4.44 TAW–TORRIDGE ESTUARY

LTC site code:	CT
Centre grid:	SS4631
JNCC estuarine review site:	4
Habitat zonation:	926 ha intertidal, 498 ha subtidal, 208 ha nontidal
Statutory status:	Taw–Torridge SSSI, Northam Burrows SSSI, Braunton Burrows SSSI
Winter waterbird interest:	N/A

SITE DESCRIPTION

The Taw–Torridge Estuary is relatively isolated within a long stretch of non-estuarine coast in north Devon. The two arms of the estuary tend to support softer sediments than the mouth, which is sandy with areas of shingle. The mouth is also backed by important dune systems on the north and south shores, at Braunton Burrows and Northam Burrows respectively. Saltmarsh has developed especially around Yelland and Penhill. Tourism is most pronounced in the summer months but is an important factor all year. Watersports occur mostly around the mouth of the estuary with other leisure pursuits widespread. Wildfowling takes place over limited parts of the site. There is a moderate amount of industrial activity, mostly around the harbours. Military training also occurs at Braunton Burrows and at Instow, including exercises on the estuarine intertidal areas themselves (T. Vickery pers. comm.).

COVERAGE AND INTERPRETATION

The Taw–Torridge Estuary was included in the scheme during the winter of 1994–95, counts being made in all four months. Figure 4.44.1 shows the positions of the 19 sections counted for the survey.

The Taw–Torridge is not designated an SPA but is covered by several SSSI designations. As Figure 4.44.2 shows, the area covered by the LTCs closely approximates the area of the Taw–Torridge Estuary SSSI but near the mouth also overlaps the extent of both the Braunton Burrows SSSI and Northam Burrows SSSI (although the majority of these latter two SSSIs were not covered by the LTCs). The main area covered by the LTCs but not designated as SSSI is the Torridge upstream of Bideford Long Bridge.

Given the relative isolation of the Taw–Torridge Estuary, there is not likely to be any interchange on a estuarine shorelines is possible. As elsewhere, Lapwings and Golden Plovers using the estuary will also be using nearby terrestrial habitats.

WATERBIRD DISTRIBUTION

Low tide distribution maps from the winter of 1994–95 are presented for total birds and total birds weighted by 1% threshold value (Figure 4.44.3). The totals map shows that the highest

