plover	*Charadrius hiaticula*
Spotted Redshank	*Tringa erythropus*

SSSI Species

The SSSI citations for the Severn Estuary SSSI (http://www.sssi.naturalengland.org.uk/citation/citation_photo/1002284.pdf), and for Bridgwater Bay SSSI (http://www.sssi.naturalengland.org.uk/citation/citation_photo/1001145.pdf)specifically list a number of species of interest (Table 1.2.4). The Bridgwater Bay SSSI covers WeBS sectors 13411 (Bridgwater Bay); 13402 (Severn-Berrow Flats); 13403 (Severn-Burnham on Sea); 13404 (River Parrett at Combwich and Pawlett); 13415 (Berrow).

Table 1.2.4 Species listed in the Severn Estuary or Bridgwater Bay SSSI citations.

English Name	Scientific name	Notes
Shelduck	*Tadorna tadorna*	Listed in both citations
Wigeon	*Anas penelope*	Listed in both citations
Teal	*Anas crecca*	Listed for Bridgwater Bay SSSI only
Mallard	*Anas platyrhynchos*	Listed for Bridgwater Bay SSSI only
Grey Plover	*Pluvialis squatarola*	Listed in both citations
Ringed Plover	*Charadrius hiaticula*	Listed in both citations
Whimbrel	*Numenius phaeopus*	Listed in both citations
Curlew	*Numenius arquata*	Listed in both citations
Black-tailed Godwit	*Limosa limosa*	Listed for Bridgwater Bay SSSI only
Turnstone	*Arenaria interpres*	Listed in both citations
Knot	*Calidris canutus*	Listed in both citations
Dunlin	*Calidris alpina alpina*	Listed in both citations
Redshank	*Tringa totanus*	Listed in both citations
Snipe	*Gallinago gallinago*	Listed in both citations

Non-listed waterfowl assemblage species

The waterfowl assemblage includes any native waterfowl species that are present at a site (non-native waterfowl are normally excluded, and gulls are also excluded from the WeBS waterfowl assemblage calculations as counting of gulls is optional in WeBS). Other species which are not specifically listed as part of the waterfowl assemblage in the SPA citations have therefore also been recorded as part of the roost site assemblage in this report. A full list of species using each roost site is included in the tables relating to the site. Table 1.2.5 gives the scientific names of any non-listed species which are mentioned in this report, and also states whether or not they are considered part of the waterfowl assemblage.

Table 1.2.5 Scientific names of additional species mentioned in this report.

English Name	Scientific name	Part of the WeBS waterfowl assemblage?
Canada Goose	*Branta canadensis*	No (non-native)
Brent Goose	*Branta bernicla*	Yes
Cormorant	*Phalacrocorax carbo*	Yes
Little Egret	*Egretta garzetta*	Yes
Grey Heron	*Ardea cinerea*	Yes
Avocet	*Recurvirostra avosetta*	Yes
Oystercatcher	*Haematopus ostralegus*	Yes
Golden Plover	*Pluvialis apricaria*	Yes
Lapwing	*Vanellus vanellus*	Yes
Bar-tailed Godwit	*Limosa lapponica*	Yes
Curlew Sandpiper	*Calidris ferruginea*	Yes
Sanderling	*Calidris alba*	Yes
Purple Sandpiper	*Calidris maritima*	Yes
Common Sandpiper	*Actitis hypoleucos*	Yes
Greenshank	*Tringa nebularia*	Yes
Jack Snipe	*Lymnacryptes minimus*	Yes
Black-headed Gull	*Chroicocephalus ridibundus*	No (gull species)
Mediterranean Gull	*Larus melanocephalus*	No (gull species)
Common Gull	*Larus canus*	No (gull species)
Lesser Black-backed Gull	*Larus fuscus*	No (gull species)
Herring Gull	*Larus argentatus*	No (gull species)
Great Black-backed Gull	*Larus minimus*	No (gull species)

2. METHODS

2.1 Approach and Methods

2.1.1 The Wetland Bird Survey (WeBS)

The numbers and population trends of waterbirds wintering on coastal and wetland sites across the UK are monitored by the Wetland Bird Survey (WeBS: http://www.bto.org/volunteer-surveys/webs), a partnership between the British Trust for Ornithology, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee (the last on behalf of the statutory nature conservation bodies: Natural England, Natural Resources Wales and Scottish Natural Heritage and the Department of the Environment Northern Ireland) in association with the Wildfowl and Wetlands Trust, is a national scheme that monitors non-breeding waterbirds in the UK. The principal aims of WeBS are to identify population sizes, determine trends in numbers and distribution, and identify important sites for non-breeding waterbirds in the UK.

WeBS Core Counts are made annually at approximately 2,000 wetland sites of all habitats; estuaries and large still waters predominate. Monthly coordinated counts are made mostly by volunteers, principally from September to March, with fewer observations during summer months. On coastal sites, such as the Severn Estuary, birds are counted at high tide roosts. The volunteers undertake high quality counts although there may be parts of the estuary that are missed on each count. Specially designed algorithms are used to predict the total estuarine populations of waterbirds. The sizes and trends of waterbird populations in the UK are reported annually (Holt *et al.* 2015). The '*WeBS Alerts'* report summarises the waterbird interest status of all UK SPAs and SSSIs (Cook *et al.* 2013).

2.1.2 Coverage of WeBS sectors

WeBS visits are undertaken by volunteers. However, coverage is incomplete for this part of the Severn Estuary, and the following sectors of interest are currently not covered by WeBS volunteers:

Phase 2: 14412 (Battery Point-Redcliff Bay); 14413 (Wain's Hill-Charlcombe Bay); 14411 (Severn-Battery Point);

Phase 3: 13402 (Severn-Berrow Flats); 13403 (Severn-Burnham on Sea); 13404 (River Parrett at Combwich and Pawlett); 13415 (Berrow).

These sectors were therefore surveyed during the 2015/16 winter by BTO staff members (see section 2.3 below). However, during an early stage of the current work, we identified that sector 13403 (Severn – Burnham on Sea) is actually being covered by volunteers as part of sector 13411 (Bridgwater Bay). This sector has therefore been dropped and for the purposes of this report is included within the Bridgwater Bay sector.

2.2 Methodology for sectors currently covered by WeBS volunteers

With respect to those sectors currently covered by WeBS volunteers, the approach took the form of two main practical elements, to capture the local knowledge of the counters:

i. Engagement via a face-to-face interview with the local BTO WeBS counters with the aim of collecting information on roost site locations, assemblages and their characteristics.
ii. Site visits during the winter WeBS counts (September 2015 to March 2016) in order to ground-truth the information provided by the counters, to obtain Global Positioning System (GPS) locations, and potentially to identify roost habitat.

In most instances, these interviews and site visits took place on the same day, with the face-to-face interviews being followed immediately by the site visits. The exceptions were sector 13411 (Bridgwater Bay) and sector 14406 (Portbury Wharf). In both instances, co-ordinated counts were carried out with more than one observer being involved. Interviews at these sites were carried out with the person responsible for co-ordinating the counts, and were followed by site visits with either the co-ordinator or the counter. In some cases, where the site visit was made with the co-ordinator, follow-up phone interviews were carried out with the counter to double check the information provided in the initial interview.

During the interviews, the location of current and historic roost locations were mapped, and we collected information about bird assemblages and physical characteristics of the roost sites, using a set of interview questions which was agreed with Natural England in advance. During the site visits, a similar form was used to ground truth the roost location information and record the number of birds using the roost site on the day of the visit. A GPS grid reference was taken where appropriate, i.e. where the roost site was accessible and where the roost location could not be clearly identified and mapped using geographical features. Copies of the interview and site visit forms are attached as Appendix 3.

The following information was collected for each roost:

SPA bird assemblage at each roost

Working with the local WeBS counters, information about the species assemblage at roost sites within count sectors was captured and ground-truthed. Counters were asked to assess the numbers using each roost site during typical tides and peak tides, expressed as either an average (where numbers are relatively stable) or a range. Where it was available, this was compared with monthly roost site information provided by the WeBS counters. In many cases, specific monthly roost information was not available and in these instances the species assemblage information has been checked by comparing the combined assemblage information for all roosts for the sector with the most recent WeBS counts data available (i.e. for the five-year period from 2009/10-2013/14).

Nature of the roost sites (e.g. habitat or feature)

The Severn Estuary WeBS counters have local knowledge of the physical nature of the identified roost sites. During the interview and site visits, we thus also captured information about the habitat and features associated with each high tide roost.

Other information

Additional information about the roosts site was also collected during the interview and site visit. In particular, counters were asked about patterns of variability in numbers using the roost site, for example whether numbers varied between spring and neap tides or during different seasons, and about types of disturbance that occur at the site. It has not been possible to ground truth this information and any information in this report is based on the responses given by the counters and may not necessarily be comprehensive. Any comments relating to the frequency of disturbance are subjective assessments made by the counters and are not based on an objective scale; therefore comparison of such frequencies between different sites may not be valid.

2.3 Methodology for sectors not currently covered by WeBS volunteers

With respect to those sectors not currently covered by WeBS volunteers, monthly visits were made between September 2015 and March 2016. This was to undertake surveys following WeBS survey methodology (http://www.bto.org/volunteer-surveys/webs/taking-part/core-counts-methods), to record all waterbirds (including gulls and terns) and map the location of sightings and the activity of the birds (*e.g.* roosting, feeding), to identify roost locations and habitat characteristics, and to obtain GPS locations.

As above, information was collected in relation to specific objectives, in this case as follows:

i. To identify the locations of wintering waterbird high tide roosts;
ii. To describe the SPA bird assemblage at each roost;
iii. To record the nature of the roost sites (e.g. habitat or feature);

Roost site information for these sites is therefore based on observations collected during the 2015/16 winter only. The bird assemblage is based on the species observed at identified roost sites on survey visits made between September 2015 and March 2016, and the % presence is calculated as the percentage of occasions on which this species was present during these seven visits. Sector level counts were also made in August 2015 but these have been excluded unless the roost site counts are known.

Therefore the information provided may not capture any variability in roost numbers that may occur between winters, and does not capture potential usage of these sites during passage. However, where a sector has been covered by WeBS counters within the last five years, the species assemblage information has been checked by comparing the combined assemblage information for all roosts for the sector with the most recent WeBS counts data available (2009/10-2013/14). Where there are substantial differences, this is highlighted in the report.

2.4 Considerations regarding the methodological approach

2.4.1 Difference of scale between different WeBS sectors/identifying roost sites

The numbers of birds present within the different WeBS sectors varies considerably. Although counters were asked to identify all roost sites within their sector, the perception of what may constitute a roost site may vary according to the number of birds present. Specific roost sites containing just a few birds have been recorded at sectors with fewer birds, and are reported (e.g. 14415 River Avon – Sea Mills). At sites with many more birds, many small 'roosts' of this size may exist, but have not necessarily been identified as roost sites.

The approach followed in this report is based on the identification of roost sites by the WeBS counters themselves, with the site visits being made to these roost sites rather than to the whole sector. We are confident that this approach will have identified all the major roost sites in the areas of interest in most sectors, as in most cases the WeBS sectors were fully accessible. There was one possible exception: a Possible Primary Roost site on the boundary of sectors 14451 (Severn Beach Shore) and 14408 (Severn – Avonmouth). This is covered in detail under the roost site accounts for sector 14408 and is listed as roost site 3B.

2.4.2 Bird distribution on neap tides

The tidal range is large on the Severn, and some of the site visits and WeBS counts carried out by BTO staff were carried out during tides which were not particularly high. During these visits, the mud at the edge of the WeBS sectors was only covered up for a very short period either side of high tide. In many cases, small numbers of birds use these areas of mud across much of the high tide period and

therefore it should be borne in mind that the distribution of birds using the sector at high tide can sometimes be much more widespread than suggested by the roost site maps.

2.4.3 Accuracy of information in this report

Most of the information included in this report is based on the local knowledge of the WeBS counters, many of whom have been carrying out WeBS visits for many years and hence are best place to provide accurate information about the sites. Where possible, this information has been ground checked during the site visits, or by making a subjective comparison between the roost site estimates and the WeBS sector counts, and in the case of Bridgwater Bay, with roost site counts provided by the WeBS counter.

However, it should be borne in mind that it was not possible to verify all the information from the interviews contained in this report, and that some of the information presented is based on the subjective perceptions of the WeBS counters and cannot be considered an objective assessment. In particular, this applies to information about disturbance events and about the reasons causing variability of usage of different roost sites and movements between roost sites.

2.5 Identification of Primary Roost sites (SPA Primary Roosts)

Roost sites have been classified as Primary Roosts if they regularly (i.e. presence is 50% or more) hold more than 1% of the SPA population of one or more of the listed species. However, in many cases, the estimate of the number of birds using the roost site covers a wide range of values and the lower end of the scale is below the 1% threshold for the site to be considered a Primary Roost. Roost sites where only the higher end of the estimates exceeds 1% of the SPA population, are considered Possible Primary Roost sites. Sites are also classed as Possible Primary Roosts when the estimate exceeds the threshold, but the species is not regularly present (i.e. presence is < 50%).

Passage roost sites have been identified in some cases, usually based on comments made by the counters giving a peak estimate for a species during spring and/or autumn passage. If specific information about the passage period has been obtained, these sites are defined as Primary Roost (passage) or a Possible Primary Roost (passage) based on the estimates and % presence values for the passage period only. In the absence of any specific % presence information for the passage period, these roosts are defined as a Possible Primary Roost (passage) if the peak estimate exceeds 1% of the SPA population of one or more of the listed species.

Roosts that rarely or never hold more than 1% of the SPA population do not meet the above criteria and have been identified and mapped simply as Roosts.

The SPA population figures are based on the most recent five year Mean peak counts for the Severn Estuary SPA, covering 2009/10 to 2013/14 (Cook et al. 2013). The population figures used are shown in Table 2.5.1.

Table 2.5.1 Five year Mean peak counts for the Severn Estuary SPA (2009/10 to 2013/14), used to identify Primary Roost sites.

Species	Five Year Mean Peak (Severn Estuary SPA)	1% Severn Estuary SPA
Bewick's Swan	240	3
European White-fronted Goose	407	5
Shelduck	3,825	39
Wigeon	7,667	77
Gadwall	207	3
Teal	5,627	57
Mallard	3,046	31
Pintail	472	5
Shoveler	488	5
Pochard	512	6
Tufted duck	786	8
Grey plover	302	4
Ringed plover	1,190 (passage)	12
Lapwing	10,796	108
Curlew	3,661	37
Whimbrel	224	3
Dunlin	25,281	253
Redshank	3,268	33

2.6 Outputs

This report details:

i. The location and extent of identified wintering waterfowl high tide roosts in the WeBS sectors, as identified by the WeBS counters and site visits;
ii. SPA bird assemblages associated with these roosts; and
iii. The habitat(s) or feature(s) on which each of the roosts are established.

In addition, we provide:

i. An ESRI ArcMap GIS shapefile containing information on the location and extent of roost sites, the SPA bird species using each roost site, and the habitat of each roost site
ii. Copies of all data in Microsoft Office Excel format;
iii. WeBS data request outputs for all sectors for the five-year period from 2009/10-2013/14.

3. RESULTS

3.1 Littleton Warth (WeBS sector 14454)

This WeBS sector covers the area immediately north of the M48 Severn Bridge, ending just to the south of Cowhill Pill. The whole sector is accessible to the public, with the Severn Way footpath running alongside the estuary.

The interview and site visit were carried out in March. Four roost sites were identified by the WeBS counter (Table 3.1.1; Map 3 in Appendix 4)

Table 3.1.1 Roost sites in sector 14454 (Littleton Warth).

Roost number	Roost Site Name	Grid reference (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
1A	The pill	ST5867191171	Mixed	Pill; saltmarsh		Yes
1B	Upstream of pill	ST5900091523	Mixed	Saltmarsh		Yes
1C	Downstream of pill	ST5792690592	Mixed	Saltmarsh		Yes
1D	Aust cliffs	ST5697189977	Wildfowl	Rocks/boulders and saltmarsh		Yes

3.1.1 Roost Site 1A (The Pill)

This roost site is located either side of the pill, and consists of a wide strip of saltmarsh (both lower and upper saltmarsh) fronted by an extensive area of mud. The roost is used on all tides with birds feeding on the mud until it is covered, and Redshank and Teal often feeding in the pill.

