WeBS Low Tide Counts

AIMS

Estuarine sites in the UK provide the most important habitat for non-breeding waterbirds, acting as wintering grounds for many migrants but also as stopover feeding locations for other waterbirds passing along the East Atlantic Flyway. Core Counts on estuaries tend to quantify birds at high tide roosts. Although important, knowledge of roost sites provides only part of the picture, and does not elucidate the use that waterbirds make of a site for feeding.

The WeBS Low Tide Counts scheme has flourished since its inception in the winter of 1992/93, with most of the major estuaries covered. The scheme aims principally to monitor, assess and regularly update information on the relative importance of inter-tidal feeding areas of UK estuaries for wintering waterbirds, and thus complements the information gathered by WeBS Core Counts.

The data gathered contribute greatly to the conservation of waterbirds by providing supporting information for the establishment and management of UK Ramsar sites and Special Protection Areas (SPAs), other site designations and whole estuary conservation plans. In addition, WeBS Low Tide Counts enhance our knowledge of the low water distribution of waterbirds and provide data that highlight regional variations in habitat use, whilst also informing protection of the important foraging areas identified. WeBS Low Tide Counts provide valuable information needed to gauge the potential effects on waterbirds of a variety of human activities which affect the extent or value of inter-tidal habitats, such as proposals for dock developments, recreational activities, tidal power barrages, marinas and housing schemes. Designing mitigation or compensation for such activities can be assisted using WeBS Low Tide data. Furthermore, the effects on bird distributions of climate change and sea level rise can be assessed.

METHODS

The scheme provides information on the numbers of waterbirds feeding on subdivisions of the inter-tidal habitat within estuaries. Given the extra work that Low Tide Counts entail, often by the same counters that carry out the Core Counts, WeBS aims to cover most individual estuaries about once every six years, although on some sites more frequent counts are made. Co-ordinated counts of waterbirds are made by volunteers each month between November and February on pre-established subdivisions of the inter-tidal habitat in the period two hours either side of low tide.

DATA PRESENTATION

Tabulated Statistics

Tables 8 and 9 present three statistics for 18 of the more numerous waterbird species present on 15 estuaries covered during the 2009/10 winter: the peak number of a species over the whole site counted in any one month (with checks for count synchronicity made from assessing proximity of count dates and consultation with Local Organisers); an estimate of the mean number present over the winter for the whole site (obtained by summing the mean counts of each species for each count section) and the mean density over the site (in birds per hectare), which is the mean number divided by the total area surveyed (in hectares). The area value used for these calculations is the sum of the inter-tidal and non-tidal components of each count section but omits the sub-tidal areas (*i.e.* those parts of the count section which are under water on a mean low tide).

Dot Density Maps

WeBS Low Tide Count data are presented as dot density maps, with subdivision of count sections into basic habitat elements. The reason for such a subdivision is to ensure species are

plotted on appropriate habitat areas and to improve the accuracy of density estimates. Each section for which a count has been made is divided into a maximum of three different habitat components:

Inter-tidal: Areas that lie between mean high water and mean low water.

Sub-tidal: Areas that lie below mean low water. In more 'open-coast'-type situations, a sub-tidal zone reaching 500 m out from the inter-tidal sections has been created arbitrarily, to indicate the approximate extent of visibility offshore from land-based counts.

Non-tidal: Areas that lie above mean high water (usually saltmarsh although some grazing marshes are also covered).

The mean count for the sector is then divided amongst a varying number of the different components, dependent on the usual habitat preferences of the species involved. For example, Dunlin dots are plotted exclusively on inter-tidal sections whereas Wigeon dots are spread across inter-tidal, sub-tidal and non-tidal areas (in proportion to the relative areas of these three components).

Currently, throughout all WeBS Low Tide Count analyses, mean low tide and mean high tide are taken from the most recent Ordnance Survey 1:25,000 maps (in Scotland, the lines on the OS maps are mean low water springs and mean high water springs instead). It is recognised, unfortunately, that these maps represent the current real shape of the mudflats, water channels and saltmarshes to varying degrees of accuracy. However, in the interests of uniformity across the UK, the Ordnance Survey outlines are adhered to throughout the analyses.

The maps display the average number of birds in each count section as dots spread randomly across habitat components of count sections, thus providing an indication of both numbers and density. **It is important to note that individual dots do not represent the precise position of individual birds; dots have been assigned to habitat components proportionally and are then randomly placed within those areas. No information about the distribution of birds at a finer scale than the count sector level should be inferred from the dot density maps.** For all maps in the present report, one dot is equivalent to one bird, except where stated. The size of individual dots has no relevance other than for clarity.

As most estuaries have now been covered more than once at low tide, density maps show the relative distributions of species in the winter of 2009/10 compared to an earlier winter. It is hoped that comparative dot density distributions will lead to an easier and fuller appreciation of low tide estuarine waterbird distribution, and changes therein. The following colour conventions apply to density maps: red dots = 2009/10 winter; blue dots = earlier winter; pale blue = water; yellow = inter-tidal habitat (e.g. mudflat, sandflat); pale green = non-tidal habitat (e.g. saltmarsh, reedbed); grey = not covered in one survey winter. More detailed information concerning analysis and presentation of WeBS Low Tide Counts can be obtained from the Low Tide Counts National Organiser, or from the publication *Estuarine Waterbirds at Low Tide* (Musgrove *et al*. 2003)

ESTUARY ACCOUNTS

WeBS Low Tide Counts were carried out at 15 different sites; estuary accounts for four of these are included here. To allow space in this report for these sites which have not been counted for many years, dot density distribution maps for all other sites included in the 2009/10 Low Tide Counts are available on our website at www.bto.org/webs/low-tide-results or from the WeBS office. Other counts, usually on limited numbers of sectors or only in one month, were made in the winter of 2009/10 on Adur Estuary, Burry Inlet, Carmarthen Bay, Firth of Forth, Loch Fleet and Ribble Estuary. These sites are not included in the estuary accounts, but data can be obtained from the WeBS Low Tide Count National Organiser upon request.