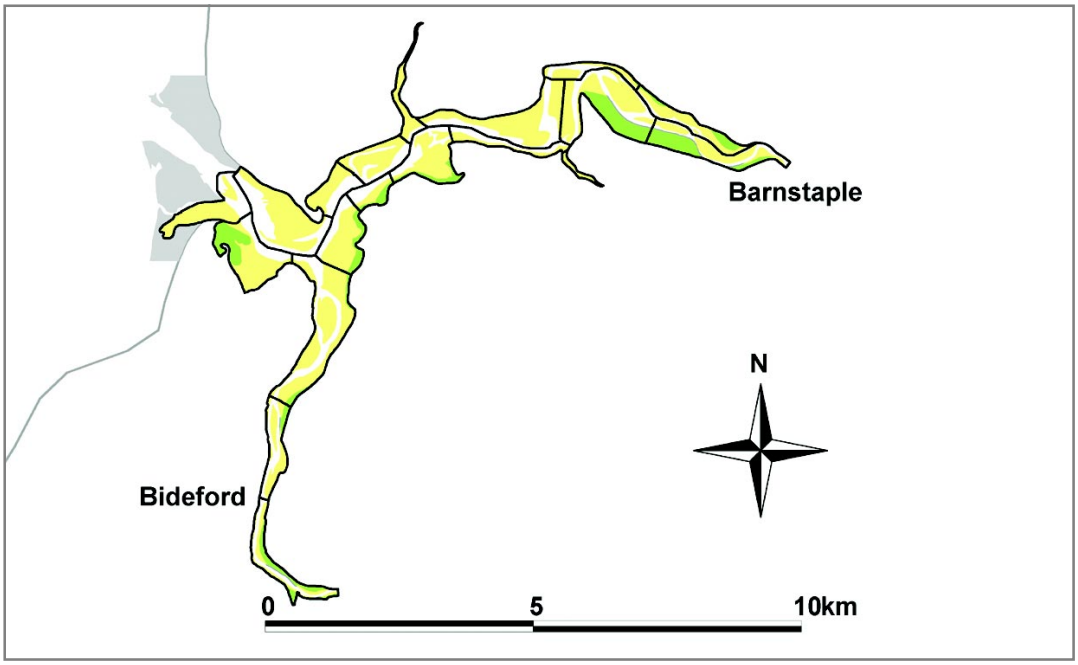


Figure 4.44.1: **LTC sections at the Taw–Torridge Estuary, winter 1994-95**

overall densities occur along the Taw either side of Penhill Point. The weighted total map draws attention to the northern edge of Northam Burrows and the upper reaches of the Torridge. Amongst the individual species recorded, Cormorants were widespread along the Taw but scarce on the Torridge. Oystercatchers occurred throughout but especially around the combined mouth of the site. Ringed Plovers also preferred the mouth. Most Golden Plovers were found around Penhill Point and around Bideford. Dunlin were widespread on the Taw but virtually ignored the Torridge. Curlews were found evenly throughout.

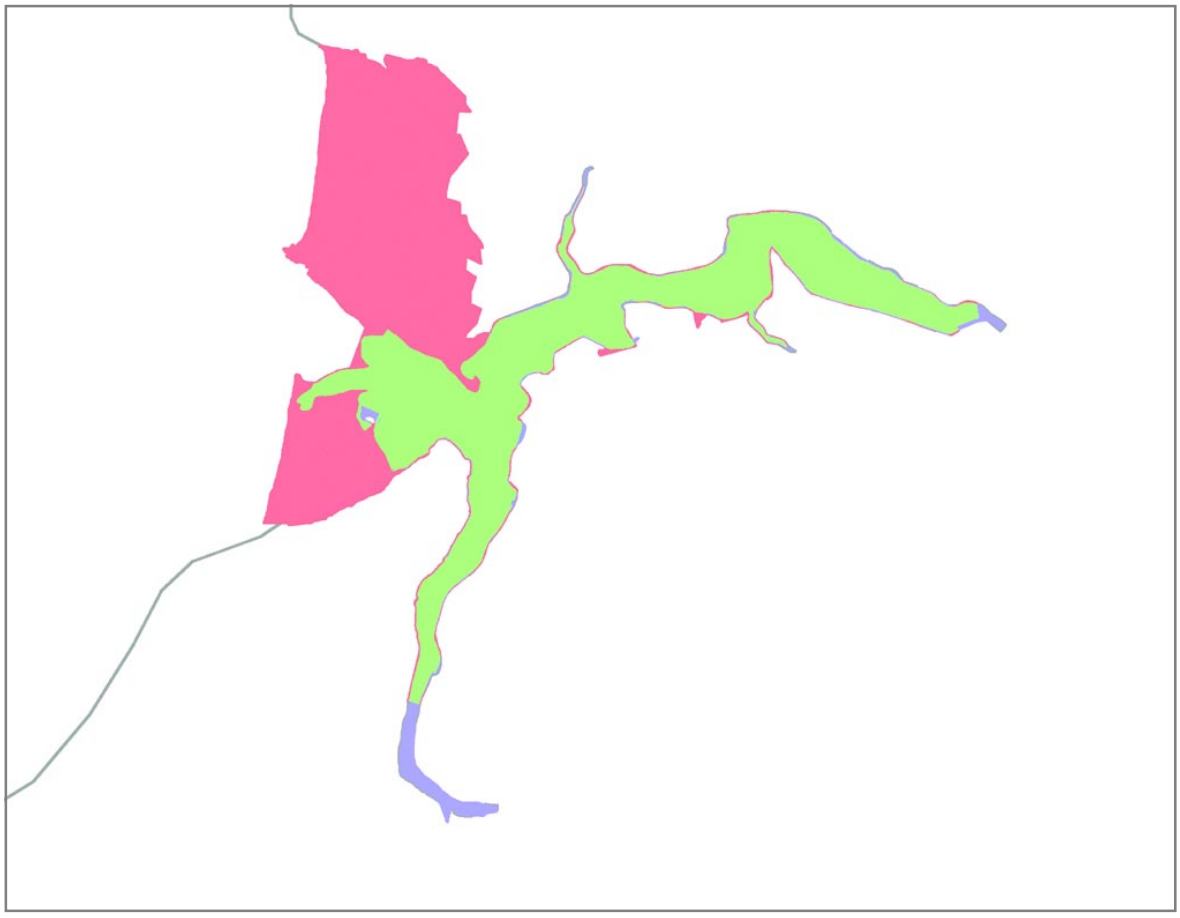


Figure 4.44.2: **LTC and SSSI boundaries, with overlap, at the Taw–Torridge Estuary**