Numbers of SPA species can be variable and the estimated number of birds covered a wide range. However, numbers, during the site visit were much lower than this, and were considered fairly typical by the counter (Table 3.1.2).

Table 3.1.2 Species assemblage at roost site 1A, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Wigeon		Y	Y	50	100	5	No	
Teal		Y		200 (80-300)	100	35	Yes	
Mallard		Y		6 (3-15)	100	3	No	
Dunlin	Y	Y	Y	200 (20-750)	100	15	Possible	
Redshank	Y	Y	Y	50 (30-100)	100	6	Yes	
Snipe			Y	5-10	75	0	-	
Jack Snipe				Usually 1	50	1	-	

Disturbance by dog walkers ranges from frequent to infrequent depending on the time of day and day of the week, and disturbance also occurs infrequently due to anglers and occasionally due to

sailing boats, with the latter occurring mostly from spring to autumn. If disturbed, the birds simply move further along the shore.

3.1.2 Roost Site 1B (Upstream of pill)

This roost site is located upstream of roost site 1A, and is a wide strip of upper and lower saltmarsh, fronted by mud. It is used on all tides and usually holds the highest numbers of both Curlew and Dunlin in this WeBS sector, with the Curlew often found on the upper saltmarsh and on the floodbank. As at roost site 1A, birds will often feed on the mud until it is covered.

For most species, numbers recorded during the site visit were in line with the estimated number of birds using the site.

Table 3.1.3 Species assemblage at roost site 1B, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Canada Goose				6 (0-90)	50	4	-	
Shelduck	Y	Y	Y	80 (50-120)	100	12	Yes	
Wigeon		Y	Y	20-400	100	17	Possible	
Teal		Y		50 (15-100)	100	28	Possible	
Mallard		Y		6 (3-15)	100	1	No	
Little Egret				1 or 2	50	0	-	
Curlew		Y	Y	50-100	100	67	Yes	
Turnstone			Y	0-20	90	0	-	
Dunlin	Y	Y	Y	100-1,000	100	300	Possible	
Redshank	Y	Y	Y	15-20	100	17	No	

Similar types of disturbance occur to roost site 1A, although angling is very rare at this site.

3.1.3 Roost Site 1C (Downstream of pill)

This roost site is located downstream of roost site 1A, and, like the previous two roost sites, is also comprised of an area of mud which is used by the birds until it is covered and they are forced to move onto the saltmarsh.

The roost site is used by Dunlin, Curlew, Redshank, Teal, Wigeon, Mallard and Shelduck.

Table 3.1.4 Species assemblage at roost site 1C, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Canada Goose				6 (0-150)	50	Not recorded	-	Site visit considered typical
Shelduck	Y	Y	Y	20 (5-30)	100	5	No	Site visit considered typical
Wigeon		Y	Y	80 (20-500)	100	100	Yes	Site visit considered typical
Teal		Y		50 (30-200)	100	28	Possible	Site visit considered typical
Mallard		Y		6 (3-15)	100	4	No	Site visit considered typical
Little Egret				1 or 2	50	2	-	Site visit considered typical
Curlew		Y	Y	6 (1-15)	100	0	No	Site visit considered typical
Dunlin	Y	Y	Y	50-200	100	120	No	Site visit considered typical
Redshank	Y	Y	Y	1-5	100	9	No	Site visit considered typical

This area is regularly used by anglers and disturbance also occurs from dog walkers (irregular) and sailing boats (occasional).

3.1.4 Roost Site 1D (Aust cliffs)

This roost site is located at the southern end of the sector, immediately to the north of the M48 Severn Bridge. The roost site has quite extensive mudflats and a strip of lower saltmarsh is located behind them. This is quite extensive but less so than elsewhere in this sector. Behind the lower saltmarsh are boulders made up of low defence rocks, a concrete wall (a derelict rail track) and a cliff.

The roost site is used on all tides by small numbers of Curlew, Oystercatcher and Redshank, and larger numbers of wildfowl, including Wigeon, Mallard, Teal and Shelduck. The numbers observed during the site visit were thought to be atypical as all birds were flushed by dog walkers prior to the count.

Table 3.1.5 Species assemblage at roost site 1D, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	15 (10-30)	100	15	No	
Wigeon		Y	Y	100-500	100	100	Yes	
Teal		Y		25 (10-50)	100	20	No	
Mallard		Y		40 (30-60)	100	2	Yes	Site visit not typical; birds flushed by dog walkers prior to count
Oystercatcher				1-10	100	5	-	
Curlew		Y	Y	1-10	100	0	No	Site visit not typical; birds flushed by dog walkers prior to count
Redshank	Y	Y	Y	2 (1-5)	100	0	No	Site visit not typical; birds flushed by dog walkers prior to count

In addition to occasional disturbance by dog walkers, disturbance can occur from sailing boats although they rarely venture as far as this area.

3.1.5 Comparison of roost site estimates with WeBS count data

For most species, the WeBS count data are generally in line with the estimates provided for the roosts in this sector. However, the counts for Shelduck suggest that the estimates for this species may be too high, and those for Curlew suggest that the estimates for this species may be too low and that higher numbers are present at least occasionally (Table 3.1.16; Table A2.1 in Appendix 2).

Table 3.1.6 Peak WeBS counts and five year mean peak for SPA Qualifying Species and SPA Assemblage Species for WeBS sector 14454 (Littleton Warth) for the period 2009/10 to 2013/14. Each WeBS year runs from July to June.

Species	WeBS Year					Five Year Mean Peak
	2009/10	2010/11	2011/12	2012/13	2013/14	
Shelduck	49 (MAR)	51 (MAR)	58 (MAR)	52 (JUN)	56 (MAY)	53
Wigeon	850 (JAN)	1300 (JAN)	475 (FEB)	215 (JAN)	220 (DEC)	612
Gadwall	0	0	0	2 (MAR)	0	0
Teal	130 (OCT)	240 (OCT)	145 (JAN)	450 (OCT)	655 (NOV)	324
Mallard	95 (OCT)	92 (AUG)	71 (OCT)	80 (OCT)	82 (SEP)	84
Shoveler	0	0	0	0	4 (NOV)	1
Tufted Duck	1 (JAN)	0	0	4 (MAR)	0	1
Ringed Plover	2 (SEP)	8 (AUG)	7 (AUG)	3 (AUG)	29 (MAY)	10
Grey Plover	2 (OCT)	19 (NOV)	0	19 (OCT)	9 (OCT)	10
Lapwing	68 (OCT)	250 (DEC)	34 (NOV)	2 (JAN)	600 (DEC)	191
Dunlin	900 (FEB)	800 (JAN)	550 (FEB)	550 (JAN)	600 (NOV)	680
Whimbrel	21 (APR)	1 (AUG)	1 (SEP)	1 (AUG)	2 (AUG)	5
Curlew	315 (MAR)	280 (DEC)	225 (NOV)	220 (JAN)	155 (NOV)	239
Redshank	80 (SEP)	120 (OCT)	91 (NOV)	90 (DEC)	90 (DEC)	94

3.2 Severn Beach Shore (WeBS sector 14451)

This WeBS sector stretches from the M48 Severn Bridge, south as far as the boundary with Avonmouth Docks. The majority of the sector is accessible to the public, with a footpath running alongside the estuary. The exception is the area near Chittening at the southern end of the sector where there is no footpath and access is made more difficult due to a railway line. However, it is accessed occasionally by anglers and members of the public, either by crossing the railway line or walking along the edge of the saltmarsh from the more accessible areas to the north. Roost site 2H (Stupp Pill, Chittening Warth) is within this part of the sector. Roost site 2D (Pilning Wetland) is private and is not accessible, although there are footpaths running around most sides of the site.

The interview and site visit were carried out in January. Eight roost sites were identified by the WeBS counter (Table 3.2.1; Map 4 and Map 5 in Appendix 4).

During the highest spring tides, most of the roost sites can be completely covered although this is usually only for a very brief period as the tidal range is very large. The roosting birds are pushed onto the seawall during these tides or will circle in a flock if disturbed. Birds from the roosts in the north of the sector also use the newly created Pilning wetland (roost 2D) during such tides.

Table 3.2.1 Roost sites in sector 14451 (Severn Beach).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
2A	Cake Pill, Aust Warth	ST5603388501	Mixed	Pill; saltmarsh		Possible
2B	Northwick Warth and flush	ST5519887116	Mixed	Saltmarsh; brackish pools		Yes
2C	Chestle Pill, New Passage	ST5462286451	Mixed	Pill; saltmarsh		Yes
2D	Pilning Wetland	ST5506986371	Mixed	Newly created wetland	Birds from other nearby roosts in the sector may use the wetland during the very highest tides or if disturbed	Yes
2E	Shaft Rocks	ST5387885661	Wader	Rock outcrop		Possible (passage)
2F	Severn Beach shore	ST5385484569	Wader	Saltmarsh		Yes
2G	New Pill	ST5363083503	Mixed	Pill; saltmarsh	Site covered briefly during highest tides. Birds circle or go elsewhere	Possible
2H	Stupp Pill, Chittening Warth	ST5284282104	Mixed	Saltmarsh	Can sometimes get all the birds from New Pill (2G) here	Yes

3.2.1 Roost Site 2A (Cake Pill, Aust Warth)

This roost site is located either side of a pill, and consists of a wide strip of saltmarsh fronted by an extensive area of mud. The roost is used on all tides with birds feeding on the mud until it is covered, and Redshank and Teal often feeding in the pill.

Numbers of SPA species can be variable and the numbers during the site visit were low (Table 3.2.2), possibly due to disturbance prior to the count as several anglers were present along the shore south of the creek (although no incidences of disturbance were observed apart from that caused by the counters themselves).

Table 3.2.2 Species assemblage at roost site 2A, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	5 (1-20)	100	0	No	On water or very edge of mud rather than on saltmarsh
Wigeon		Y	Y	50 (10-200)	60	0	Possible	(not in summer)
Teal		Y		25 (10-200)	60	12	Possible	(not in summer)
Dunlin	Y	Y	Y	20 (10-70)	75	30	No	Not mentioned during interview but present during site visit
Redshank	Y	Y	Y	20 (0-100)	60	12	Possible	If anglers are present they move to 2B or 2C
Jack Snipe				2 (0-7)	50	0	-	
Snipe			Y	5 (1-30)	50	0	-	

The creek is difficult to approach to undertake the WeBS count without causing disturbance to the roosting birds. Anglers use this area almost every day over high tide and may cause the birds to move to other sites (usually those just to the south). Occasional disturbance also occurs from dog walkers (both on and off lead) and people collecting firewood. Radio-controlled aircraft are also sometimes flown over the saltmarsh in this area. This is usually in summer so rarely affects the roost but when it does then the birds will leave the site.

3.2.2 Roost Site 2B (Northwick Warth and flush)

This roost site consists of an area of grazed lower saltmarsh fronted by a mudflat. It includes a brackish pool which floods after spring tides and often holds water for some time afterwards. The roost is used on all tides with birds feeding on the mud until it is covered, and also feeding on the pool and other muddy areas on the saltmarsh. During spring tides, or when disturbed, birds move to Pilning Wetland (2D).

Numbers of SPA species can be variable and the numbers of waders observed during the site visit were low (Table 3.2.3). A group of men with rifles (presumed rabbiters) were leaving the site just as we arrived and there were no birds on the flush, where waders often roost, so the low counts may have been due to disturbance.

Table 3.2.3 Species assemblage at roost site 2B, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	50 (1-200)	100	6	Yes	
Wigeon		Y	Y	100 (0-2,500)	60	250	Yes	
Teal		Y		20 (0-300)	60	5	Possible	Not mentioned during interview but present during site visit
Oystercatcher				50 (0-180)	90	1	-	
Lapwing		Y		20 (0-250)	40	0	Possible	Many more in cold weather (up to 1,500)
Curlew		Y	Y	50 (0-300)	75	20	Yes	
Black-tailed Godwit				5 (0-300)	20	0	-	Once or twice a winter only
Dunlin	Y	Y	Y	200 (50-4,000)	75	350	Possible	
Redshank	Y	Y	Y	40 (0-250)	90	5	Yes	Not mentioned during interview but present during site visit

The main sources of disturbance to this roost site include anglers (most days over high tide), occasional dog walkers and walkers, and occasional disturbance by light aircraft. If disturbed, birds will usually move to either of the closest roosts 2C or 2D, but occasionally fly away across the estuary, particularly if disturbed by aircraft.

3.2.3 Roost Site 2C (Chestle Pill, New Passage)

This roost site consists of a pill (creek), and an area of grazed lower saltmarsh fronted by a mudflat. The grazed saltmarsh is part of a continuous area of saltmarsh stretching between this roost site and roost site 2B, The map identifies the areas usually used for roosting, but some Shelduck, Teal and Wigeon were feeding on the areas in between the marked roost areas during the site visit. The roost is used on all tides with birds feeding on the mud until it is covered, and some birds also feeding on the saltmarsh. During spring tides, or when disturbed, birds move to another part of the saltmarsh or to Pilning Wetland (2D).

Numbers of SPA species can be variable and the numbers of waders observed during the site visit were low (Table 3.2.4). An angler was present at the point of the creek close to the area where the waders usually roost.

Table 3.2.4 Species assemblage at roost site 2C, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	6 (0-30)	60	19	No	Not mentioned during interview but present during site visit
Wigeon		Y	Y	50 (0-300)	60	200	Possible	Usually in ditch. Tolerant of people.
Teal		Y		20 (0-100)	60	5	Possible	Used to be more. Now gone to wetland (2D)
Turnstone			Y	20 (0-300)	70	0	-	Depends on disturbance levels at 2E and 2F
Redshank	Y	Y	Y	40 (0-200)	90	0	Yes	

Frequent disturbance occurs at this site from walkers, anglers and dog walkers (off lead), usually causing the birds to move to other nearby sites (2B or 2D). The counter considers this to be one of the busiest areas for dog walking

3.2.4 Roost Site 2D (Pilning Wetland)

This roost site consists of a privately owned and newly created wetland. The wetland was created around four years ago when the landowner removed the drainage and created some pools to turn it into a wetland reserve. Since it was created it has been increasingly used by birds and it is now used as an alternative roost site during spring tides or sometimes if birds have been disturbed elsewhere.

The site is outside the sector boundary but movement between the estuary and the wetland frequently occurs and the counter therefore includes birds on the wetland within his sector counts

Numbers of SPA species observed during the site visit were within the expected range for most species (Table 3.2.5).

Table 3.2.5 Species assemblage at roost site 2D, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Gadwall	Y	Y		12 (10-35)	100	15	Yes	
Teal		Y		50 (0-300)	60	50	Possible	Not mentioned during interview but present during site visit
Mallard		Y		15 (10-40)	100	10	Possible	Not mentioned during interview but present during site visit
Shoveler		Y		25 (0-60)	70	40	Yes	
Tufted Duck		Y		10 (6-30)	100	12	Yes	
Little egret				3 (1-6)	100	1	-	Not mentioned during interview but present during site visit
Lapwing		Y		5 (0-400)	60	30	Possible	More at peak high tides and occasionally if disturbed elsewhere (up to 400)
Curlew		Y	Y	20 (0-180)	80	100	Possible	More at peak high tides and occasionally if disturbed elsewhere (up to 300)
Dunlin	Y	Y	Y	10 (0-3,000)	30	0	Possible	Peak tides only
Redshank	Y	Y	Y	6 (0-200)	20	0	Possible	Peak tides only
Black-headed Gull				10 (0-400)	90	40	-	
Common Gull				2 (0-80)	60	10	-	

The wetland is not publicly accessible so disturbance does not usually occur here, although trespassers do access the site very occasionally. The WeBS counter has permission to access the reserve and helps 'police' the site on behalf of the owner.

3.2.5 Roost Site 2E (Shaft rocks)

The shaft rocks are located below and to the south of the M4 river crossing, and consist of a boulder and shingle shore which is set slightly back from footpath along the sea wall, and partially concealed behind a patch of scrub. The site is used by Turnstone as an alternate site to 2C, and by other waders when they are disturbed at 2F. It is more frequently used during spring and autumn passage periods (Table 3.2.6), with usage often dependent on the tide times: birds tend to stay at roost 2F if high tide is early in the morning but are often disturbed there if high tide is later in the day and then will use this roost site.