For the main site accounts, data were collected during the period November to

February. Assessment of national and international importance is based on five-year peak mean counts from the main species accounts in this volume of *Waterbirds in the UK*. Figure 64 shows the location of the sites discussed, and a site description is presented for each estuary. Distribution maps are presented for selected species, which are those of national or international importance, or are known to be undergoing site-level changes, where possible. General bird distribution is described for the winter of 2009/10, focusing on species held in important numbers at the site in question.

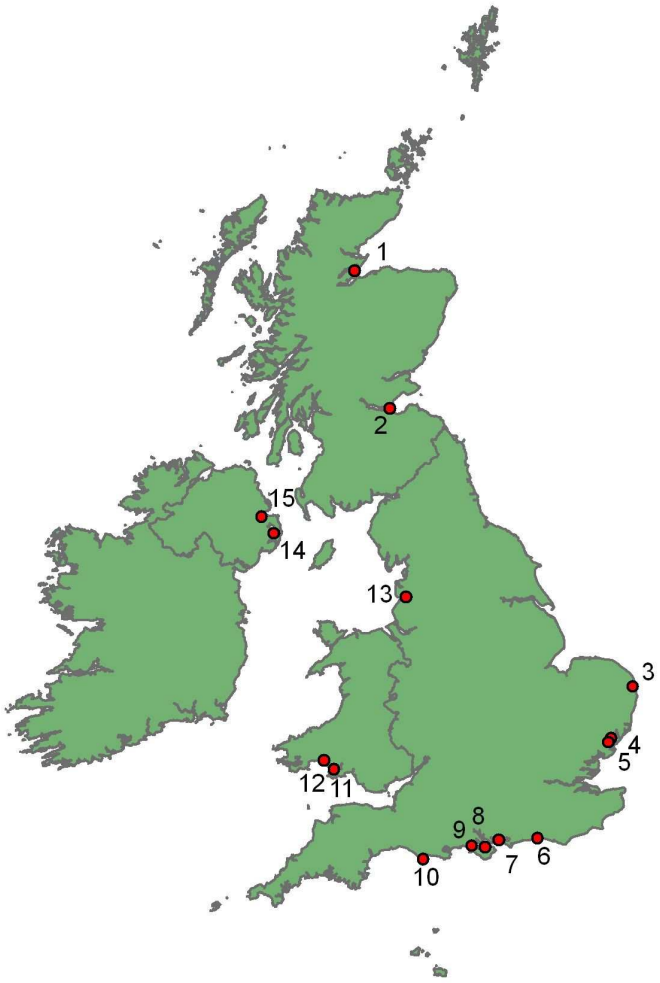


Figure 64. Map showing estuaries covered at low tide in the winter of 2009/10. 1: Loch Fleet; 2: Firth of Forth; 3: Breydon Water; 4: Orwell Estuary; 5: Stour Estuary; 6: Adur Estuary; 7: Langstone Harbour; 8: Medina Estuary; 9: Northwest Solent; 10: Portland Harbour & The Fleet; 11: Burry Inlet; 12: Carmarthen Bay; 13: Ribble Estuary; 14: Strangford Lough; 15: Belfast Lough.

Table 8. Sites covered by WeBS Low Tide Counts in 2009/10, with important bird numbers held. Numbers in parentheses refer to the location in Figure 64. For species codes see Table 7.

	International Importance	**National Importance**
Adur Estuary (6)	None	None
Belfast Lough (15)	BW	SU, T., MA, SV, SP, E., GN, RM, RH, GG, CA, H., OC, RP, DN, CU, RK, TT
Breydon Water (3)	PG, WN, T., SV, AV, GP, L., BW, CN	BS, EW, DN, RU, RK
Burry Inlet (11)	PT, OC, BW	DB, SV, KN, DN, CU, GK
Carmarthen Bay (12)	CX, OC, SS	GP, BW, GK
Firth of Forth (2)	PG, SU, BA, RK	T., E., LN, CX, VS, GN, RM, GD, RH, RX, SZ, CA, OC, RP, KN, SS DN, RU, CU, TT
Langstone Harbour (7)	DB, DN, BW	RM, GV, TT
Loch Fleet (1)	JI	None
Medina Estuary (8)	None	None
Northwest Solent (9)	DB, BW	PT
Orwell Estuary (4)	BW	DB, GA, PT, AV, KN, BW, RK
Portland Harbour (10) & The Fleet	MS	DB, PO, RM, CO
Ribble Estuary (13)	WN, T., PT, OC, RP, GV, KN, SS, DN, BW, BA, RK, LB, HG, GB	SU, CA, AV, GP, L., RU, CU, CM
Stour Estuary (5)	MS, BW, KN	DB, SU, PT, AV, GV, DN, RK TT
Strangford Lough (14)	MS, WS, QN, SU, KN, BW, RK BW, RK	T., WN, GA, T., MA, PT, SV, SP, E., GN, RM, BV, LG, GG, CA, CO, H., OC, RP, GP, GV, L., DN, BA, CU, GK, TT

Table 9. Peak and mean counts and mean density (birds per ha) of 18 waterbird species across 15 estuaries covered by the 2009/10 WeBS Low Tide Counts. Stour and Orwell estuaries displayed separately. "+" indicates non-zero densities of <0.01 birds per ha.

	Adur Estuary			Belfast Lough			Breydon Water		
	Peak	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*
Species	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*
Brent Goose	0	0	0	103	64	0.14	112	29	0.07
Shelduck	1	0	+	916	574	1.26	38	25	0.06
Wigeon	0	0	0	163	141	0.31	11,838	7,971	19.83
Teal	60	45	0.6	520	467	1.02	495	327	0.81
Mallard	23	9	0.12	299	285	0.63	193	128	0.32
Pintail	0	0	0	1	0	+	37	20	0.05
Oystercatcher	3	3	0.04	3,119	2,829	6.2	3	1	+
Ringed Plover	49	27	0.36	133	81	0.18	43	24	0.06
Golden Plover	0	0	0	0	0	0	9,301	4,460	11.09
Grey Plover	16	8	0.11	1	0	+	31	17	0.04
Lapwing	792	515	6.87	821	697	1.53	11,812	3,609	8.98
Knot	0	0	0	39	19	0.04	80	49	0.12
Dunlin	80	73	0.97	675	577	1.27	4,806	2,864	7.12
Black-tailed Godwit	0	0	0	979	797	1.75	870	435	1.08
Bar-tailed Godwit	0	0	0	42	37	0.08	0	0	0
Curlew	0	0	0	724	556	1.22	258	131	0.33
Redshank	38	30	0.4	1,563	1,277	2.8	944	608	1.51
Turnstone	37	17	0.23	325	271	0.59	3	1	+