Figure 4.44.3: **Low tide waterbird distributions recorded at the Taw–Torridge Estuary, winter 1994–95**

4.45 SEVERN ESTUARY

LTC site code:	BV
Centre grid:	ST4080
JNCC estuarine review sites:	6, 7
Habitat zonation:	9971 ha intertidal, 6275 ha subtidal, 623 ha nontidal
Statutory status:	Severn Estuary SPA (UK9015022), Severn Estuary Ramsar (7UK088)
Winter waterbird interest:	Bewick's Swan, White-fronted Goose, Shelduck, Wigeon, Gadwall, Teal, Mallard, Pintail, Shoveler, Pochard, Tufted Duck, Grey Plover, Lapwing, Dunlin, Black-tailed Godwit, Curlew, Redshank, Waterbird assemblage

SITE DESCRIPTION

The River Severn is the longest in Britain and drains a large area of Wales and the Midlands. The huge tidal range at the estuary (the second largest tidal range in the world) means that much of the intertidal area is composed of mobile sediments. Industrial development is widespread around the Severn and is perhaps most intensive around Avonmouth, where there are major port facilities (particularly for car importation) as well as chemical works. Pollution in the estuary, including discharge of heavy metals, can be a problem. In November 1999 (following the survey described below), the estuarine flats formed by the Taff and Ely, otherwise known as Cardiff Bay, were permanently inundated to create a nontidal lake to act as a focal point for the area's economic regeneration. A further large-scale development in recent years has been the creation of the Second Severn Crossing between Severn Beach and Caldicot. Large parts of the estuary have a rural character, however, particularly the inner stretches within Gloucestershire and along the Gwent Levels.

COVERAGE AND INTERPRETATION

The Severn Estuary was covered for the scheme during the winter of 1998–99, data being returned for all four months. Unfortunately, coverage of much of the Gloucestershire Severn and Bridgwater Bay was not achieved, but most of the remaining area was covered. The sandbars in the centre of the estuary, which could not be reached, were not thought to hold significant numbers of birds. Figure 4.45.1 shows the positions of the 125 sections counted for the survey. Some of these (especially around Cardiff) are too small to display adequately at this scale and for further details the National Organiser should be consulted.

Figure 4.45.2 shows the overlap between LTC and SPA areas. Clearly, the major areas within the SPA but not covered by the LTCs are the inner reaches and Bridgwater Bay; efforts have been