Like other roost sites in this sector, the roost site is covered briefly during the highest spring tides when the birds will generally move either north or south.

Only two Mallard were present during the site visit. Six anglers were lined up in the spot that the Turnstone prefer and the counter was sure that this was why they were absent.

Table 3.2.6 Species assemblage at roost site 2E, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Mallard		Y		2 (0-10)	20	2	No	Not mentioned during interview but present during site visit
Ringed Plover		Y	Y	5 (0-50)	50	0	Possible (passage)	Up to 350 during spring and autumn passage
Turnstone			Y	50 (0-300)	60	0	-	Usually either here or at roost 2C. Anglers present during site visit
Curlew Sandpiper				0 (0-20)	10	0	-	Small numbers both spring and autumn passage
Sanderling				0 (0-10)	10	0	-	Small numbers both spring and autumn passage
Dunlin	Y	Y	Y	30 (0-350)	50	0	Possible (passage)	Up to 350 during spring and autumn passage

Disturbance from anglers occurs frequently in winter, and causes the birds to move to another part of the rocks or to another roost site, depending on how many are present. Walkers and dogs off lead also occur frequently especially between spring and autumn, but do not usually cause any disturbance as they tend to stay on the footpath on the sea wall and away from the roost site.

3.2.6 Roost Site 2F (Severn Beach shore)

This site consists of an area of lower saltmarsh, fronted by mudflats. There is also a small area of shingle further back close to the seawall. Waders feed on the mud until it is covered and then roost on the saltmarsh. They are forced on to the shingle bank on higher tides, and on the highest spring tides on to the sea wall, or else fly in circles for a brief period (usually only 20-30 minutes), or fly to other sites.

The seawall and footpath is away from the shore, but the saltmarsh is open and so birds are prone to disturbance. Numbers using the roost can be dependent on the time on high tide, with more birds here in early morning and birds moving to either 2E or 2G if disturbed. Numbers are also usually higher during spring and autumn passage, particularly for Ringed Plover, although this species is also present during winter in small numbers which are nonetheless sufficient to define this site as a SPA Primary Roost.

Numbers of SPA species observed during the site visit were within the expected range for most species (Table 3.2.7).

Table 3.2.7 Species assemblage at roost site 2F, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Wigeon		Y	Y	2 (0-20)	50	2	No	Not mentioned during interview but present during site visit
Ringed Plover		Y	Y	20 (0-400)	60	16	Yes	Up to 400 during spring and autumn passage. A few in winter; here if not disturbed, otherwise usually at roost 2E
Bar-tailed Godwit				(0-150)	15	0	-	Spring passage (April/May)
Sanderling				(0-30)	30	0	-	Spring and autumn passage
Dunlin	Y	Y	Y	10 (0-500)	50	66	Possible	Here if not disturbed, otherwise usually at roost 2E
Redshank	Y	Y	Y	5 (0-40)	50	5	Possible	Not mentioned during interview but present during site visit

The roost site is located immediately in front of a residential area and disturbance from walkers and dogs off lead is frequent. More disturbances occur at weekends, between spring and autumn, and around midday.

3.2.7 Roost Site 2G (New Pill)

This roost site is used on all tides and consists of lower and upper saltmarsh fronted by mud. There is also a pill (creek), a small area of shingle/boulders, and a metal pipe extending into the water which is an outflow from a nearby factory. Like most other sites in this sector, it is covered on the highest spring tides; as elsewhere the birds will circle around or move to other sites.

During the site visit, many of the waders (Redshank, Dunlin and Turnstone) were feeding on the saltmarsh. Numbers of most SPA species observed during the site visit were fairly typical (Table 3.2.8), but the use of this site by Turnstone was considered extremely unusual. The counter believed that their atypical presence here was due to the fact that anglers were at both their preferred roost sites (2C and 2E)

Table 3.2.8 Species assemblage at roost site 2G, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	15 (0-60)	90	7	Possible	
Teal		Y		6 (0-40)	50	6	No	
Mallard		Y		20 (1-40)	100	24	Possible	
Little Egret				2 (0-8)	50	0	-	
Grey Heron				2 (0-6)	50	4	-	
Oystercatcher				30 (0-100)	90	90	-	Not mentioned during interview but present during site visit
Curlew		Y	Y	10 (0-200)	70	6	Possible	
Turnstone			Y	100 (0-240)	20	140	-	Not mentioned during interview but present on visit, mostly feeding on saltmarsh –unusual here; usually on roost 2C or 2E
Purple Sandpiper				0	Rare	1	-	Not mentioned during interview but present during site visit
Dunlin	Y	Y	Y	20 (0-1,000)	50	250	Possible	During the site visit, most were feeding on saltmarsh until flushed
Redshank	Y	Y	Y	5 (0-150)	80	40	Possible	During the site visit, most were feeding on saltmarsh until flushed
Black-headed Gull				30 (0-500)	60	50	-	
Common Gull				2 (0-10)	50	0	-	
Lesser Black-backed Gull				5 (0-10)	50	0	-	
Herring Gull				5 (0-10)	50	0	-	

Disturbance from walkers and dogs (off lead) is infrequent here, as, although it is on a footpath, this site is away from the nearby housing and is more remote from the other sites. This site is the most likely to be used by wildfowlers in the sector but they are very infrequent here. During the site visit, one incident of disturbance was noted here when a member of the public walked onto the saltmarsh causing the birds to fly on to the mud and to the metal pipe

3.2.8 Roost Site 2H (Stupp Pill, Chittening Warth)

This roost site is similar to 2G, consisting of an area of saltmarsh, either side of a pill (creek) and fronted by mud. Again, the roost is used on all tides but birds may be forced into flight briefly on the highest spring tides.

This area is difficult to access as there is no public footpath here and it can only be reached by walking across the saltmarsh edge from 2G or crossing a railway. The counter usually views this roost site from 2G, and the roost site was viewed from here during the site visit, so the presence of smaller birds or birds in the pill could be potentially be missed as a result.

Small numbers are generally present at this roost site (Table 3.2.9), though occasionally many of the birds usually found at 2G (New Pill) are found here instead. During the site visit, a flock of 500 Dunlin was observed in flight circling from this roost. This species had not been mentioned as present at this roost during the site interview.

Table 3.2.9 Species assemblage at roost site 2H, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	10 (0-20)	80	0	No	
Gadwall	Y	Y		8 (0-15)	90	0	Yes	
Teal		Y		15 (0-30)	70	0	No	
Mallard		Y		10 (1-20)	100	10	No	Not mentioned during interview but present during site visit
Curlew		Y	Y	12 (0-20)	70	0	No	
Dunlin	Y	Y	Y	10 (0-800)	60	500	Possible	Not mentioned during interview but present during site visit
Redshank	Y	Y	Y	12 (0-20)	70	0	No	

Although the site is difficult to access anglers are frequent here in winter. If disturbed by anglers, the birds will move to roost site 2G or further south into the Avonmouth Docks area (WeBS sector 14408)

3.2.9 Comparison of roost site estimates with WeBS count data

The five year mean peak counts for SPA species at the WeBS sector, for the period 2009/10 to 2013/14 (Table 3.2.10; Table A2.2 in Appendix 2), generally support the estimates given for the roost sites, on the assumption that the birds use different roost sites on different months. However, the peak count for Dunlin during this five year period was 2,400 in January 2013, so the higher end of the estimate given for roost sites 2B (50-4,000) and for roost site 2D (500-3,000) both appear to be high. In addition, Whimbrel has not been included as part of the species assemblage for any of the roost sites, although the five-year mean peak WeBS count for the sector is eight. However, the mean is caused a high peak count of 31 in 2009/10, and the species is only recorded in very small numbers in this sector in most years, with the peak count for each of the four WeBS years from 2010/11 to 2013/14 being 1-3.

Table 3.2.10 Peak WeBS counts and five year mean peak for SPA Qualifying Species and SPA Assemblage Species for WeBS sector 14451 (Severn Beach) for the period 2009/10 to 2013/14. Each WeBS year runs from July to June.

	WeBS Year					Five Year
Species	**2009/10**	**2010/11**	**2011/12**	**2012/13**	**2013/14**	**Mean Peak**
Bewick's Swan	0	0	4 (NOV)	0	0	1
Shelduck	110 (APR)	90 (MAR)	155 (APR)	100 (APR)	146 (MAR)	120
Wigeon	600 (DEC)	2100 (DEC)	830 (FEB)	450 (DEC)	600 (DEC)	916
Gadwall	9 (OCT)	8 (APR)	11 (FEB)	4 (DEC)	15 (MAR)	9
Teal	200 (DEC)	240 (OCT)	200 (MAR)	320 (JAN)	190 (JAN)	230
Mallard	110 (OCT)	120 (AUG)	150 (NOV)	90 (DEC)	80 (DEC)	110
Pintail	4 (APR)	0	0	3 (APR)	0	1
Shoveler	2 (DEC)	7 (NOV)	8 (NOV)	22 (JAN)	9 (FEB)	10
Pochard	0	0	0	0	1 (AUG)	0
Tufted Duck	2 (APR)	0	0	10 (APR)	9 (JAN)	4
Ringed Plover	200 (AUG)	40 (AUG)	70 (AUG)	85 (AUG)	42 (SEP)	87
Grey Plover	1 (OCT)	0	1 (APR)	1 (DEC)	1 (SEP)	1
Lapwing	300 (DEC)	600 (DEC)	350 (JAN)	170 (JAN)	110 (JAN)	306
Dunlin	1,200 (JAN)	580 (OCT)	2,000 (JAN)	2,400 (JAN)	2,100 (FEB)	1,656
Whimbrel	31 (APR)	2 (MAY)	2 (SEP)	3 (MAY)	1 (AUG)	8
Curlew	110 (OCT)	290 (SEP)	240 (NOV)	290 (DEC)	240 (JAN)	234
Redshank	170 (NOV)	190 (FEB)	200 (MAR)	190 (DEC)	170 (MAR)	184

3.3 Severn - Avonmouth (WeBS sector 14408)

This WeBS sector covers the Avonmouth Docks area, located to the north of the mouth of the River Avon, and bordered by WeBS sector 14451 (Severn Beach) to the north. The docks are not publicly accessible, so disturbance is generally low, although they are a working dock and so disturbance from vehicles and people does sometimes occur. Occasionally, anglers may also come into the northernmost part of this sector by foot along the edge of the saltmarsh.

The WeBS counter is contracted to undertake counts on behalf of the docks and includes the WeBS counts as part of this work. The WeBS sector has been broken down into survey areas and the WeBS counter records his counts against these 'sub-sectors'. The areas referred to in the roost site names relate to these survey areas.

The interview and site visit were carried out in January. One Primary Roost site was identified during the interview. During the site visit it was apparent that a small number of additional sites could be considered as minor roost sites or pre-roosts (Table 3.3.1; Map 6 and Map 7 in Appendix 4).

During the highest spring tides, the main Primary Roost site will be covered for a period around the time of high tide and the birds will move elsewhere, and may use the jetties briefly.

Table 3.3.1 Roost sites in sector 14408 (Severn - Avonmouth).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
3A	Hole's Mouth (Area A8)	ST5187180713	Mixed	Saltmarsh; shingle	Main roost site. On the highest tides, waders move to other roost sites, e.g. Chapel Pill (or to docks/jetties on especially high tides)	Yes
3B	Area A9	ST5228781373	Wader	Saltmarsh	Not identified as a roost site during interviews, but c750 Dunlin observed in this area during site visit. Difficult to access	Possible
3C	Area A6 and A7	ST5148980107	Other (pre-roost)	Saltmarsh	Not identified as a roost site during interviews, not generally a roost site but waders feeding on mud during site visit and often used by birds for feeding close to either side of high tide	No
3D	Area A4	ST5064879241	Other	Rocks	Not identified as a roost site during interviews; Redshank seen here during site visit but this is unusual and probably because they had been disturbed from roost site 3F	No
3E	Main jetty (Area A3)	ST5051179203	Other	Artificial (jetty)	Not identified as a roost site during interviews; 4 Oystercatchers and gulls present during site visit and very occasionally used on highest tides	No
3F	Under lighthouse (Area A2)	ST5027878827	Wader	Artificial (pier)	Not identified as a roost site during interviews; site pointed out during site visit as a small but regular Redshank roost on a wooden jetty under the lighthouse	No
3G	River Avon bank (Area A1a)	ST5082778133	Wildfowl	Rocks/boulders	Not identified as a roost site during interviews; 52 Mallard here during site visit. Counter stated that small numbers are usually present	Possible

3.3.1 Roost Site 3A (Hole's Mouth; Area A8)

During the site interview, this was identified as the main (only) roost site within the sector. It consists of a thin strip of saltmarsh, fronted by mud. There is also an area of shingle behind an outflow, which is made up of concrete and metal blocks and metal fencing.

Numbers of SPA species observed during the site visit were slightly low for some species (Table 3.3.2). However, the high tide level during the site visit was relatively low, and mud was exposed in many areas around the site around the high tide period, so birds were more scattered than usual around the site.

Table 3.3.2 Species assemblage at roost site 3A, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Gadwall	Y	Y		20-30	close to 100%	5	Yes	
Teal		Y		c50	100	30	No	
Mallard		Y		c100	100	16	Yes	
Oystercatcher				5 (2-15)	10	2	-	Not mentioned during interview but present during site visit
Curlew		Y	Y	2 (0-5)	10	2	No	Not mentioned during interview but present during site visit
Dunlin	Y	Y	Y	50-100	<25	20	No	
Redshank	Y	Y	Y	c200	>50	23	Yes	
Turnstone			Y	15 (1-40)	<25	0	-	

The roost site is behind an area of bramble so is more concealed from disturbance than most other areas of the docks, and disturbance rarely occurs here unless caused by the counter.

3.3.2 Roost Site 3B (Area A9)

This roost site consists of saltmarsh fronted by mud and is located at the far northern end of the WeBS sector. This was not identified as a roost site during the interview, but during the site visit a large flock of Dunlin were observed in flight circling and landing at the edge of the saltmarsh in this area (Table 3.3.3). This area is not accessible and is not counted. The counter had not previously noticed birds here and thought it was unlikely that this was a regular site. However, a similar flock of Dunlin been observed from distance in approximately the same area the day before the site visit during the site visit to the adjacent Severn Beach WeBS sector (14451).

Table 3.3.3 Species assemblage at roost site 3B, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Dunlin	Y	Y	Y	250 (0-750)	<25	c750	Possible	c750 observed in flight circling and landing at edge of saltmarsh. Area not accessible

This area is difficult to access so it is unlikely that disturbance occurs here.

3.3.3 Roost Site 3C (Area A6 and A7)

This was not identified as a roost site during the interview and the counter considers this area to be a feeding area rather than a regular roosting site. It consists of a small area of saltmarsh fronted by mud.

However, during the site visit, birds were still present feeding on small areas of exposed mud at the time of high water (Table 3.3.4). This is unlikely to be the case on the majority of high tides, but birds could potentially use this area and other areas of exposed mud close to high tides before moving to the main roost sites such as 3A.

Table 3.3.4 Species assemblage at roost site 3C, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	0	0	4	No	Feeding on exposed mud during site visit
Ringed Plover		Y	Y	0	0	10	No	Feeding on exposed mud during site visit
Curlew		Y	Y	0	0	3	No	Feeding on exposed mud during site visit
Turnstone			Y	0	0	2	No	Feeding on exposed mud during site visit
Dunlin	Y	Y	Y	0	0	230	No	Feeding on exposed mud during site visit
Redshank	Y	Y	Y	0	0	9	No	Feeding on exposed mud during site visit

Disturbance is unlikely as the roost site is hidden away from the main road around the docks.

3.3.4 Roost Site 3D (Area A4)

This site consists of rocky boulders creating a barrier along the shoreline for coastal protection. This site was not identified as a roost site during the site interview but a flock of Redshank were flushed from these rocks during the site visit (Table 3.3.5).

This was considered very unusual by the WeBS counter, who believed that the birds were probably those which normally roosted under the lighthouse at 3F, disturbed by a vehicle and workmen being present at their usual roost site.