	Burry Inlet			Carmarthen Bay			Firth of Forth		
	Peak	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*
Species	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*
Brent Goose	91	91	0.01	0	0	0	0	0	0
Shelduck	759	759	0.09	277	168	0.06	57	72	0.09
Wigeon	403	403	0.05	963	644	0.22	634	467	0.58
Teal	17	17	+	363	269	0.09	62	46	0.06
Mallard	10	10	+	189	104	0.04	58	19	0.02
Pintail	405	405	0.06	243	141	0.05	0	0	0
Oystercatcher	4,657	4,657	0.82	13,673	12,700	4.35	472	315	0.39
Ringed Plover	50	50	+	55	40	0.01	6	4	+
Golden Plover	1	1	+	49	12	+	158	53	0.07
Grey Plover	97	97	0.01	13	4	+	68	36	0.04
Lapwing	571	571	0.06	1,865	1,095	0.37	44	30	0.04
Knot	1,302	1,302	0.09	2,184	1,540	0.53	45	19	0.02
Dunlin	1,260	1,260	0.19	3,144	2,276	0.78	2,006	2,224	2.75
Black-tailed Godwit	320	320	0.03	87	57	0.02	0	0	0
Bar-tailed Godwit	42	42	+	64	41	0.01	28	19	0.02
Curlew	518	518	0.08	308	285	0.1	213	167	0.21
Redshank	348	348	0.05	302	304	0.1	739	757	0.94
Turnstone	3	3	+	36	15	0.01	48	24	0.03

	Langstone Harbour			Loch Fleet			Medina Estuary		
	Peak	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*
Species	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*
Brent Goose	4,969	4,082	2.57	0	0	0	143	73	0.88
Shelduck	563	464	0.29	94	52	0.09	9	3	0.04
Wigeon	887	644	0.41	920	548	0.94	91	48	0.58
Teal	268	223	0.14	266	149	0.26	66	23	0.28
Mallard	96	86	0.05	374	229	0.39	131	96	1.16
Pintail	106	69	0.04	0	0	0	0	0	0
Oystercatcher	1,376	1,315	0.83	995	903	1.56	131	106	1.28
Ringed Plover	81	56	0.04	37	14	0.02	1	0	+
Golden Plover	21	7	+	0	0	0	0	0	0
Grey Plover	497	418	0.26	0	0	0	2	1	0.01
Lapwing	461	350	0.22	24	8	0.01	83	34	0.41
Knot	496	356	0.22	0	0	0	0	0	0
Dunlin	13,615	9,776	6.15	66	24	0.04	162	60	0.72
Black-tailed Godwit	220	92	0.06	0	0	0	33	19	0.23
Bar-tailed Godwit	178	58	0.04	86	29	0.05	0	0	0
Curlew	624	558	0.35	459	326	0.56	48	37	0.45
Redshank	546	494	0.31	287	177	0.31	42	40	0.48
Turnstone	256	186	0.12	15	8	0.01	25	14	0.17

Table 10 *continued*. Peak and mean counts and mean density (birds per ha) of 18 waterbird species across 15 estuaries covered by the 2009/10 WeBS Low Tide Counts. Stour and Orwell estuaries displayed separately. "+" indicates non-zero densities of <0.01 birds per ha.

	Northwest Solent			Orwell Estuary			Portland Harbour/The Fleet		
	Peak	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*
Species	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*
Brent Goose	613	473	1.45	1,503	915	0.75	2,190	2,190	9.51
Shelduck	59	47	0.14	849	648	0.53	11	11	0.05
Wigeon	464	300	0.92	1,336	1,291	1.05	458	458	1.97
Teal	450	185	0.57	1,232	939	0.77	63	63	0.27
Mallard	27	16	0.05	275	222	0.18	12	13	0.06
Pintail	100	51	0.16	170	185	0.15	2	2	0.01
Oystercatcher	68	40	0.12	1,763	1,612	1.31	68	69	0.3
Ringed Plover	21	12	0.04	127	93	0.08	0	0	0
Golden Plover	0	0	0	79	41	0.03	0	0	0
Grey Plover	108	63	0.19	258	324	0.26	0	0	0
Lapwing	12	3	0.01	1,136	1,139	0.93	29	29	0.13
Knot	272	94	0.29	3,421	1,978	1.61	3	3	0.01
Dunlin	898	647	1.98	2,150	1,779	1.45	14	14	0.06
Black-tailed Godwit	41	13	0.04	746	413	0.34	0	0	0
Bar-tailed Godwit	2	2	0.01	2	1	+	3	3	0.01
Curlew	92	59	0.18	575	535	0.44	13	13	0.06
Redshank	49	37	0.11	1,737	1,221	1	45	45	0.19
Turnstone	44	23	0.07	143	113	0.09	61	54	0.23

	Ribble Estuary			Stour Estuary			Strangford Lough		
	Peak	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*	*Peak*	*Mean*	*Mean*
Species	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*	*No.*	*No.*	*Dns.*
Brent Goose	0	0	0	1,763	1,763	1.14	3,925	2,739	0.67
Shelduck	770	473	0.18	2,396	2,165	1.33	3,069	2,329	0.57
Wigeon	0	0	0	3,673	3,171	1.95	510	370	0.09
Teal	2	1	+	849	720	0.44	1,211	993	0.24
Mallard	3	1	+	231	166	0.1	408	317	0.08
Pintail	0	0	0	345	221	0.14	393	246	0.06
Oystercatcher	5,538	3,543	1.33	1,009	1,090	0.67	5,023	4,567	1.13
Ringed Plover	0	0	0	213	132	0.08	288	194	0.05
Golden Plover	0	0	0	1,436	849	0.52	7,435	3,753	0.92
Grey Plover	708	371	0.14	1,720	1,418	0.87	34	50	0.01
Lapwing	120	30	0.01	3,685	2,319	1.43	3,251	2,288	0.56
Knot	9,925	4,140	1.56	7,455	5,809	3.57	2,625	2,082	0.51
Dunlin	18,827	9,992	3.76	19,984	17,920	11.01	2,514	2,230	0.55
Black-tailed Godwit	0	0	0	656	615	0.38	193	128	0.03
Bar-tailed Godwit	3,419	2,179	0.82	261	143	0.09	1,023	904	0.22
Curlew	347	197	0.07	1,272	1,173	0.72	974	993	0.24
Redshank	171	71	0.03	1,779	1,662	1.02	2,017	1,862	0.46
Turnstone	1	0	+	459	425	0.26	194	158	0.04