Table 3.3.5 Species assemblage at roost site 3D, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Redshank	Y	Y	Y	0	0	28	No	Redshank on rocks during site visit but not typical and had probably been disturbed from their usual roost on wooden jetty (3F)

3.3.5 Roost Site 3E (Main jetty; Area A3)

This site consists of an artificial jetty, with an area of rocks around the base where it meets the coast. It was not mentioned as a roost site during the interview, but it has been included as during the site visit the counter mentioned that the jetties are occasionally used by waders during the highest spring tides when they are disturbed from other roost sites.

During the site visit, Herring gull and Cormorant were both observed on the jetty, as well as four Oystercatcher (two on the jetty and two on the rocks) (Table 3.3.6).

Table 3.3.6 Species assemblage at roost site 3E, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Cormorant				5 (1-10)	>75	2	-	Not mentioned as a roost during the interview
Oystercatcher				2 (0-4)	>50	4	-	Not mentioned as a roost during the interview
Herring Gull				50 (25-100)	>75	31	-	Not mentioned as a roost during the interview

3.3.6 Roost Site 3F (Under lighthouse, Area A2)

This site holds a small Redshank roost on a wooden jetty underneath the lighthouse. It was not mentioned during the interview but during the site visit the counter confirmed that a small flock was nearly always present here at high tide (Table 3.3.7).

During the site visit, a vehicle and two workmen were working next to the lighthouse immediately above the roost site. No birds were present and the WeBS counter believed that the Redshank observed on rocks at site 3D were almost certainly those that normally roosted under the lighthouse.

Table 3.3.7 Species assemblage at roost site 3F, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Redshank	Y	Y	Y	c15	100	0	No	Small roost nearly always present on wooden jetty under lighthouse. None during site visit but workers were on the jetty

3.3.7 Roost Site 3G (River Avon bank; Area A1a)

This site consists of boulders along the northern bank of the River Avon as coastal defence. The site was not mentioned during the interview. During the site visit, 52 Mallard were observed in groups along these rocks. The WeBS counter believed this was a much higher count than usual, but confirmed that it was a regular site for Mallard, with small numbers usually found here.

Table 3.3.8 Species assemblage at roost site 3G, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Mallard		Y		20 (1-75)	100	52	Possible	Usually present but in much smaller numbers than on site visit

3.3.8 Comparison of roost site estimates with WeBS count data

The five year mean peak counts for SPA species at the WeBS sector, for the period 2009/10 to 2013/14 (Table 3.3.9; Table A2.3 in Appendix 2), support the estimates given for the roost sites. The counts also support the counter's belief that the numbers of Dunlin observed during the site visit were exceptional, as the highest count of Dunlin during the five year period for the WeBS sector was 403 in November 2009.

Table 3.3.9 Peak WeBS counts and five year mean peak for SPA Qualifying Species and SPA Assemblage Species for WeBS sector 14408 (Severn - Avonmouth) for the period 2009/10 to 2013/14. Each WeBS year runs from July to June.

Species	WeBS Year					Five Year Mean Peak
	2009/10	2010/11	2011/12	2012/13	2013/14	
Shelduck	36 (MAY)	49 (FEB)	45 (MAR)	40 (APR)	66 (MAR)	47
Wigeon	7 (NOV)	3 (DEC)	0	0	4 (JAN)	3
Gadwall	15 (FEB)	41 (JAN)	27 (MAR)	22 (MAR)	10 (OCT)	23
Teal	54 (FEB)	109 (JAN)	81 (FEB)	55 (DEC)	53 (JAN)	70
Mallard	94 (OCT)	104 (AUG)	73 (OCT)	100 (OCT)	184 (AUG)	111
Pintail	1 (FEB)	0	0	0	0	0
Pochard	0	0	0	3 (FEB)	0	1
Tufted Duck	0	6 (DEC)	0	0	0	1
Ringed Plover	45 (AUG)	0	20 (DEC)	0	2 (MAR)	13
Lapwing	0	6 (OCT)	0	0	0	1
Dunlin	403 (NOV)	144 (DEC)	228 (DEC)	300 (NOV)	250 (NOV)	265
Whimbrel	4 (MAY)	0	0	1 (MAY)	1 (MAY)	1
Curlew	27 (NOV)	19 (DEC)	12 (DEC)	12 (NOV)	14 (NOV)	17
Redshank	106 (OCT)	106 (NOV)	162 (NOV)	325 (OCT)	192 (NOV)	178

3.4 Severn – M5 Bridge over River Avon (WeBS sector 14409)

This sector follows the River Avon inland from within the Avonmouth Docks site and upstream to the bend in the river near Shirehampton station (Map 8 in Appendix 4). It is covered by the same counter as sector 14408 (Avonmouth) and the interview and site visit were carried out in January. No roost sites were identified in this sector by the counter.

During the site visit, some mud was still exposed, and a few SPA species were observed in very low numbers in this sector (one Redshank, two Gadwall, four Mallard).

3.4.1 Comparison of roost site estimates with WeBS count data

For most species, the WeBS count data support the assertion that there are no roosts in this sector, although the peak counts for Redshank suggest that a small Redshank roost could be present occasionally in this sector. However, as at the mouth of the Avon (roost site 3C), some areas of mud were exposed during the site visit and these counts may relate to birds feeding on neap tides.

Table 3.4.1 Peak WeBS counts and five year mean peak for SPA Qualifying Species and SPA Assemblage Species for WeBS sector 14409 (Severn – M5 Bridge over River Avon) for the period 2009/10 to 2013/14. Each WeBS year runs from July to June.

Species	WeBS Year					Five Year Mean Peak
	2009/10	2010/11	2011/12	2012/13	2013/14	
Shelduck	14 (MAY)	1 (MAY)	2 (FEB)	4 (MAY)	9 (MAR)	6
Gadwall	7 (JAN)	0	0	2 (SEP)	3 (AUG)	2
Teal	9 (JAN)	0	6 (FEB)	0	0	3
Mallard	34 (NOV)	38 (OCT)	15 (FEB)	18 (OCT)	15 (AUG)	24
Curlew	2 (MAR)	2 (DEC)	2 (MAR)	3 (JAN)	1 (SEP)	2
Redshank	50 (NOV)	52 (SEP)	50 (FEB)	42 (JAN)	90 (AUG)	57

3.5 Royal Portbury Docks (WeBS sector 14407)

The Royal Portbury Dock is within the Avonmouth and Portbury Docks complex and is part of the Portbury Docks area located immediately south of the mouth of the River Avon. It is not accessible to the general public. The WeBS sector comprises the main dock (Map 9 in Appendix 4). This site is also counted by the same counter as sector 14408 (Avonmouth) and the interview and site visit were carried out in January. No roost sites were identified within this WeBS sector

3.5.1 Comparison of roost site estimates with WeBS count data

The WeBS counts for the sector, over the period 2009/10 to 2013/14, support the assertion that there are no roosts located in this sector (Table 3.5.1).

Table 3.5.1 Peak WeBS counts and five year mean peak for SPA Qualifying Species and SPA Assemblage Species for WeBS sector 14407 (Royal Portbury Docks) for the period 2009/10 to 2013/14. Each WeBS year runs from July to June.

Species	WeBS Year					Five Year Mean Peak
	2009/10	2010/11	2011/12	2012/13	2013/14	
Shelduck	8 (MAY)	19 (FEB)	32 (NOV)	9 (NOV)	6 (JAN)	15
Mallard	8 (FEB)	7 (SEP)	0	4 (AUG)	0	4
Curlew	1 (FEB)	0	0	3 (AUG)	0	1

3.6 Portbury Wharf (WeBS sector 14406)

The eastern half of WeBS sector 14406 (Portbury Wharf) is located within Portbury Docks area. It covers the southern bank of the mouth of the River Avon and is not accessible to the public. The western half of the WeBS sector, between Portishead Docks and Chapel Pill, is publically accessible. The sector is covered by the same counter as WeBS sector 14408 (Avonmouth) and like this sector is divided into survey areas (i.e. sub-sectors) on behalf of Avonmouth and Portbury Docks. However, the western part of the sector is actually counted by a different observer (counter 2), who submits his counts to the main counter so that he can submit full sector counts. The two observers co-ordinate their visits to ensure they are carried out on the same day to avoid duplication.

The interview and site visits were carried out with the main counter in January. One Primary Roost was identified during the interview, with an occasional roost being identified during the site visit. A pre-roost site for gulls has also been mapped (Table 3.6.1; Map 10 in Appendix 4). The Primary Roost was located in the area covered by counter 2, and was viewed from the docks during the site visit. A phone interview with counter 2 was carried out in February, to double check that he agreed with the answers given by the main counter and to capture any further relevant information from him.

Table 3.6.1 Roost sites in sector 14406 (Portbury Wharf).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
6A	Chapel Pill (Area P1)	ST4904077481	Mixed	Pill; Saltmarsh	Main roost site	Yes
6B	East Pier (Area R4)	ST4941578378	Wader	Artificial (pier)	Very occasionally used on highest tides when other areas flooded, especially by Dunlin and Ringed Plover	Possible
6C	Mouth of Avon (Area R2 and R3)	ST5004478421	Other (pre-roost)	Mud	Not a roost site; pre-roost gathering site for gulls and one of the first areas where waders go to feed on mud	No

3.6.1 Roost Site 6A (Chapel Pill; Area P1)

This roost site consists of an area of saltmarsh fronted by mud, around a pill. It is used on all tides, although on the highest spring tides the saltmarsh is completely covered; the waders will normally move into the docks area and ducks will sit on the water.

Typical numbers using this site are shown in Table 3.6.2, based on estimates made by both counters. Numbers were not counted during the site visit as it was already well past high tide at the time of the visit and the roosting birds had dispersed across the mud both in this bay and within the mouth of the Avon.

Table 3.6.2 Species assemblage at roost site 6A, based on the interviews and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	30 (10-60)	100	Not counted	Possible	
Wigeon		Y	Y	75 (25-150)	75	Not counted	Possible	Now usually less on estuary as most are now usually on the shallow pools at Portbury Wharf Nature Reserve
Teal		Y		200-300	100	Not counted	Yes	
Curlew		Y	Y	10-30	100	Not counted	No	
Dunlin	Y	Y	Y	c500 (up to 1,000)	50	Not counted	Yes	Regularly up to 500. 1,000 would be a really good count
Redshank	Y	Y	Y	150-200	100	Not counted	Yes	Numbers can be erratic as resident flock moves around to other nearby localities (e.g. in docks)

Although the roost site is publicly accessible, disturbance is infrequent as Chapel Pill is located at the far eastern end of this part of the sector, and this area can only be reached along a path that is muddy and hard going. The majority of walkers and dogs remain at the western end in the area close to Portishead Dock, and tend to only go around half way to Chapel Pill before turning round.

Many years ago, some waders, especially Redshank did sometimes roost further west within this sector around Portishead Pill, but they no longer do so. Counter 2 believes that this is as a result of more people using the western part of the sector.

3.6.2 Roost Site 6B (East Pier; Area R4)

This roost site is on an artificial pier located by the entrance to Portbury Dock. It is not a regular roost site but is sometimes used by waders on the highest spring tides when Chapel Pill (6A) and other areas within the docks are covered by water, usually by Dunlin (Table 3.6.3).

Table 3.6.3 Species assemblage at roost site 6B, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Ringed Plover		Y	Y	10 (0-30)	10	0	Possible	
Dunlin	Y	Y	Y	500-1,000	10	0	Possible	

The site is not publicly accessible so disturbance is infrequent.

3.6.3 Roost Site 6C (Areas R2 and R3)

This site is used as a pre-roost gathering site by gulls, mostly Black-headed Gulls. Numbers are very variable but large numbers may be present, particularly if the WeBS count takes place in the late afternoon. It consists mostly of mud with a very thin fringe of saltmarsh

Although, it is not a wader roost site, it is one of the first areas of mud where waders and Shelduck go to feed, and therefore large numbers may be found here either side of high tide during the WeBS high tide count period, particularly on lower high tides when the mud is exposed for longer. This was the case during the site visit (Table 3.6.4).

Table 3.6.4 Species assemblage at roost site 6C, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	0	0	40	No	Feeding during site visit on exposed mud
Curlew		Y	Y	0	0	16	No	Feeding during site visit on exposed mud
Dunlin	Y	Y	Y	0	0	400	No	Feeding during site visit on exposed mud
Redshank	Y	Y	Y	0	0	35	No	Feeding during site visit on exposed mud
Black-headed Gull				500-2,000	>50	50	-	Important pre-roost site for gulls, mostly black-headed, in late afternoon

This area is part of Portbury Docks and is not publicly accessible so disturbance does not usually occur here.

3.6.4 Comparison of roost site estimates with WeBS count data

The WeBS counts for the sector are broadly in line with the roost site estimates for most species, although the WeBS counts suggest that the estimate for Curlew may be low (Table 3.6.5; Table A2.4 in Appendix 2).

Table 3.6.5 Peak WeBS counts and five year mean peak for SPA Qualifying Species and SPA Assemblage Species for WeBS sector 14406 (Portbury Wharf) for the period 2009/10 to 2013/14. Each WeBS year runs from July to June.

Species	WeBS Year					Five Year Mean Peak
	2009/10	2010/11	2011/12	2012/13	2013/14	
Shelduck	56 (APR)	68 (APR)	149 (MAR)	44 (MAY)	44 (JAN)	72
Wigeon	212 (JAN)	76 (DEC)	46 (JAN)	68 (FEB)	87 (JAN)	98
Gadwall	4 (OCT)	0	10 (MAR)	8 (OCT)	10 (MAR)	6
Teal	182 (JAN)	209 (JAN)	58 (OCT)	550 (FEB)	378 (JAN)	275
Mallard	61 (AUG)	50 (JAN)	67 (NOV)	21 (SEP)	18 (SEP)	43
Shoveler	5 (JAN)	13 (JAN)	2 (MAR)	0	0	4
Pochard	0	0	0	6 (JAN)	0	1
Tufted Duck	0	3 (MAY)	0	0	0	1
Ringed Plover	130 (AUG)	20 (DEC)	30 (OCT)	5 (SEP)	9 (AUG)	39
Lapwing	10 (OCT)	94 (DEC)	13 (NOV)	0	0	23
Dunlin	403 (NOV)	1100 (NOV)	1050 (DEC)	480 (FEB)	65 (SEP)	620
Whimbrel	4 (APR)	0	0	0	0	1
Curlew	88 (SEP)	66 (FEB)	71 (JAN)	72 (SEP)	43 (JAN)	68
Redshank	287 (AUG)	176 (FEB)	262 (OCT)	211 (SEP)	88 (DEC)	205

3.7 River Avon - Sea Mills (WeBS sector 14415)

This sector covers a section of the River Avon, upstream from Avonmouth Docks, to the north and south of Sea Mills station on the outskirts of Bristol. Five roost sites were identified by the WeBS counter in this section (Table 3.7.1; Map 11 in Appendix 4). The interview and site visit were carried out in February.

The main roost sites are located at the edge of an area of saltmarsh adjacent to the railway line on the northern bank of the river. Although there are no formal footpaths in this area, it is accessible to the public via informal paths and is used by walkers and dog walkers, although the path is inland from the saltmarsh and it is difficult to get close to the edge of the saltmarsh. As a result of these difficulties, the counter usually views the site from the harbour near Sea Mills station, undertaking the count on a rising tide when birds are still visible at the edge of the mud. The roosts are not used on the highest spring tides as the saltmarsh is covered, and the birds usually leave the site when this occurs.

Table 3.7.1 Roost sites in sector 14415 (River Avon – Sea Mills).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
7A	Horseshoe Bend	ST5435576606	Wader	Saltmarsh	Day time Snipe roost. Birds pushed off on highest tides	No
7B	Near Horseshoe Bend	ST5450876397	Wader	Saltmarsh	Birds pushed off on highest tides	No
7C	Near Seamills Harbour	ST5479676043	Wader	Saltmarsh	Birds pushed off on highest tides. Normally roost on east bank near harbour but occasionally cross river if disturbed (shown on map as site 7C-1)	Yes
7D	Seamills Harbour	ST5467475991	Gull	Open water		No
7E	rocks	ST5493975134	Wader	Rock outcrop	Common sandpipers are driven onto rocks when mud is covered	No

3.7.1 Roost Site 7A (Horseshoe Bend, Shirehampton)

This area holds a small daytime roost of Snipe which are present on all tides, apart from the highest spring tides (Table 3.7.2). The roost site was not visited during the site visit due to the difficulty of access.