Dunlins *(John Bowers)*

LANGSTONE HARBOUR

Site description

Langstone Harbour is situated between Portsmouth and Chichester Harbours on the south coast. At high tide the estuary resembles a land-locked lake, but at low tide this basin of saltmarsh and intertidal flats is predominantly muddy, becoming sandier towards the harbour mouth. The intertidal mudflats have extensive areas of both eelgrass (*Zostera*) and green algae (*Enteromorpha*). The predominant saltmarsh vegetation is cordgrass *Spartina* but much of this has suffered from dieback. The most diverse areas of saltmarsh are found on the harbour's islands, which also contain areas of vegetated shingle.

The harbour is designated as an SSSI and lies within SPA, Ramsar and SAC sites. Other conservation measures exist in the form of an RSPB reserve (one third of the harbour including the five islands) and three Local Nature Reserves (LNRs); Farlington Marshes LNR (a peninsula of enclosed grassland and marsh), The Kench LNR and West Hayling LNR. These reserves all act as roosting sites. Sailing, water skiing, sail-boarding, canoeing and angling are all popular leisure pursuits while walking and birdwatching constitute the main land-based recreations. Shellfish gathering, bait digging and wildfowling take place and commercial fishing also occurs, mostly dredging for oysters and clams. Predicted sea-level rise may lead to the loss of safe roosting sites on the islands.

General bird distribution 2009/10

Area covered 1,590 ha; Mean total birds 19,651; Mean bird density 12.4 birds per ha.

Langstone Harbour supports good numbers of many species of waterbird, with 52 species recorded on the Low Tide Counts, the highest total of the sites counted. As at many south coast sites, Dark-bellied Brent Geese were the most numerous wildfowl species present, and were found throughout the site with Farlington Marshes and Chalkdock Lake having distinct concentrations, which also included a Black Brant and three Light-bellied Brent Geese. Counts of 100+ were recorded for Shelduck, Wigeon, Teal, Pintail and, more unusually, Canada Goose. Single Green-winged Teal and Spoonbill were more unusual visitors, whilst up to 22 Black-necked Grebes were also recorded.

Wading birds are abundant at the site, with Dunlin being the most numerous, with a mean site count of over 9,700 birds. Oystercatchers peaked at over 1,200 birds. In addition, Grey Plover, Knot, Lapwing, Curlew, Redshank and Turnstone all had three-figure counts, highlighting the importance of this site.

Comparative bird distribution (Fig. 65)

Although numbers of Wigeon counted at Langstone Harbour have been subject to much inter-annual variation, the underlying trend is one of an increase. The overall distribution of Wigeon in Langstone Harbour indicates a preference for the northern end; Farlington Marshes has long been a favoured haunt along with Chalkdock Lake. Conversely however, numbers counted on the Low Tide Counts overall have fallen, with a mean site count of 806 (0.42 birds per hectare) in 2003/04 compared with 642 (0.33 birds per hectare) in 2009/10, though the freezing conditions in January 2010 causing birds to abandon Farlington Marshes (C. Cockburn *pers. comm.*) may have contributed to this apparent decline.

Numbers of Bar-tailed Godwits using Chichester and Langstone Harbours SPA have seen a steady decline over the past 25 years (www.bto.org/webs/alerts/). Low Tide Counts at Langstone Harbour reflect this decrease, with the mean site count in 2003/04 being 281 (0.18 birds per hectare) falling to just 58 (0.04 birds per hectare) in 2009/10. The distribution of Bar-tailed Godwits within Langstone Harbour was notably different, with birds in 2003/04 being widespread around the southern half of the harbour, particularly along the southwest of Hayling Island, though in 2009/10, birds were largely recorded in the Chalkdock Lake area – though this is not considered to represent a true shift in distribution (C. Cockburn, pers. comm.).