Table 3.7.2 Species assemblage at roost site 7A, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Wigeon		Y	Y	0-300	Rare	0	No	Not usually present but 300 on the river here one year when lakes froze
Snipe			Y	5-10	100	Not counted	-	Daytime roost, birds present a both low and high tides; only absent on the very highest peak tides

The roost is not usually disturbed as it is away from the path. Very occasional disturbance occurs from boats or dogs (off lead), and the birds will circle and return or go to the opposite bank.

3.7.2 Roost Site 7B (Near Horseshoe Bend, Shirehampton)

This roost site comprises a very small inlet of mud and adjacent saltmarsh, and is the area most frequently used by Lapwings when they are present on the site. The numbers observed were typical for the occasions when Lapwing are present in the WeBS sector (Table 3.7.3).

Table 3.7.3 Species assemblage at roost site 7B, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Lapwing		Y		c50	30	50	No	

Like roost site 7A, this roost is not usually disturbed as it is away from the path. Very occasional disturbance occurs from boats or dogs (off lead), and the birds will circle and return or go to the opposite bank. During the site visit, the flock of Lapwings that were initially present in this area, but were flushed by a dog off lead running in the saltmarsh, and spread out along the bank between roost sites 7A and 7C, with some also going to the opposite bank of the river. The birds on the opposite bank were again disturbed shortly afterwards by walkers and flew back to this roost site.

3.7.3 Roost Site 7C (Near Sea Mills Harbour)

This roost is also based around a small bay at the edge of the saltmarsh, just to the north of Sea Mills harbour. This is the main Redshank roost in the WeBS sector and is viewed from Sea Mills station, although the view is obscured at high tide as the birds gather at the very edge of the saltmarsh within the bay. The birds will also occasionally move across to the other side of the river if disturbed from the north bank (mapped as site 7C-1).

During the site visit some mud was still present but the Redshank were already out of view and were only observed when they flew across the river. The number observed was lower than a typical count. A small group of Dunlin have also used this roost regularly this winter, though none were observed during the site visit (Table 3.7.4).

Table 3.7.4 Species assemblage at roost site 7C, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Dunlin	Y	Y	Y	c15	100	0	No	This winter only. Not present in previous years
Redshank	Y	Y	Y	c60	100	20	Yes	

Like the other roost sites, this roost is not usually disturbed as it is away from the path. Very occasional disturbance occurs from boats or dogs (off lead), causing the birds will circle and return or go to the opposite bank.

3.7.4 Roost Site 7D (Sea Mills Harbour)

Gulls roost in the harbour area and on the river adjacent to the harbour. As well as resting on boats within the harbour, they also occasionally use two stone structures jutting into the harbour which appear to be the remains of an old crossing point.

The number of gulls present here are variable and are not tide dependent, with numbers during the site visit being higher than usual (Table 3.7.5). The birds are possibly using the nearby rugby pitches or other nearby sites to feed and may gather here if disturbed from their feeding areas.

Table 3.7.5 Species assemblage at roost site 7D, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Black-headed Gull				c100	100	207	-	Occasional Mediterranean gull or Great Black-backed Gull also present
Lesser Black-backed Gull				c10	Mainly spring	2	-	
Herring Gull				c10	100	2	-	

This roost is not normally subject to disturbance and none was observed during the site visit.

3.7.5 Roost Site 7E (rocks)

This roost site comprises an area of steep rocks underneath trees, and is located on the western bank of the river at the southern end of the count sector. Due to the terrain, the roost site can not be accessed, but it can be easily viewed from the opposite bank of the river.

It is used throughout the winter by up to 5 Common Sandpipers, which are driven onto the rocks as the mud is covered up at the river's edge. The rocks are never covered, so they use the site on all tides, although none were observed during the site visit (Table 3.7.6). A single Greenshank has wintered here for c.20 years (with more than one individual perhaps being involved over this period). During the current winter, it has not usually associated with the Redshank flock and is more often found in the area close to this roost site. During the site visit, it was observed at the edge of the saltmarsh around 50m to the north of the roost site.

Table 3.7.6 Species assemblage at roost site 7E, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Common Sandpiper				1- 5	100 (all winter)	0	-	Driven onto rocks when tide covers mud up
Greenshank				1	100 (winter)	1	-	1 Greenshank has wintered here for many years. Not usually on rocks but mostly stays in this area rather than with Redshank

This roost site is not normally subject to any disturbance as it cannot be reached by walkers and dogs. Boats do move up or down river very occasionally but the birds tend to remain in place rather than flushing.

3.7.6 Comparison of roost site estimates with WeBS count data

Comparison with the WeBS counts for the last five years are generally in line with the roost site estimates, although peak numbers each year for both Redshank and Lapwing are higher than the estimates, and the WeBS counts also confirm that Dunlin occur annually in small numbers (Table 3.7.7; Table A2.5 in Appendix 2). The WeBS counts also show a five year mean peak of 45 Mallard at this WeBS site. During the interview and site visit, the counter had stated that small numbers of Mallard were usually present, but tended to be spread out at different localities along the river and did not make regular use of any specific sites.

Table 3.7.7 Peak WeBS counts and five year mean peak for SPA Qualifying Species and SPA Assemblage Species for WeBS sector 14415 (River Avon – Sea Mills) for the period 2009/10 to 2013/14. Each WeBS year runs from July to June.

Species	WeBS Year					Five Year Mean Peak
	2009/10	2010/11	2011/12	2012/13	2013/14	
Shelduck	2 (APR)	4 (MAY)	1 (MAY)	2 (MAY)	5 (JUN)	3
Wigeon	0	15 (DEC)	(0)	1 (JAN)	0	4
Gadwall	1 (DEC)	0	(0)	0	0	0
Teal	5 (DEC)	5 (DEC)	2 (NOV)	2 (DEC)	0	3
Mallard	47 (JAN)	40 (AUG)	59 (NOV)	39 (OCT)	41 (NOV)	45
Lapwing	100 (DEC)	180 (JAN)	140 (FEB)	90 (NOV)	20 (SEP)	106
Dunlin	19 (FEB)	30 (JAN)	20 (DEC)	20 (DEC)	30 (JAN)	24
Curlew	2 (DEC)	3 (DEC)	1 (OCT)	2 (NOV)	0	2
Redshank	120 (SEP)	120 (MAR)	250 (APR)	110 (NOV)	125 (OCT)	145

3.8 Severn – Battery Point (WeBS sector 14411)

This WeBS sectors covers the area from Portishead Dock to Battery Point. The majority of this sector is comprised of a low, steep cliff to the east of Battery Point behind Woodland Road. Suitable roost sites are limited to a few rocky outcrops, including Battery Point itself. There is currently no counter for this sector, and counts were undertaken by BTO staff during winter 2015/16.

The only roost site identified was on Battery Point itself (Table 3.8.1; Map 12 in Appendix 4). Very small counts (1-3) of several other species of wader were observed within the sector but there was nothing to suggest any other roost sites should be mapped.

The sector has not been counted during the period 2009/10 to 2013/14, so no comparison could be made with previous WeBS counts.

Table 3.8.1 Roost sites in sector 14411 (Battery Point).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
8A	Battery Point	ST4640077573	Wader	Rock outcrop	Locals report small numbers of Purple Sandpipers have roosted on the point this winter (2015/16)	No

3.8.1 Roost Site 8A (Battery Point)

The roost site is comprised of a rocky outcrop at the tip of Battery Point, in Portishead. Two of the WeBS counters interviewed about other WeBS sites confirmed that small numbers of Purple Sandpipers had been seen roosting regularly on the point this winter. These birds were only observed on one out of eight WeBS counts between August and March.

Table 3.8.2 Species assemblage at roost site 8A, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Purple Sandpiper				0-4	13	-	Local reports of small numbers wintering on the point this year. Observed on one WeBS count.

Anglers were observed on the rocks on one occasion and when present would probably cause any birds to move elsewhere.

3.8.2 Comparison of roost site estimates with WeBS count data

This WeBS site was not covered during the period between 2009/10 and 2013/14, so a comparison of the roost site estimates with recent WeBS counts was not possible.

3.9 Battery Point to Redcliff Bay (WeBS sector 14412)

This WeBS sectors covers the area from Battery Point to Redcliff Bay on the south-western edge of Portishead. The eastern half of the sector is made up of a muddy bay and the western half is comprised of a low cliffs and/or rocky boulders. Most of the sector is viewable from the coastal footpath or Portishead seafront, although viewing is difficult in some areas in the western half of the tetrad.

There is currently no counter for this sector, and counts were undertaken by BTO staff during winter 2015/16. The only roost site identified was in Woodhill Bay (Table 3.9.1; Map 13 in Appendix 4). Small numbers of Mallard were observed elsewhere within the sector but there was nothing to

suggest any other roost sites should be mapped. Around 20-30 Mallard and small numbers of other wildfowl were also counted every month on Portishead Marine Lake, although this has not been included as a roost site.

The sector has not been counted during the period 2009/10 to 2013/14, so no comparison can be made with previous WeBS counts.

Table 3.9.1 Roost sites in sector 14412 (Battery Point to Redcliff Bay).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
9A	Woodhill Bay	ST4617977160	Wader	Saltmarsh	c50 Redshank observed during one visit (August) when flushed from edge of roost site. May well be present on other occasions as edge is difficult to view. Small numbers of birds did appear on mud shortly after high tide on other visits and were not observed to fly in so may have roosted.	Possible

3.9.1 Roost Site 9A (Woodhill Bay)

This site comprises an area of saltmarsh fronted by a muddy bay. The front edge of the saltmarsh is difficult to view from the seafront, but a notable count of *c.*50 Redshank was made in August when the birds were flushed by a canoe. However, Redshank were only observed here on two other occasions, with the next highest count being 12 (in January). Numbers of Redshank were also low during the low tide counts, with a maximum of 10 in December, so the 50 observed during the high tide count in August may have been on passage.

Table 3.9.2 Species assemblage at roost site 9A, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Shelduck	Y	Y	Y	0-9	28	No	
Curlew		Y	Y	0-2	56	No	
Turnstone			Y	0-10	28	No	
Redshank	Y	Y	Y	0- 50	38	Possible	50 in August but typically much lower (4-12)

Walkers and dogs were regularly observed on the seafront, but only occasionally on the saltmarsh, so disturbance on the front edge of the saltmarsh may be infrequent.

3.9.2 Comparison of roost site estimates with WeBS count data

This WeBS site was not covered during the period between 2009/10 and 2013/14, so a comparison of the roost site estimates with recent WeBS counts was not possible.

3.10 Wain's Hill to Charlcombe Bay (WeBS sector 14413)

This WeBS sectors covers the area from Redcliff Bay (Portishead) to Wain's Hill (Clevedon). It is comprised mainly of rocky coastline with some muddy and sandy areas, in particular in Clevedon Bay. Most of the sector is accessible and viewable from footpaths or Clevedon seafront, although viewing is difficult in some of the rocky areas of coastline, due to the terrain and vegetation, as the footpath moves away from the coastline, in particular alongside Wain's Hill.

There is currently no counter for this sector, and counts were undertaken by BTO staff during winter 2015/16. Three roost sites were identified at Clevedon (Table 3.10.1; Map 14 and Map 15 in Appendix 4). Small numbers of birds were observed feeding elsewhere within the sector.

Table 3.10.1 Roost sites in sector 14413 (Wain's Hill to Charlcombe Bay).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
10A	Clevedon Marine Lake	ST3971871120	Gull	Open water		No
10B	Clevedon Bay	ST3991171416	Wader	Rock outcrop	Close to main promenade to likely to be prone to high disturbance	No
10C	Walton Bay	ST4283474560	Wildfowl	Boulders	Mallard roosting site	No

3.10.1 Roost Site 10A (Clevedon Marine Lake)

This site is an open marine lake / swimming pool located along the seafront behind the beach at Clevedon, with concrete edges. It is publicly accessible. It is used as a resting area by small numbers of gulls. During the December high tide count, a substantial roost of 170 birds was gathered here along with a single Mediterranean gull (Table 3.10.2). However, during most counts, only very small numbers of gulls were present in this area with most birds being observed feeding along the shoreline of the bay, especially when muddy or sandy areas were still exposed.

Table 3.10.2 Species assemblage at roost site 10A, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Black-headed Gull				10- 170	100	-	
Mediterranean Gull				0-1	14	-	

Walkers and dogs regularly walk along the seawall which runs along one edge of the marine lake and also have access to the beach so may disturb the birds here, although actual disturbance was not observed during the WeBS count visit.

3.10.2 Roost Site 10B (Clevedon Bay)

Most of Clevedon Bay is made up of rocky outcrops and shingle, with some areas of mud being uncovered as the tide goes out. There is a concrete sea wall along Clevedon sea front immediately behind the bay, and people are frequently present on the sea front and on the beach.

Small numbers of gulls are usually present feeding along the water's edge, but the only roost observed was on the September WeBS visit, when a small number of Ringed Plover were roosting on a rocky outcrop close to the seawall (Table 3.10.3). Small numbers of Turnstone are also occasionally present in this area.

Table 3.10.3 Species assemblage at roost site 10B, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Ringed plover		Y	Y	0-9	14	No	9 roosting on rocks in September
Turnstone			Y	0-16	43	-	

This roost was located very close to the promenade and is therefore likely to be subject to the frequent disturbance by people walking along the promenade.

3.10.3 Roost Site 10C (Walton Bay)

The bay is located at the eastern end of the WeBS sector. The habitat is made up of boulders and shingle.

Small numbers of Mallard were roosting on the boulders in the bay on three of the WeBS count visits, including 17 during the December visit (Table 3.10.4).

Table 3.10.4 Species assemblage at roost site 10C, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Mallard		Y		0-17	43	No	

No disturbance was observed during the visits, although the bay is accessible to the public from a nearby residential area, and disturbance would be likely to occur if anyone approached the rocks used by the birds.

3.10.4 Comparison of roost site estimates with WeBS count data

This WeBS site was not covered during the period between 2009/10 and 2013/14, so a comparison of the roost site estimates with recent WeBS counts was not possible.

3.11 Severn – Berrow Flats (WeBS sector 13402)

This WeBS sectors covers the area from Brean Down to Berrow Dunes, adjacent to the holiday resort at Brean. It is comprised of a sandy beach, fronted by an extensive area of mudflats, with the mud usually be covered at high tide. The sector is accessible and viewable from the beach, and vehicles

can usually access the beach and drive along most of the length of this WeBS sector, although it is closed to vehicles on the at high tide on the highest spring tides when the tide reaches up to the sea wall.

There is currently no counter for this sector, and counts were undertaken by BTO staff during winter 2015/16. Two roost sites were identified at Clevedon (Table 3.11.1; Map 16 in Appendix 4).

Table 3.11.1 Roost sites in sector 13402 (Berrow Flats).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
11A	Brean Sands	ST2950257445	Wader	Sand	Roost is usually towards north end of sands but birds were observed flying and landing further south when disturbed. Beach is almost fully covered on the highest tides - it is not known where birds go when this occurs.	No
11B	Brean Sands (on water)	ST2869058051	Wildfowl and gulls	Open Water		Possible

3.11.1 Roost Site 11A (Brean Sands)

The WeBS visits suggest that the preferred roosting area on Brean Sands is towards the northern end of the sector, with roosting birds gathering in a group on the sands close to the water and moving closer to the sea wall as the tide comes in. If disturbed, the birds tended to fly further south along the beach. Feeding birds were observed throughout the sector, particularly at low tide, but roosting birds were only observed in the northern half of the sector. Although many of the species observed were roosting at high tide, most of the Sanderling continued to feed even on the highest tides, either along the shoreline or among driftwood and vegetation washed up from previous tides. Gulls were sometimes observed amongst the roosting birds or on the shore line in small numbers. If disturbed, they tended to fly out on to the water (to roost site 11B). This roost was used on all months, but wader numbers were low when the tide was particularly high and covered the whole beach right up to the seawall and dunes, with only 28 Oystercatcher and 31 Sanderling observed during this visit (March).

Counts made during the winter were variable, with most species apart from Sanderling being recorded in relatively small numbers compared to some of the roosts in other WeBS sectors (Table 3.11.1).