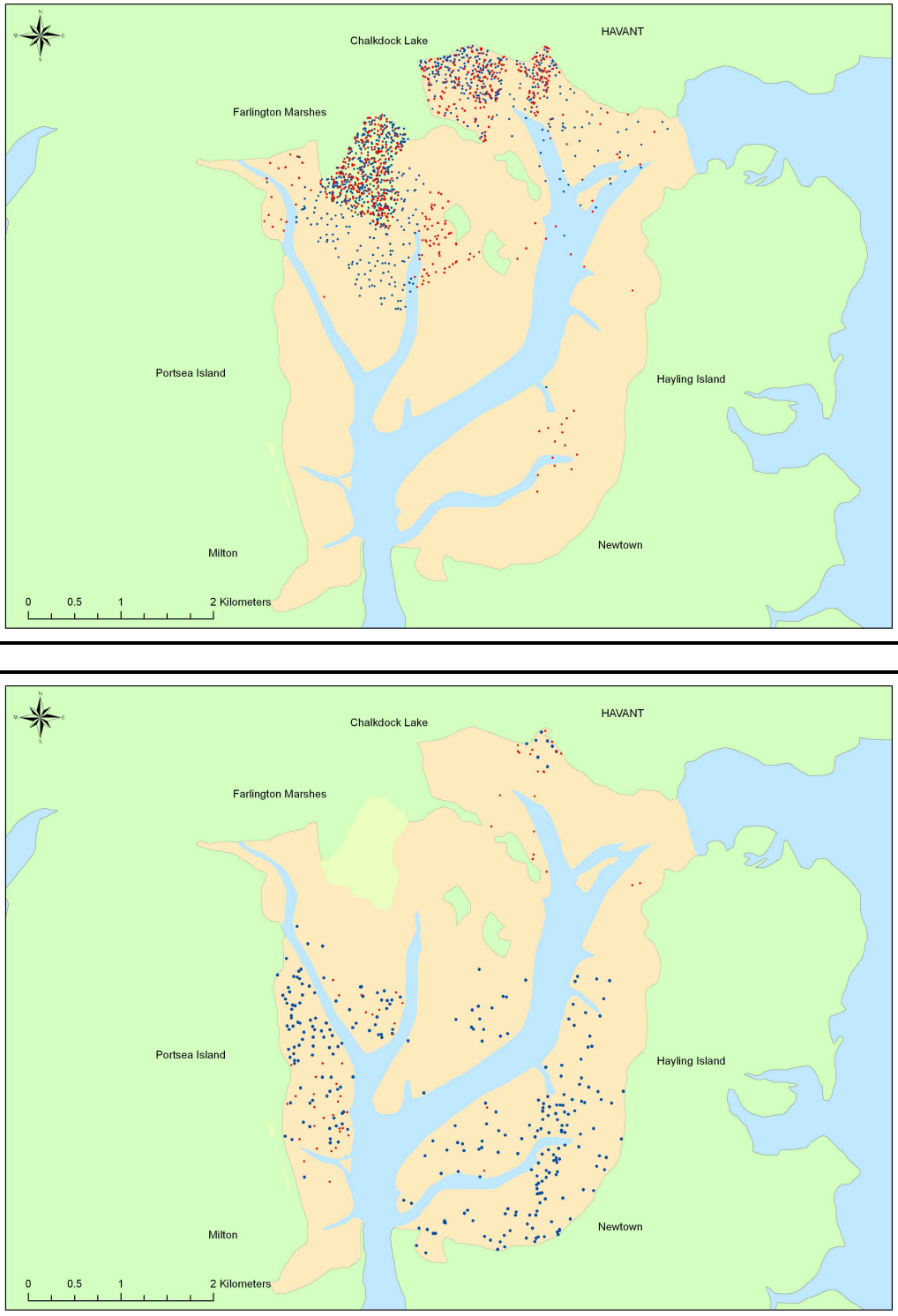


Figure 65. Low Tide distribution of Wigeon (above) and Bar-tailed Godwit (below) for the winters of 2003/04 (blue) and 2009/10 (red) at Langstone Harbour. Yellow = intertidal; pale green = non-tidal; blue = subtidal.

MEDINA ESTUARY

Site description

The long, narrow Medina Estuary runs almost due south from Cowes to Newport, cutting a channel about five miles long into the northern coastline of the Isle of Wight, making up part of the Solent estuarine system. The estuary comprises a relatively narrow tidal channel flanked by intertidal mudflats and saltmarsh in close association with a variety of brackish, freshwater and terrestrial habitats. Despite its length, the mudflats along its banks are relatively narrow. It lies in a wide shallow valley with a gentle incline on either side and the build up of sediment has formed characteristic mudflats. The mudflats support a large number of species, including shellfish, algae and locally and regionally important species of worm. These are important sources of food for fish and bird populations. Agricultural land, hedgerows and woods border the middle and upper reaches of the Medina. In contrast, the mouth of the estuary and its lower reaches are lined by docks, boatyards and marinas. Commercial and economic use of the estuary includes commercial shipping, ferry services, marine services, commercial fishing and tourism. Part of the estuary is designated as a SSSI and includes the Werrar Marshes and Dodnor Creek Local Nature Reserves. The site also includes land that has recently been designated as a Ramsar site, SAC and SPA.

General bird distribution 2009/10

Area covered 83 ha; Mean total birds 717; Mean bird density 8.6 birds per ha.

Although the Medina Estuary is the second smallest site counted under the Low Tide Count scheme, its location on the Solent nevertheless make it an important site.

Generally numbers of birds were low, with Mallard being the most numerous duck species, peaking at 131 birds, favouring the southern end of the estuary. Wigeon were largely concentrated around the middle reaches of the estuary, whilst Teal were most abundant at the north end. During cold weather in recent winters Coot numbers have increased, becoming concentrated in the upper estuary. Numbers of Gadwall and Teal also increase during these cold spells (K. Marston, pers. comm.). Little Egrets peaked at 22 birds and were widely distributed along the length of the estuary. Little Grebes often favour narrow creeks and up to 26 were counted, with the middle section of the estuary being favoured.

Wader numbers too were relatively low due to the restricted amount of intertidal habitat. Oystercatcher was one of the more numerous species, favouring the southern half of the estuary, whilst the majority of other species were concentrated around the middle section

Comparative bird distribution (Fig. 66)

Dark-bellied Brent Geese are present on the Solent in internationally important numbers, and although numbers on the Medina Estuary are relatively small, the site represents an important refuge for the species. The number of Dark-bellied Brent Geese using the Medina Estuary has steadily increased since the last Low Tide Counts were carried out in 1995/96 when the peak count was 85 birds. The peak in 2009/10 was 143 birds, which correlates with the increasing population using the Solent as a whole. This rise has seen the mean site total increase from 57 (0.43 birds per hectare) to 73 (0.52 birds per hectare) birds across the winter. In both years, the distribution of the birds was very similar, with the wider middle and northern stretches of the estuary being favoured.

In keeping with the national trend for the species, Dunlin numbers on the Solent have seen a significant decline, particularly in the period since the last Low Tide Counts, triggering a High Alert (see www.bto.org/webs/alerts). This decline on the Solent has been reflected in the number wintering on the Medina Estuary, with a fall from a mean of 276 birds (3.32 birds per hectare) in 1995/96 to a mean of just 60 (0.72 birds per hectare) in 2009/10. In both winters, the birds were concentrated around the middle of the estuary with a few birds further south in the earlier winter.

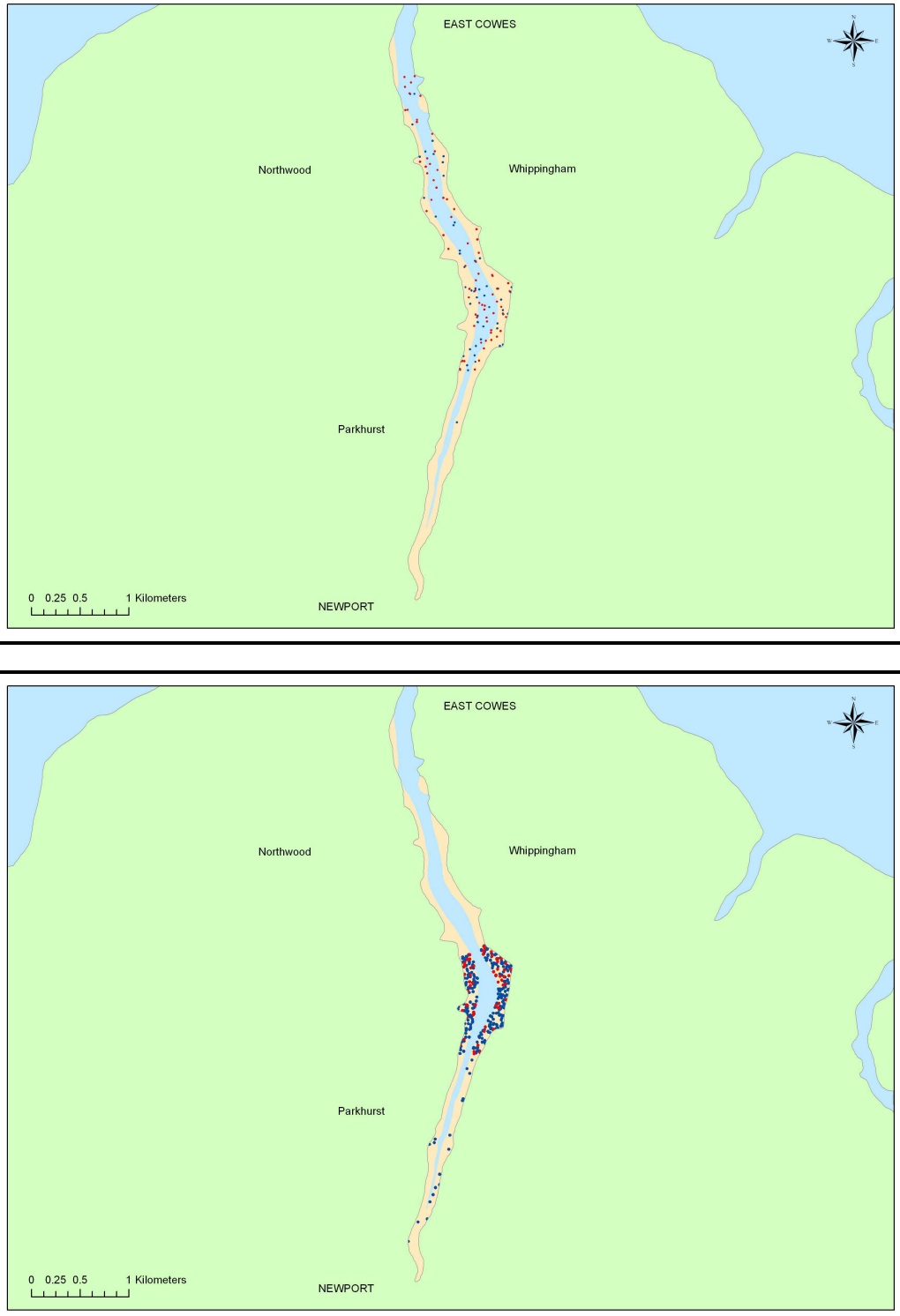


Figure 66. Low Tide distribution of Dark-bellied Brent Goose (above) and Dunlin (below) for the winters of 1995/96 (blue) and 2009/10 (red) on the Medina Estuary. Yellow = intertidal; pale green = non-tidal; blue = subtidal.

NORTHWEST SOLENT

Site description

The area of Northwest Solent counted for WeBS stretches along the Hampshire coast from the Hurst Spit shingle promontory east to Sowley, thereby encompassing the outflow of three running waters, the largest of which is the Lymington River. Intertidal mud is exposed principally inside the hook formed by Hurst Spit and at Lymington, grading into extensive saltmarsh on both sides of the Keyhaven and Lymington Rivers. The area is protected as an SSSI and forms the western end of the Solent and Southampton Water SPA. Hampshire Wildlife Trust manages part of the site as a nature reserve. Sowley Pond is also an SSSI and is included in the SPA designation, but is non-tidal. Much of the site is considered to be in unfavourable condition, mostly because of coastal squeeze of saltmarsh against sea defences. The site borders the New Forest, and there is little urbanisation except at Lymington. Here, sailing is popular and there are a number of marinas. Tourism and recreational disturbance are also potential factors affecting bird distribution.

General bird distribution 2008/09-2009/10

Area covered 753 ha; Mean total birds 8334; Mean bird density 11.1 birds per ha.

The Low Tide Counts on the Northwest Solent were carried out during the consecutive winters of 2008/09 and 2009/10, and displayed here as one count. Areas north of Lymington River were counted in 2008/09 and areas to the south in 2009/10.