Table 3.11.2 Species assemblage at roost site 11A, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Oystercatcher				28-90	71	-	Highest numbers in Nov-Dec, 28-36 during Jan-Mar
Curlew		Y	Y	0-1	14	No	Recorded on one visit only (Nov)
Bar-tailed Godwit				0-1	14	-	Recorded on one visit only (Dec)
Sanderling				0- 290	71	-	290 in Dec. Some birds roosting but most still feeding even on highest tides
Dunlin	Y	Y	Y	100-250	43	No	
Black-headed Gull				0-30	28	-	Fly onto water when disturbed (roost site 11B)

Disturbance was frequently observed from walkers, dog walkers (usually off lead), vehicles, and people undertaking other activities on the beach (e.g. bait digging). As discussed above, disturbed birds tended to fly a short distance before resettling further south along the beach, sometimes returning to the original preferred roost area if disturbed again subsequently.

3.11.2 Roost Site 11B (Brean Sands – on water)

Shelduck and gulls were observed roosting on the open water at the northern end of the WeBS sector. Like roost site 11A, the preferred roost area was to the northern end of the sector, although the birds were often spread out over a large area, rather than being clustered closely together. This roost is immediately above the mudflats where Shelduck were observed feeding during low tide counts when it was uncovered. Most of the gulls observed in the WeBS sector were also in this area. Small groups of gulls were observed on the water elsewhere in the WeBS sector during the counts, but no areas were used regularly enough to be considered additional roost sites.

Shelduck were observed on approximately 50% of the visits and numbers of gulls on this site were also variable (Table 3.11.2)

Table 3.11.3 Species assemblage at roost site 11B, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Shelduck	Y	Y	Y	21-291	43	Possible	291 in Nov,88 in Dec, 21 in Mar
Black-headed Gull				20-153	100	-	
Common Gull				5-41	43	-	
Lesser Black-backed Gull				2-18	100	-	
Herring Gull				2-19	100	-	
Great Black-backed Gull				0-2	14	-	

No disturbance was observed at this roost site

3.11.3 Comparison of roost site estimates with WeBS count data

This WeBS site was not covered during the period between 2009/10 and 2013/14, so a comparison of the roost site estimates with recent WeBS counts was not possible.

3.12 Berrow (WeBS sector 13415)

This WeBS sectors covers the area adjacent to Berrow golf course, covering Berrow Dunes south to Bridgwater Bay. Like the previous sector at Brean, it is comprised of a sandy beach, fronted by an extensive area of mudflats, with the mud usually covered at high tide. The sector is accessible and viewable from the beach via footpaths across the golf course and by foot along the beach from Burnham-on-sea.

There is currently no counter for this sector, and counts were undertaken by BTO staff during winter 2015/16. Two roost sites were identified at Clevedon (Table 3.12.1; Map 17 in Appendix 4).

On most of the WeBS visits, only small numbers of birds were observed using the beach, and many walkers, joggers and dog walkers (off lead) were observed on the beach. However, on two visits, substantial numbers of waders were present and roosting in this sector (Tables 3.12.2 and 3.12.3). Both these visits occurred when the high tide was in the early morning, and on both occasions the roosts were flushed when the first dog walkers approached them. Small numbers of waders were observed on a third visit, which also took place relatively early in the morning.

Table 3.12.1 Roost sites in sector 13415 (Berrow).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
12A	Berrow south	ST2934551251	Wader	Sand and mud	Roost only present on visits when high tide was in early morning; in December birds started circling and disappeared soon after dog walkers appeared so it is feasible to speculate that usage may be limited as a result of disturbance	Possible
12B	Berrow north	ST2878652105	Wader	Sand and mud	Roost only present on visits when high tide was in early morning; in December birds started circling and disappeared soon after dog walkers appeared so it is feasible to speculate that usage may be limited as a result of disturbance	Possible

3.12.1 Roost Site 12A (Berrow - south)

This roost site is located in the middle of the sector at the edge of the sandflats and on the adjacent mudflats. Most of the birds at this site were roosting (Table 3.12.1), although small numbers of Dunlin and Sanderling were feeding at the edge of the water.

Table 3.12.2 Species assemblage at roost site 12A, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Oystercatcher				0-43	28	-	The birds observed here in January were feeding rather than roosting.
Sanderling				0-100	43	-	
Dunlin	Y	Y	Y	0-3,000	43	Possible	
Black-headed Gull				2- 40	100	-	

Waders were only observed using this roost site during early morning visits, and were flushed by the first dog walkers to arrive, suggesting that usage of this site during other times of the day may be limited by disturbance from people using the beach. This may explain the very high variability in the numbers of waders using this site, and their absence on more than 50% of visits.

3.12.2 Roost Site 12B (Berrow - north)

This roost site is located at the northern end of the WeBS sector and the habitat is similar to the previous roost site (12A) although it is located on a slightly wider area of sand. As at roost site 12A, most of the birds at this site (Table 3.12.2) were roosting, although small numbers of Dunlin and Sanderling were feeding at the edge of the water. It is considered possible that the birds counted

here during the December visit were the same individuals that had just been flushed by dog walkers from roost site 12A, although this is not certain.

Table 3.12.3 Species assemblage at roost site 12B, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Oystercatcher				0-50	28	-	
Sanderling				0-10	14	-	
Dunlin	Y	Y	Y	0-2,000	14	Possible	

As at the previous site, waders were only observed using this roost site during visits during the early morning, and were flushed by the first dog walkers to arrive, suggesting that usage of this site during other times of the day may be limited by disturbance from people using the beach.

3.12.3 Comparison of roost site estimates with WeBS count data

Numbers of Dunlin observed at this site during the WeBS counts were in line with the five year mean peak counts for the period 2009/10 to 2013-14 (Table 3.12.3; Table A2.6 in Appendix 4). The WeBS counts suggest that this is also an important sector for Ringed Plover during passage, with the peak counts for this species usually occurring in August, although this species was not recorded in August 2015.

Table 3.12.4 Peak WeBS counts and five year mean peak for SPA Qualifying Species and SPA Assemblage Species for WeBS sector 13415 (Berrow) for the period 2009/10 to 2013/14. Each WeBS year runs from July to June.

Species	WeBS Year					Five Year Mean Peak
	2009/10	2010/11	2011/12	2012/13	2013/14	
Shelduck	(10) (OCT)	24 (AUG)	6 (APR)	(4) (JUL)	102 (JUL)	44
Teal	(0)	2 (DEC)	0	(0)	0	1
Mallard	(2) (OCT)	2 (DEC)	0	(0)	0	1
Ringed Plover	(100) (OCT)	11 (AUG)	53 (AUG)	400 (AUG)	(65) (AUG)	155
Dunlin	(630) (OCT)	3,975 (DEC)	1,100 (OCT)	2,000 (NOV)	550 (DEC)	1,906
Whimbrel	21 (APR)	4 (AUG)	0	(0)	0	6
Curlew	17 (JAN)	13 (FEB)	0	2 (JAN)	46 (JUL)	16
Redshank	(0)	1 (DEC)	0	(0)	0	0
Turnstone	(1) (AUG)	0	0	2 (AUG)	0	1

3.13 Bridgwater Bay (WeBS sector 13411)

This is a large sector covering the whole of Bridgwater Bay, including the estuary of the River Parrett and the Steart Marshes WWT Reserve. The Bridgwater Bay sector also includes an area which has previously been counted as a separate WeBS sector (13403; 'Severn – Burnham on Sea'). Most roost sites are accessible from footpaths running close to the seawall, with the one exception being Stert Island (13G) which can only be viewed from distance (from Stert Point and Burnham).

The sector is covered by a team of counters, co-ordinated by counter 1, who collates and submits the counts for the sector. The interview and site visits were carried out in February. Fourteen roost sites were identified during the interview (Table 3.13.1; Maps 18 to 21 in Appendix 4). Four of these roost sites have been combined to form one roost site in the report (with sub-sites), as these are treated as

a single site in the Bridgwater Bay spreadsheet (roost site 13F; Map 21). In Table 3.13.1, the SPA Primary Roost status for the four sub-sites is defined as 'Yes' if it is known that the sub-site meets the Primary Roost criteria for one or more species, and as Possible otherwise (the Comments column in Table 3.13.7 contains some additional information about sub-site usage).

Due to the size of the sector and the fact that several surveyors undertake the counts, it was not possible to carry out site visits to all of the roost sites on the same day. Instead the interview was carried out with counter 1 and counter 2 on the day before the WeBS counts, with four roost sites being visited on the same day. Further roost visits were carried out on the WeBS count day: Ian Woodward visited six roost sites with counter 1 (including the four 'sub-sites'), and then viewed part of the WWT reserve with counter 1 and counter 2. On the same day, Alan Salter visited two of the sites with counter 3 (13H and 13I). Time constraints meant that a site visit with the WeBS counters was not carried out to one site (13J). A follow up visit was not considered necessary as Ian Woodward had already viewed this roost on two occasions during the winter when carrying out WeBS counts in sector 13404 (River Parrett at Combwich and Pawlett). The site visit counts given for this roost site in this report are taken from a count made in December.

WWT staff also undertake counts on the reserve. Following the interviews and site visit, a brief phone interview was carried out with a WWT staff member to confirm some of the details provided. He also provided his counts of Curlew for the reserve, and mapped the area that they now use regularly (Map 22).

Table 3.13.1 Roost sites in sector 13411 (Bridgwater Bay).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
13A	Hinkley Point	ST2124846539	Mixed	Rock outcrop; power station outflow	At peak high tides all waders move to other sites. During hard winters more birds present (power station puts warm water out). Gulls feed on outfall esp at low tide	Yes
13B	Stolford	ST2291346137	Mixed	Shingle shore/outcrop		Yes
13C	Catsford Common	ST2390045691	Mixed	Shingle shore		Yes
13D	Wall Common	ST2567145408	Mixed	Shingle shore; (some saltmarsh)	Mainly used during passage when they can hunker down on shingle. Not usually used in winter due to disturbance, but good numbers were present on saltmarsh during Feb site visit 1 hour after high tide. Mainly feeding on exposed mud but c400 Knot and c250 Dunlin were roosting	Yes
13E	Steart	ST2756346550				Yes (passage)
13F	Stert Point	ST2848246849	Mixed	Various		Yes
13F-1	Stert Point - north bank	ST2823147050	Wader	Saltmarsh		Possible

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
13F-2	Stert Point - point	ST2882247111	Wader	Shingle shore		Yes
13F-3	Fenning Island - brackish pools	ST2857046867	Mixed	saltmarsh; brackish pools		Possible
13F-4	Fenning Island - pill	ST2840746493	Mixed	Pill; saltmarsh		Yes
13G	Stert Island	ST2908648340	Mixed	Mixed	View from Stert Point and Burnham to see both sides; distant so difficult to count. Birds used to go to this site from other roost on the highest peak tides. Now they tend to go to the WWT reserve instead (roost site 13K)	Yes
13H	The Brue	ST3024747664	Wader	Saltmarsh; mud		Yes
13I	West Huntspill Sluice	ST2902246062	Mixed	Saltmarsh		Yes
13J	River Parrett	ST2733844271	Mixed	Mud		Yes
13K	Steart Marshes WWT	ST2670244621	Mixed	Newly created wetland	Birds now often move onto the reserve especially during the highest tides. A large Curlew roost is now regular here.	Yes

3.13.1 Roost Site 13A (Hinkley Point)

This roost site is comprised mainly of a rock outcrop in front of Hinkley power station. There is a small area of sandy beach which rapidly goes into mud, usually only available at low tide. There is also a small area of shingle adjacent to the concrete sea wall, as well as a power station outfall and intake structure. The site is publicly accessible by footpath along the seawall. On the highest spring tides, the tide comes right up to the seawall, and birds move from roost to roost from west to east as the western roosts get covered first (i.e. towards 13D).

No count was made during the site visit, as the visit was made two and a half hours after high tide. However, the estimated numbers of birds (Table 3.13.2) are broadly in line with the monthly counts for 2015 provided by counter 1.

Table 3.13.2 Species assemblage at roost site 13A, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Brent Goose				20-25	80 (Winter)	Not counted	-	Often roost on water between roosts 13A & 13B.
Shelduck	Y	Y	Y	20-150	100	Not counted	Possible	Mainly winter. A few breed and large increase in numbers from July.
Wigeon		Y	Y	60	100 (Winter)	Not counted	No	
Teal		Y	Y	20	100 (Winter)	Not counted	No	
Pintail		Y		100 (60-120)	100 (Winter)	Not counted	Yes	Up to 120 usually split between 13A and 13B
Oystercatcher				30-40	100	Not counted	-	*c*.100 present during passage. Regular breeder here
Ringed Plover		Y	Y	20-30	100 (Spring & autumn passage)	Not counted	Yes (passage)	
Lapwing		Y		50-60	100 (winter)	Not counted	No	
Whimbrel		Y	Y	20 (5-30)	100 (Spring Passage)	Not counted	Yes (passage)	This is the best site for early passage Whimbrel, though in 2016 more birds were using the reserve (site 13K)
Curlew		Y	Y	40-50	80 ('most months')	Not counted	Yes	
Turnstone			Y	60 (10-130)	100 (winter)	Not counted	-	feeding as well as roosting
Purple Sandpiper				6 (0-16)	70 (winter)	Not counted	-	feeding as well as roosting
Redshank	Y	Y	Y	20	100	Not counted	No	
Black-headed Gull				30 (5-2,500)	100	Not counted	-	Variable – Depends on time of year and tide
Mediterranean Gull				1 (0-6)	25	Not counted	-	Singles in winter, most in July & August
Common Gull				10	90 (Winter)	Not counted	-	
Lesser Black-backed Gull				40	100	Not counted	-	
Herring Gull				240	100	Not counted	-	

Anglers use the site but mainly at low tide and so do not cause much disturbance to roosting birds. Wildfowlers also apparently have access to this area but the WeBS counters have never seen any.

3.13.2 Roost Site 13B (Stolford)

This roost site is comprised of a rock outcrop and a boulder/shingle shore in front of a seawall formed on larger boulders. There is also a concrete outfall used by gulls (Great Arch Outfall). Birds feed on the mudflats in front on the roost site when it is uncovered. The site is publicly accessible by footpath along the seawall. On the highest spring tides, the tide comes right up to the seawall, and birds move from roost to roost from west to east as the western roosts get covered first (i.e. towards 13D).

The species composition is similar to roost site 13A, with numbers of some species split between the two roost sites. This roost usually has slightly lower numbers than 13A. The site visit was made two hours after high tide, and numbers during the site visit were lower than usual (Table 3.13.3).

Table 3.13.3 Species assemblage at roost site 13B, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	20 (5-500)	100 (winter)	0	Possible	Up to 500 in autumn (moult/post-moult)
Mallard		Y	Y	10-20	100	6	No	During site visit feeding on rock outcrop (visit 2 hours after high tide)
Pintail		Y		100 (60-120)	100 (Winter)	1	Yes	Up to 120 usually split between 13A and 13B. same birds as 13A.
Oystercatcher				2-50	100	5	-	Present all months. Occasional breeder here
Grey Plover		Y	Y	1-20	100 (winter and spring/autumn passage)	1	Possible	During site visit feeding on rock outcrop (visit 2 hours after high tide)
Ringed Plover		Y	Y	c6	100 (winter)		No	This is the most reliable roost site for this species in winter
Turnstone			Y	c20	100 (winter and spring/autumn passage)	20	-	During site visit feeding on rock outcrop (visit 2 hours after high tide)
Curlew		Y	Y	1-40	100	6	Possible	During site visit feeding on rock outcrop (visit 2 hours after high tide)
Dunlin	Y	Y	Y	150-200	100 (winter)		No	
Redshank	Y	Y	Y	c24	100 (winter)	15	No	

Disturbance at this site is infrequent and thought to be low, with walkers only present occasionally.

3.13.3 Roost Site 13C (Catsford Common)

This roost site is made up shingle bank fronted by a mudflat which is covered at high tide. Birds feed on the mudflats in front on the roost site when it is uncovered. There is an area of upper saltmarsh behind the beach which has muddy ditches and creeks but is not often used by roosting birds. The site is publicly accessible by an easy footpath along the seawall. On the highest spring tides, the tide comes right up to the seawall, and birds move from roost to roost from west to east as the western roosts get covered first (i.e. from 13A towards 13D). The shingle ridge on this roost site never gets covered and is used on all tides.

Good numbers of birds are usually present at this roost site (Table 3-13-4). The roost site was viewed in poor weather during the site visit, an hour and a half after high tide, and the only birds present were 40 Oystercatchers. Groups of Knot and Dunlin observed a few minutes earlier flying past roost site 13D may well have come from this site.