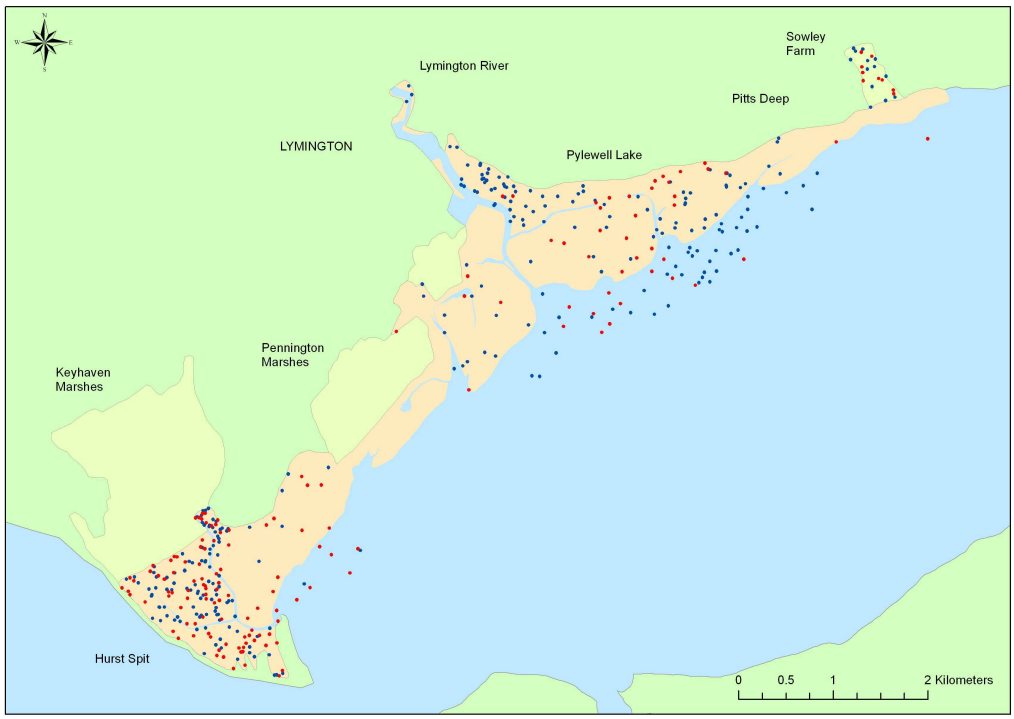
The Northwest Solent supports good numbers of many species of waterbirds, and 39 species were recorded during Low Tide Counts. Dark-bellied Brent Geese were the most abundant wildfowl species, with a combined peak of over 2,300 birds distributed widely along the length of the area with a distinct concentration around Hurst Spit. Other wildfowl species were represented in good numbers with over 700 Wigeon, 500 Teal and 100 Pintail counted, largely in the northeast of the site. Other species more associated with open coast included just short of 100 Red-breasted Mergansers, and small numbers of Goldeneye and Eider. Both Red-breasted Goose and Black Brant joined the Dark-bellied Brent Geese in 2008/09.

Wading birds were much more widespread, with Oystercatcher, Curlew and Redshank widely distributed across the site. Dunlin was the most numerous species present, with over 6,500 birds, with birds favouring the wide mudflats on the inside of Hurst Spit, and the mouth of the Lymington River and Pylewell Lakes.

Comparative bird distribution (Fig. 67)

Unlike other wildfowl species on the Solent and Southampton water SPA, Shelduck numbers have suffered large declines with a fall of 57% in the last 25 years (see www.bto.org/webs/alerts/). Low Tide Counts on the Northwest Solent reflect this decrease, with the mean site count in 1992/93 being 267 (0.21 birds per hectare) falling to 154 (0.12 birds per hectare) in 2008/10. Although widely distributed across the harbour, the two main areas of concentration were around Hurst Spit, northeast of the Lymington River mouth and around Pylewell Lake.

Reflecting the increasing national trend, Low Tide Counts of Black-tailed Godwits on the Solent, have increased in recent years, with a mean count of 238 (0.32 birds per hectare) in 2008/10 compared with 196 (0.26 birds per hectare) in 1992/93. The favoured area for Black-tailed Godwits in both years was the southeast corner of Keyhaven Marshes. Numbers at that specific area have also increased, from a mean of 101 (16.8 birds per hectare) in 1992/93 to 148 (24.6 birds per hectare) in 2008/09. In both winters, birds also favoured the area on the inside of Hurst Spit, although in 2008/10 birds were also found around the mouth of the Lymington River.



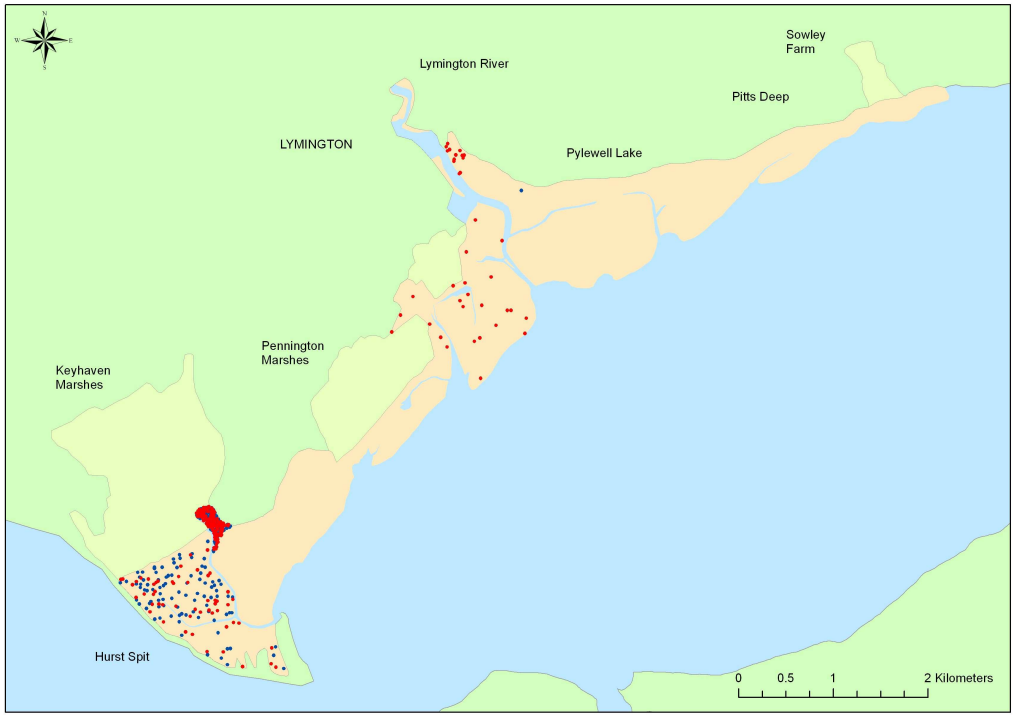


Figure 67. Low Tide distribution of Shelduck (above) and Black-tailed Godwit (below) for the winters of 1992/93 (blue) and 2008/09-2009/10 (red) on the Northwest Solent. Yellow = intertidal; pale green = non-tidal; blue = subtidal.