Table 3.13.4 Species assemblage at roost site 13C, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Brent Goose				20-25	80	0	-	First place where Brents feed so recorded here occasionally but roost out to sea or at 13A or 13B
Shelduck	Y	Y	Y	20-40	100	0	Possible	Variable numbers, several hundred after moult
Wigeon		Y	Y	10-20	100 (winter)	0	No	
Teal		Y	Y	10-20	100 (winter)	0	No	
Mallard		Y	Y	10-20	100 (winter)	0	No	
Pintail		Y		10-20	90 (winter)	0	Yes	
Oystercatcher				20-30	100	40	-	200-300 in autumn; 1-2 pairs in summer. 40 recorded during site visit (Feb)
Grey plover		Y	Y	10	100 (Winter)	0	Yes	
Whimbrel		Y	Y	0-40	90 (spring passage)	0	Possible (passage)	
Curlew		Y	Y	6-40	100 (winter)	0	Possible	
Black-tailed Godwit			Y	0-10	Spring passage	0	-	Also occasional in winter
Bar-tailed Godwit				0-350	spring passage	0	-	usually passage, sometimes in large numbers for 1-2 days in spring but c10 in bay this winter. Also at 13D.
Turnstone			Y	10s	100 (spring/ autumn passage and winter	0	-	Sometimes up to 200 on highest tides (birds from 13A or 13B)
Knot			Y	40-50	100 (Winter)	0	-	
Purple Sandpiper				1 or 2	Occasional	0	-	
Dunlin	Y	Y	Y	400-500	100 (Winter; spring/ autumn passage)	0	Yes	Variable numbers

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Redshank	Y	Y	Y	c10	100 (winter)	0	No	
Black-headed Gull				100s	100	0	-	Variable – sometimes into 1,000s (late summer)
Mediterranean Gull				1 (1-6)	40	0	-	Singles in winter; most July and August)

Disturbance by walkers, dogs and horses is frequent at weekends although unusual during the week. This site is vulnerable to disturbance and often causes birds to leave the site. Anglers are occasionally present at high tide and cyclists also cause disturbance occasionally.

3.13.4 Roost Site 13D (Wall Common)

This roost site is comprised of a shingle ridge fronted by a mudflat which is covered at high tide. There is an area of lower saltmarsh in front of the eastern end of the site, and upper saltmarsh behind the shingle ridge which is used occasionally. Birds feed on the mudflats in front on the roost site when it is uncovered. The site is publicly accessible by crossing the saltmarsh from a car park close to the roost site.

On the highest spring tides, the tide comes right up to the seawall, and birds move from roost to roost from west to east as the western roosts get covered first (i.e. from 13A towards 13D).
This site is used mainly during spring and autumn passage when birds will often roost on the shingle ridge (Table 3-13-5). During winter, it is less frequently used, possibly because disturbance is frequent. However, during the site visit, several hundred Dunlin and Knot and small numbers of Redshank and Grey plover were roosting on the saltmarsh. The WeBS counter considered this to be atypical for a winter count, but the survey area counts provided by the WeBS counter covering 2015 suggested that, at least during 2015/16, numbers using this roost site were higher than estimated.

Table 3.13.5 Species assemblage at roost site 13D, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	50-400	100 (winter and spring/autumn passage)	2	Yes	Not mentioned during interview but present during site visit, several hundred here after moult
Grey plover		Y	Y	10-30	100 (winter and spring/autumn passage)	50	Yes	
Ringed Plover		Y	Y	1-400	100 (winter and spring/autumn passage)	2	Possible	
Whimbrel		Y	Y	0-50	spring/autumn passage		Possible	
Curlew		Y	Y	20-40	100 (winter and spring/autumn passage)	3	Possible	Not mentioned during interview but present during site visit

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Turnstone			Y	20-100	75 (winter and spring/autumn passage)	5	-	Not mentioned during interview but present during site visit
Knot			Y	50-500	100 (winter and spring/autumn passage)	400	-	c400 roosting during site visit (Feb). Similar numbers were recorded in Nov and Dec 2015.
Sanderling				0-20	50 (winter and spring/autumn passage)		-	
Dunlin	Y	Y	Y	50-500	100 (winter and spring/autumn passage)	300	Possible	Roosting. 8,000 were recorded in December 2015
Redshank	Y	Y	Y	10-100	100 (winter and spring/autumn passage)	25	Possible	Not mentioned during interview but present during site visit
Snipe			Y	0-5	50 (winter and spring/autumn passage)		-	

Disturbance occurs very frequently at this site by walkers, dogs and birders. Currently people often walk along the beach; if they walked along the path it would reduce disturbance. If disturbed, birds tend to circle round and come back down again, although now the will often go into the WWT reserve when flushed.

3.13.5 Roost Site 13E (Steart)

This roost site is comprised of an area of saltmarsh fronted by mudflats, with a reedbed behind it. A footpath runs behind the reedbed and the saltmarsh can only be accessed at one point where there is a gap (unless people walk along the coast).

On the highest spring tides, the tide comes right up to the reedbed and birds move along the coast towards the point (13F-2) or towards Stert Island (13F).

This site is included as part of the Stert Point counts but is included as a separate site here as it stretches some way west of the point. It is mainly used by waders, particularly Curlew in winter, and other waders during passage.

Table 3.13.6 Species assemblage at roost site 13E, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	10-1,500	100	9	Possible	Not mentioned during interview but present during site visit
Whimbrel		Y	Y	10-50	90 (spring passage)	0	Yes (passage)	Spring passage
Curlew		Y	Y	10-900	100	350	Possible	Also further along coast at 13F-1. Move to 13F-3 or 13K on highest tides
Black-tailed Godwit			Y	0-20	15	0	-	Mainly passage
Bar-tailed Godwit				10-350	60	0	-	Occasional on passage, a few winter
Redshank	Y	Y	Y	10-100	100 (winter and spring/autumn passage)	12	Possible	Not mentioned during interview but present during site visit
Snipe			Y	5-50	100 (winter)	2	-	

Disturbance can occur from walkers and dogs (off lead) although is infrequent as this site is more difficult to access than 13C and 13D. Disturbance also occurs occasionally from boats and jet-skis but is more frequent towards Stert Point (13F-2).

3.13.6 Roost Site 13F (Stert Point)

This roost site is counted as a single sub-sector by the counter, and incorporates four sub-sites. Roost site 13E (Steart) is also counted as part of the same sub-sector but has been treated separately in this report as it covers a different geographical area. Stert Point covers an area of brackish pools and grazed saltmarsh and also includes some associated coastal features. The end of the point is not normally accessible to members of the public, and hides are in place to enable birdwatchers to view the area, including a tower. This is occasionally ignored by members of the public, although access to much of the point is difficult due to the terrain (muddy ditches). A path does lead out to the southern part of the point near the creek, though this is not currently open to the public (13F-4). The point is used on all tides, but on the highest spring tides much of the point is covered, with the shingle ridge on the point and the brackish pools being the last areas available. On the very highest tides, these are also covered. On these tides, birds used to go to Stert Island (13G), but recently have started using the WWT reserve instead (13K).

The four sub-sites are as follows (Map 21):

Roost 13F-1 (northern edge of Stert Point) – this area is mainly comprised of lower saltmarsh fronted by mudflats and is a continuation of roost 13E. As you move eastwards towards the point, the mudflats gradually become sandier. Along with roost 13E, this is the main roosting area for large waders and is used by Curlew and Grey Plover in winter, and Whimbrel and godwits during passage. During the site visit, small numbers of Curlew flew into this area as the tide came in from further west along the coast.

Roost 13F-2 (the point) – The point itself is made up of sandflats and a shingle ridge. This area is often used by a large flock of Dunlin. In the past, the ridge used to remain available on all but the very highest tides and used to be covered in birds on the higher tides, but it is no longer used as

much and the counter believes that many birds are instead going on to the WWT reserve. No birds were observed on the point during the site visit, but a RNLI lifeboat was undertaking practise manoeuvres just off the point.

Roost 13F-3 (brackish pools) – this area includes some deeper pools that often stay full for several weeks or longer, and an area of saltmarsh that is grazed by sheep. The sheep are removed when higher spring tides are expected as the area may flood, creating additional muddy areas and shorter term pools that are sometimes used by feeding waders. During the site visit, c100 Dunlin, 22 Redshank and 45 Shelduck were spread out across this saltmarsh, mostly feeding, and 27 Grey Plover were also present (mostly roosting).

Roost 13F-4 (creek) – this area is made up of a muddy creek and grazed saltmarsh. This area is used by both Redshank and Teal, which feed in the creek before moving onto the saltmarsh when the mud is covered by the rising tide.

Numbers observed during the site visit were lower than usual for many species, probably as a result of the presence of the RNLI lifeboat mentioned above.

Table 3.13.7 Species assemblage at roost site 13F, based on the interview- and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	60-700	100	45	Yes	Large numbers around point during moult (13F-2). During site visit were on brackish pools/saltmarsh (13F-3)
Wigeon		Y	Y	150 (50-400)	100 (winter)	150	Yes	Flushed from creek during site visit (13F-4)
Teal		Y	Y	c150 (80-250)	100 (winter)	100	Yes	On creek during site visit (13F-4)
Pintail		Y		5 (0-25)	25	0	Possible	
Mallard		Y	Y	10 (5-30)	100	10	No	On pools (13F-3)
Shoveler		Y		6 (1-25)	40	1	Possible	Not mentioned during interview but present during site visit
Little Egret				15 (5-60)	100	3	-	Large numbers in late autumn. Usually feeding on lagoons (13F-3)
Grey plover		Y	Y	100 (80-120)	100 (winter)	27	Yes	During site visit were on saltmarsh/pools (13F-3)

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Whimbrel		Y	Y	5-10	90 (spring passage)	0	Yes (passage)	Spring passage
Curlew		Y	Y	600 (50-1,000)	100	0	Yes	
Black-tailed Godwit			Y	1-25	40	0	-	Mainly passage
Bar-tailed Godwit				1-10	40	0	-	Mainly passage
Knot			Y	1,000 (400-2,000)	100 (winter)	0	-	Numbers variable. Mostly on Stert Point (13F-2)
Dunlin	Y	Y	Y	c5,000	100 (all winter)	155	Yes	Numbers variable and can peak at 15,000. Mostly on Stert Point (13F-2). Also on Stert Island (13G)
Redshank	Y	Y	Y	550 (100-1,000)	100 (winter)	115	Yes	Usually in the creek or adjacent saltmarsh (13F-4). Majority during site visit were in this area (90)

Disturbance by walkers and dogs (on or off lead) occurs occasionally but does not usually have a significant effect on this roost site as the terrain is difficult so people do not usually go very far. Disturbance from unpowered boats, powered boats and jet-skis occurs on one or two WeBS counts a year, with birds usually flying round and back again or landing nearby. This can include anglers sitting in boats off the point and the lifeboat carry out practise manoeuvres. Helicopters also regularly disturb roosting birds in this area.

In the opinion of the WeBS counter, the part of the point most sensitive to disturbance was the creek (sub-site 13F-4). The counter was slightly concerned as he understood that the proposed coastal footpath included the path leading to this area, although he thought that disturbance would be mitigated by only allowing access to this area during the summer. During the site visit, the presence of the counters along the path between ST2828246464 and ST2823546244 did flush all the birds using the adjacent creek and saltmarsh.

3.13.7 Roost Site 13G (Stert Island)

Stert Island is an uninhabited island which includes areas of shingle, saltmarsh, mudflats and sandflats. It cannot be accessed by land and can only be viewed from a distance, from either Stert Point or Burnham-on-sea. In order to view both sides of the island, co-ordinated counts are carried out from both sides.

The island is used on all tides with birds feeding on the mud surrounding the island during low tide and moving up with the tide. During the highest spring tides, birds from other roost sites used to move over to this roost site when other sites were covered. However, recently the counters have noticed that this does not appear to be the case and believe that they are instead going on to the WWT reserve area on the highest tides.

Numbers observed during the site visit were typical for most species.

Table 3.13.8 Species assemblage at roost site 13G, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Canada Goose				4 (2-8)	50	3	-	
Shelduck	Y	Y	Y	100-400	100	46	Yes	More in late summer during moult
Wigeon		Y	Y	10 (0-30)	25	50	No	Not mentioned during interview but present during site visit
Cormorant				c12	100 (Winter)	6	-	
Oystercatcher				100-300	100 (winter and spring/autumn passage)	113	-	
Grey plover		Y	Y	0-30	80 (Winter)	15	Possible	
Ringed Plover		Y	Y	4	50 (Breeding)	0	No	
Curlew		Y	Y	50 (10-400)	100	50	Yes	all year – few in summer
Turnstone			Y	10-50	50 (Winter)	0	-	
Knot			Y	100 (50-2,000)	100 (Winter)	0	-	
Dunlin	Y	Y	Y	1,000-2,000	100 (Winter)	1200	Yes	

Disturbance is not usually an issue here as the island is difficult to access, although boats do occasionally land particularly in summer. Occasional disturbance also occurs from jet-skis and kite-surfers. If disturbed, the birds will usually circle round and return to the same area or land nearby.

3.13.8 Roost Site 13H (The Brue)

This site is made up of a creek where the River Brue meets Bridgwater Bay at the southern end of Burnham-on-sea. There is a concrete seawall along Burnham seafront, and some small pools adjacent to the river, but the habitat used by roosting birds is comprised of mudflats and lower saltmarsh and is located on the opposite side of the River Brue from Burnham. The roost site is used on most tides: some parts of the site get covered up on higher tides but the site includes some very high areas of mud and saltmarsh alongside the creek which the birds can usually still use. One side of the creek is publicly accessible and regularly used by walkers and dog walkers, and so the site is straightforward to view, although on lower high tides especially some of the banks of the creek are difficult to view.

This roost site sometimes hold very large roosting flocks of Redshank, though numbers of variable. During the site visit, numbers of Redshank were lower than normal and numbers of Curlew were higher than is typical (Table 3.13.9).

Table 3.13.9 Species assemblage at roost site 13H, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	c20	100 (Winter)	20	No	
Wigeon		Y	Y	10-30	100 (Winter)	30	No	
Teal		Y	Y	10-50	100 (Winter)	33	No	
Mallard		Y	Y	10-30	100 (Winter)	4	No	
Curlew		Y	Y	20-50	100 (Winter)	126	Possible	
Turnstone			Y	30	100 (Winter)	32	-	
Spotted Redshank		Y		1 (1-5)	80 (Winter)	0	-	Usually 1 or 2 only
Redshank	Y	Y	Y	1,000 (600-1,600)	100 (Winter)	291	Yes	Can be 600-3,000. 1,000 typical in winter
Jack Snipe				3 or 4	80 (Winter)	0	-	Hotspot here. Also recorded occasionally on roost sites 13D and 13E.
Black-headed Gull				30-200	100 (Winter)	6	-	
Herring Gull				10-20	100 (Winter)	8	-	

Disturbance from walkers and dogs is very frequent, although most activity is on the opposite side of the river to the roosting birds, so does not have a substantial effect. Boat movement from the marina and from the RNLI also causes disturbance, and is frequent on high tides. However, the counter believes that the birds are used to occasional disturbance and in his experience they come back quickly after boats go through.

3.13.9 Roost Site 13I (West Huntspill Sluice)

This roost site comprises saltmarsh fronted by mudflats to the north of a concrete sluice. There is also an area of rubble/boulders used to bolster the sea wall (grid ref) which is sometimes used by Turnstones. The site is publicly accessible with a footpath running along the bank which is frequently used by dog walkers.The site is difficult to view apart from for a brief period around 30 minutes either side of high tide when the birds are forced higher up the banks. It is used on all tides but is flooded on the very highest tides. When this happens, any Avocet using the site will usually swim and any Redshank and Curlew will cross the river to other roost sites.

The numbers observed during the site visit were believed to be typical, apart from Redshank for which numbers were low (Table 3.13.10), although the counters stated that numbers of Redshank can be variable as the same birds may be here or at roost site 13F-4 or 13H.