PORTLAND HARBOUR & THE FLEET

Site description

Portland Harbour on the Dorset coast is a huge man-made harbour, one of the largest of its kind in the world. It is enclosed on the western edge by Chesil Beach - a natural spit that reaches out to Portland Bill. Chesil Beach is a pebble beach, 18 miles long, and stretches northwest from Portland to West Bay. For much of its length it is separated from the mainland by an area of saline water called the Fleet Lagoon. The Fleet Lagoon, which derives its name from the Saxon 'fleot', meaning 'shallow water' is a 13km long stretch of shallow, saline water, which varies from a width of 900 metres at Littlesea to 65 metres in the Narrows. The deepest part is 4-5 metres deep, but all of the mid and upper Fleet is less than 2 metres deep. The Fleet is an important area for wildlife and has been designated as an SSSI, SAC, SPA and Ramsar site. The harbour is a popular location for wind surfing, diving and sailing, and will host sailing events during the 2012 Olympic Games.

General bird distribution 2009/10

Area covered 236 ha; Mean total birds 4,213; Mean bird density 17.9 birds per ha.

Despite its relatively small area, Portland Harbour still supports good numbers of several species of waterbird, with 35 species recorded on the Low Tide Counts. Due to the unpredictable nature of the tides and freezing conditions hampering efforts, the Fleet was only fully counted in November 2009.

By far the most numerous species was Dark-bellied Brent Goose with nearly 2,200 birds recorded, whilst a Black Brant in with the Brent Geese was a more unusual visitor and probably represented a returning bird from previous winters (e.g. Calbrade *et al.* 2010). Although the area covered by the Low Tide Counts did not include Abbotsbury Swannery, the attraction of the less tidal area at the northwest end of the Fleet for wildfowl was evident. Mute Swan, Teal, Wigeon and Coot were most numerous near Langton Herring, whilst the area also supported lesser numbers of Gadwall, Mallard, Shoveler and Pintail.

Wader numbers were relatively low throughout the area, owing to a general lack of expansive mudflats. The most numerous species was Oystercatcher, followed by Turnstone, both of which favoured the area near Charlestown where the main area of mud is located; numbers peaked at 68 and 61 birds, respectively. Redshanks were distributed more widely along the Fleet whilst a small number of Curlew, Dunlin, Knot and Bar-tailed Godwit were also present.

The number of Mediterranean Gulls using the site was exceptional, reflecting the rapid rise in the species in southern counties of England (Musgrove et al. 2011). A count of 211 Mediterranean Gulls at Portland Harbour and The Fleet in November represented almost one third of all gulls counted at the site that month; birds were distributed along The Fleet and in the harbour itself (Fig. 68).

Figure 68. The Low Tide distribution of Mediterranean Gull at Portland Harbour & The Fleet in winter 2009/10.

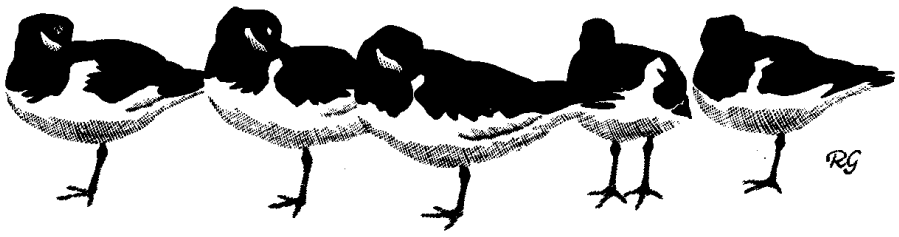
Comparative bird distribution (Fig. 69)

Portland Harbour and The Fleet were covered for the first time under the WeBS Low Tide Count scheme in 2009/10; make comparisons with distributions from previous years are therefore not possible.

Figure 69. Low Tide distribution of Red-breasted Merganser (above) and Oystercatcher (below) for the winter of 2009/10 at Portland Harbour & The Fleet. Yellow = intertidal; pale green = non-tidal; blue = subtidal.

ACKNOWLEDGEMENTS

We are very grateful to the following people and organisations that contributed to the Low Tide Count scheme in the winter of 2009/10. Apologies to anyone omitted accidentally from the list.
Hugh Thurgate, George Henderson, Rick Vonk, Mick Wright, Jim Rowe, Mark Smart, Chris Cockburn, Bob Howells, Ian Hainsworth, Ed Wiseman, Russell Wood, Terry Coombs, Steve Groves, Bobby Anderson, Keith Marston, Duncan Priddle and Ken Abram for organising the counts and to the counters, Shaun Davies, Aonghais Cook, Alastair Flannagan, Colin Peake, David Cornish, David Hughes, Gavin Hall, Gary Harper, Wyn Parry, Simeon Jones, Paddy Jenks, Melanie Jones, Frank Thomas, Tansy Knight, Colin Nisbet, Alex Carroll, Peter Strangeman, Keith Turner, Pet Potts, Peter Gamage, Jonathan Bills, John Nundy, Martin Gillingham, Peter Hughes, John Shillitoe, Alice Parfitt, Dennis Bill, Ian Calderwood, Celia Vince, Jason Crook, Peter Hogan, Graham Barrett, Andy Johnson, John Pullen, Roger Parson, Ken Wright, Alan Cox, Ed Rowsell, John Gramauskas, Andrew Dainty, Jim Wilson, Terry Paton, James McNair, Kevin Mawhinney, Andrew Upton, Kerry Mackie, David Thompson, Paddy Mackie, Philip Johnston, Alan Silcock, Natalie Hands, Dot Blakeley, Liane Hamill, Niall McCutcheon, Neil McCulloch, John Lees, Seamus Magouran, Craig McCoy, Andrew Upton, Karl Hamilton, Jo Whatmough, Frances Donnan, Alex Carroll, Rachel Bainand the Suffolk Wildlife Trust. We would also like to thank Harwich Haven Authority for their part in funding the Stour and Orwell counts.



Oystercatchers *(Robert Gillmor)*