Table 3.13.10 Species assemblage at roost site 13I, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	30 (5-80)	100 (Winter)	22	Possible	
Wigeon		Y	Y	10-50	100 (Winter)	15	No	
Mallard		Y	Y	10 (5-20)	100 (Winter)	11	No	
Avocet				300 (150-500)	100 (Winter)	240	-	Favoured site along this stretch to roost site 13G. Swim if covered. Numbers have risen massively over the last 5 years (over 500 this year). 240 on site visit (Feb)
Grey plover		Y	Y	2 (0-10)	80 (Winter)	0	Possible	
Curlew		Y	Y	10 (5-60)	100 (Winter)	1	Possible	
Dunlin	Y	Y	Y	80 (20-200)	100 (Winter)	140	No	
Redshank	Y	Y	Y	400 (200-1,110)	100 (Winter)	36	Yes	One of 3 Redshank roosting sites along with 13F-4 and 13H (sometimes few; sometimes lots). 36 on site visit (Feb)
Spotted Redshank		Y		1 (1-5)	50 (Winter)	0	-	

Although the site is publicly accessible and well used by walkers and dog walkers, the counter believes they cause none or minimal disturbance. Disturbance from the RNLI lifeboat does affect birds at this site, but only occurs very occasionally.

3.13.10 Roost Site 13J (River Parrett)

This roost site is made up of a large mudbank on a bend on the north side of the River Pawlett, adjacent to the WWT reserve. It is viewable from either side of the river, either from the footpath around the WWT reserve, or from Pawlett Hams on the opposite side.

According to the WeBS counter, this is generally more a feeding area than a roost site, but is used for roosting on neap tides (the mud is covered on the highest spring tides). However, large numbers of birds were present here and appeared to be roosting during all the high tide count visits made to the WeBS sector at Pawlett Hams. This roost site was not visited during the Bridgwater Bay site visit as it had already been observed several times from Pawlett Hams, and the numbers stated for the site visit in the table below relate to a count made from Pawlett Hams in December.

Numbers counted in December were typical for most species. Curlew, Lapwing and Golden plover were not present at this roost in December, although c.5,000 Lapwing were observed in flight whilst observing this roost site, over the adjacent Steart Marshes WWT reserve (roost 13H)

Table 3.13.11 Species assemblage at roost site 13J, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	20-240	100 (winter)	159	Possible	
Gadwall	Y	Y		0-13	10	0	Possible	
Mallard		Y	Y	4-20	75	0	No	
Avocet				300 (150-500)	100 (winter)	280	-	
Oystercatcher				1-6	30	0	-	
Grey plover		Y	Y	20-60	25	40	Possible	Mainly in autumn
Golden Plover				500 (200-2,000)	10	0	-	
Lapwing		Y		100 (50-1,500)	100 (winter)	0	Possible	
Curlew		Y	Y	40 (0-150)	50	0	Yes	
Knot			Y	20-60	50 (winter)	50	-	
Dunlin	Y	Y	Y	2,000-4,000	100 (winter)	10,000	Yes	

Disturbance occurs when walkers and birdwatchers walk along the footpath along the northern bank, and the effect can be variable: sometimes few birds take off and sometimes most of the birds present will flush. Helicopters will cause all birds to take off and boats can also cause similar disturbance: usuaully if this occurs the birds will circle for a few minutes before landing again.

3.13.11 Roost Site 13K (Steart Marshes WWT Reserve)

The Steart Marshes WWT reserve is a new area of recently created tidal wetland which was flooded when the seawall was deliberately breached. It was previously arable land and is now developing into an area of saltmarsh. Landscaping was undertaken prior to breaching the sea wall and hence the reserve contains a mixture of muddy areas, creeks and lagoons. The area covered by the WWT reserve is counted by the WeBS team covering Bridgwater Bay, and these counts have been recorded under a new WeBS sector (13303) since May 2015. The reserve itself is not accessible to the public, but there is a footpath around the reserve enabling birdwatchers to view the site. It is difficult to count due to the size of the site and the regular movement of birds around the site and to and from the site, particularly over the high tide period. In addition to the area mapped as this roost site, the reserve also includes freshwater marsh at Stockland and Okehampton, which are now being used by waders, particularly Snipe. The counters have observed that more Redshank have started using Stockland and these parts of the reserve may become important in the future.

Numbers of birds using the site can be variable, and birds are now using it on all tides. The counters believe that many birds now preferentially use the reserve rather than other traditional roost sites, particularly on the highest tides when they would previously have moved to uncovered areas at Stert Point (13F) and Stert Island (13G). For most species, there are not yet any clearly defined roosting areas. However, in the case of Curlew, a regular roosting area is becoming apparent (Map 23), with five high tide roost counts of between 287 and 602 being made by a member of the WWT staff in January and February 2016. The site visit counts were made from one side of the reserve only, so do not necessarily represent a complete count.

Table 3.13.12 Species assemblage at roost site 13K, based on the interview and site visit.

Species	Status			Number of birds	% presence at roost site	Count during site visit	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI					
Shelduck	Y	Y	Y	Variable (up to 500)	100	60	Possible	
Wigeon		Y	Y	150 (50-400)	75 (winter)	5	Yes	Usually good numbers around the breach area
Teal		Y	Y	40-240	100 (winter)	20	Possible	
Mallard		Y	Y	10-30	100	5	No	
Shoveler		Y		10-30	75	0	Yes	
Golden Plover				500 (200-2,000)	100 (Winter)	0	-	daytime roost (often loafing on site and fly off to feed at night). Numbers variable
Lapwing		Y		1,000 (800-2,000)	100 (Winter)	*c*.500	Yes	daytime roost (often loafing on site and fly off to feed at night). Numbers variable
Curlew		Y	Y	300-600	100 (Winter)	1	Yes	Estimate based on counts made by WWT staff
Black-tailed Godwit			Y	50 (20-200)	80	0	-	
Dunlin	Y	Y	Y	400 (100-5,000)	100 (winter)	*c*.300	Yes	Definitely becoming a high tide Dunlin roost near horseshoe; often moving around feeding on muddy areas
Redshank	Y	Y	Y	300 (100-700)	100 (winter)	5	Yes	
Snipe			Y	100 (50-150)	100 (winter)	0	-	Often on Stockland and Okehampton (other parts of the site; not mapped)

As there is no public access to the reserve, disturbance from human activity is minimal (although frequent disturbance from raptors does occur).

3.13.12 Comparison of roost site estimates with WeBS count data

Comparison with the WeBS counts for the last five years are mostly in line with the roost site estimates (Table 3.13.7; Table A2.7 in Appendix 4), although peak numbers each year for both Wigeon and Teal are substantially higher than the roost site estimates, suggesting that some of the roost sites or other areas within the WeBS sector may hold larger numbers of these species than suggested in the estimates. The five year mean peak sector counts for Redshank are lower than the combined roost site estimates, although the peak counts were higher in 2012/13 and 2013/14, so more in line with the roost site estimates.

Table 3.13.13 Peak WeBS counts and five year mean peak for SPA Qualifying Species and SPA Assemblage Species for WeBS sector 13411 (Bridgwater Bay) for the period 2009/10 to 2013/14. Each WeBS year runs from July to June.

Species	WeBS Year					Five Year Mean Peak
	2009/10	2010/11	2011/12	2012/13	2013/14	
Shelduck	3,200 (AUG)	1,820 (AUG)	3,243 (AUG)	3,506 (AUG)	1,746 (JUL)	2,703
Wigeon	365 (OCT)	2,200 (JAN)	609 (FEB)	852 (DEC)	1,173 (NOV)	1,040
Gadwall	(0)	0	3 (FEB)	0	2 (APR)	1
Teal	430 (OCT)	1,200 (JAN)	475 (DEC)	1,050 (JAN)	1,505 (FEB)	932
Mallard	47 (OCT)	21 (MAR)	57 (JAN)	390 (OCT)	249 (NOV)	153
Pintail	12 (MAR)	33 (FEB)	90 (FEB)	107 (NOV)	155 (FEB)	79
Shoveler	16 (FEB)	1 (FEB)	10 (JAN)	4 (FEB)	60 (NOV)	18
Pochard	2 (JAN)	0	(0)	0	0	1
Tufted Duck	20 (JAN)	0	(0)	82 (JUL)	3 (NOV)	26
Ringed Plover	145 (MAY)	85 (AUG)	294 (AUG)	1410 (AUG)	135 (MAY)	414
Grey Plover	185 (DEC)	120 (JAN)	147 (JAN)	207 (MAR)	158 (OCT)	163
Lapwing	3,535 (JAN)	344 (NOV)	8,189 (NOV)	5,150 (FEB)	5,345 (DEC)	4,513
Dunlin	9,400 (JAN)	22,000 (JAN)	17,500 (NOV)	10,004 (JAN)	8,450 (DEC)	13,471
Whimbrel	27 (MAY)	19 (MAY)	33 (MAY)	91 (MAY)	29 (MAY)	40
Curlew	1,240 (SEP)	950 (JAN)	847 (MAR)	974 (JUL)	1,136 (SEP)	1,029
Spotted Redshank	5 (SEP)	(2) (APR)	6 (DEC)	7 (SEP)	5 (OCT)	6
Redshank	550 (DEC)	550 (JAN)	1,399 (DEC)	1,878 (MAR)	2,670 (OCT)	1,409

3.14 River Parrett at Combwich and Pawlett (WeBS sector 13404)

This WeBS sector covers the River Pawlett up to and beyond the village of Pawlett. The sector ends to the west of Dunball. There is currently no counter for this sector, and counts were undertaken by BTO staff during winter 2015/16. The site is adjacent to Pawlett Hams (WeBS sector 13464; not covered in this report). Pawlett Hams was being used as a feeding area by large numbers of Golden Plover and Lapwing, with a few Redshank and Curlew also being observed feeding here on some visits, and small numbers of duck observed on the pools.

Four roost sites were identified along the River Parrett WeBS sector during the site visits (Table 3.14.1; Map 23 and Map 24 in Appendix 4). On most visits, small areas of mud remained uncovered along the length of the river at or close to the time of high tide, and small numbers of waders (in most cases single Redshank), ducks and gulls were observed feeding in these areas, none of which were considered to clearly represent regular roost sites.

Table 3.14.1 Roost sites in sector 13404 (River Parrett at Combwich and Pawlett).

Roost Number	Roost Site Name	Grid ref (site centroid)	Roost Type	Description	Comments	SPA Primary Roost?
14A	Combwich west bank	ST2631942138	Mixed	Mud; saltmarsh		Possible
14B	Combwich east bank	ST2632042953	Mixed	Saltmarsh		Possible
14C	Brickyard Farm north bank	ST2935442290	Wildfowl	Saltmarsh; open water		Possible
14D	Brickyard Farm south bank	ST2915942223	Wildfowl	Saltmarsh; open water		Possible

3.14.1 Roost Site 14A (Combwich – west bank)

This site includes the creek and adjacent mudflats at Combwich Reach, and a larger area of mudflat immediately to the south of Combwich Reach. There is a thin strip of saltmarsh on the river bank adjacent to the larger area of mudflat where Redshank were regularly observed both feeding and roosting at high tide. The mudflat was used by waders and gulls when it was still uncovered by the rising tide, and small numbers of Black-headed gulls were usually present feeding or resting near the creek. On one visit (February), ducks were also roosting on the open water.

Table 3.14.2 Species assemblage at roost site 14A, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Shelduck	Y	Y	Y	0-71	28	Possible	71 in Feb; otherwise usually absent
Wigeon		Y	Y	0-16	14	No	16 in Feb
Grey Plover		Y	Y	0-4	14	Possible	
Lapwing		Y		0-100	14	No	
Redshank	Y	Y	Y	5-25	86	No	

The birds on both banks seemed sensitive to disturbance by people walking along the bank (including the counter). However, there were very few people observed along either bank during the site visits. A large boat travelling up river also caused disturbance to the birds on one WeBS count visit. This was on a particularly high tide when water was almost topping the banks in some areas. On lower tides, the depth of the river may not be sufficient for large boats.

3.14.2 Roost Site 14B (Combwich – east bank)

This roost site is comprised of a low area of grazed saltmarsh fronted by mud adjacent to the sea wall. Redshank and Wigeon were regularly flushed from the edge of the river in this area where they usually appeared to be roosting, though some birds were also observed feeding here (Table 3.14.3). Large numbers of Lapwing and Golden Plover were observed feeding on Pawlett Hams on the fields immediately adjacent to this roost site, and on one occasion many of the Redshank from this site flew onto this part of Pawlett Hams when flushed and were observed feeding.

Table 3.14.3 Species assemblage at roost site 14B, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Wigeon		Y	Y	0-32	43	No	
Teal		Y	Y	0-2	14	No	
Redshank	Y	Y	Y	5-65	86	Possible	

The presence of the WeBS counter on the sea wall flushed the birds from this site on every visit, with the Redshank usually moving further down river or across the river and the Wigeon moving out into the centre of the river.

3.14.3 Roost Site 14C (Brickyard Farm – north bank)

This roost site is comprised of a thin strip of saltmarsh fronted by mud on the north bank of the river. Wigeon were frequently observed using this area, either grazing on the saltmarsh or resting on the bank or in the water (Table 3.14.4).

Table 3.14.4 Species assemblage at roost site 14C, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Wigeon		Y	Y	30-150	71	Possible	

No disturbance was observed, although a footpath passes alongside the site and the birds would almost certainly be flushed by people using the path.

3.14.4 Roost Site 14D (Brickyard Farm – south bank)

This roost site is comprised of a thin strip of saltmarsh fronted by mud on the north bank of the river. Small numbers of Mallard and Teal were regularly observed in this area, resting on the mud when uncovered or on the water once the mud was covered (Table 3.14.4).

Table 3.14.5 Species assemblage at roost site 14D, based on counts during winter 2015/16.

Species	Status			Number of birds	% presence at roost site	SPA Primary Roost?	Comments
	SPA QS	SPA QA	SSSI				
Teal		Y	Y	0-36	43	No	
Mallard		Y	Y	8-33	86	Possible	

No disturbance was observed. The footpath on this bank of the river moves inland slightly at this point, so the likelihood of disturbance at the roost site is minimal.

3.14.5 Comparison of roost site estimates with WeBS count data

This WeBS site was not covered during the period between 2009/10 and 2013/14, so a comparison of the roost site estimates with recent WeBS counts was not possible.

4. DISCUSSION

This study has identified a total of 51 roost sites in the 14 WeBS sectors which were covered, one of which has been divided into four sub-sites (13F). No roost sites were identified in two of the WeBS sectors considered (14407 Royal Portbury Docks; and 14409 Severn – M5 Bridge over River Avon).

As discussed in section 2.4 of this report, it is important to bear in mind that the initial identification of roost sites was based on the local knowledge of the WeBS counters covering each sector. In particular, their perception as to what constitutes a roost site may vary according to the total numbers of birds using the sector. As a result, some roost sites used by very small numbers of birds may not have been identified by this process in sectors used by large numbers of birds (e.g. 13411 Bridgwater Bay), even though similar 'roosts' used by very small numbers of birds have been identified elsewhere in sectors used by far fewer birds (e.g. 14415 River Avon at Sea Mills).

In addition, the Severn Estuary has a large tidal range, and the observations made during WeBS counts and site visits suggested that small areas of mud were often available away from the main roost sites close to the high tide period on neap tides in some sectors, and that on certain tides birds may sometimes use a much wider area on some high tides than shown by the roost site maps.

Notwithstanding these considerations, it is believed that all the Primary Roost sites within the sectors covered by this report will have been identified. Of the 51 roost sites identified, 23 are considered as Primary Roost sites for the SPA, as they hold more than 1% of the SPA population of one or more of the listed species at least 50% of the time. A further 14 roost sites can be considered as Possible Primary Roost sites, as the higher end of the estimates for these sites exceed 1% of the SPA population, but the estimate of the number of birds using the roost site covers a wide range of values and the lower end of the scale is below the 1% threshold for the site to be determined a Primary Roost.

In terms of the number of major roost sites, the most important WeBS sectors within the area covered by this report are Littleton Warth (WeBS sector 14454; 4 out of 4 roost sites considered to be Primary Roosts or Possible Primary Roosts), Severn Shore (WeBS sector 14451; 8 out of 8 roost sites considered to be Primary Roosts or Possible Primary Roosts) and Bridgwater Bay (WeBS sector 13411; 11 out of 11 roost sites considered to be Primary Roosts or Possible Primary Roosts).

The maps for the individual sectors can be downloaded from the publication record.

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