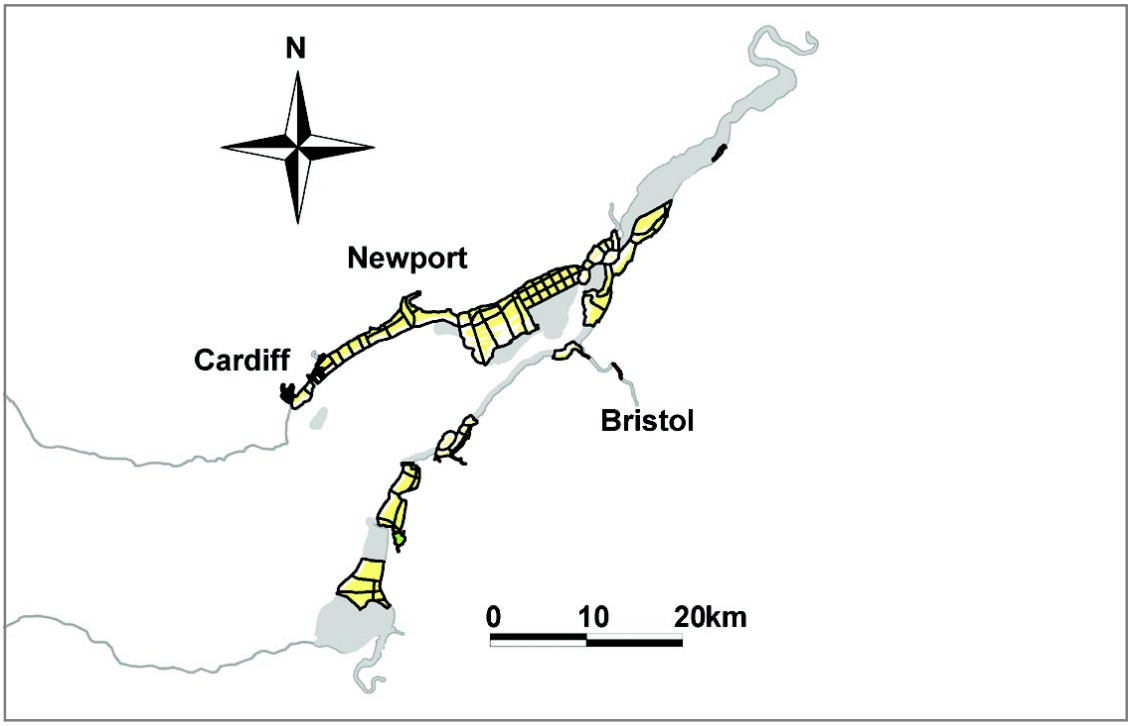


Figure 4.45.1: **LTC sections at the Severn Estuary, winter 1998–99**

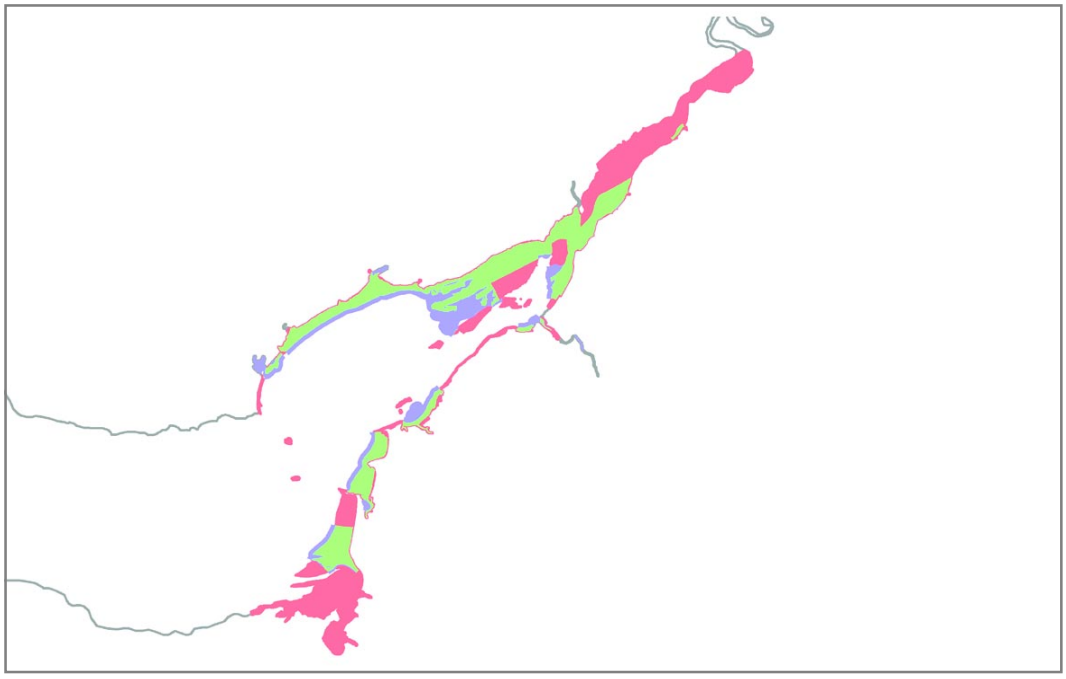


Figure 4.45.2: LTC and SPA boundaries, with overlap, at the Severn Estuary

made in subsequent years to improve coverage of these areas. Within the main area where coverage was achieved, there were gaps south of Brean Down, north of Sand Point, between Clevedon and Portishead (although few birds are likely along this stretch, H. Rose pers. comm.) and south of Cardiff on the Welsh shore. There were also some differences around Avonmouth and the river Avon. The boundaries of the Ramsar site are entirely coincident with those of the SPA.

Owing to the size of the site, most bird movements take place within the estuary and it is unlikely that interchange takes place with other estuaries on a daily basis. However, a small amount of dispersal is likely along the adjacent non-estuarine coasts downstream along the Bristol Channel. Dispersal inland is likely to be more of a feature, notably to the Somerset Levels.

WATERBIRD DISTRIBUTION

Low tide distribution maps from the winter of 1998–99 are presented for 14 of the 17 species of principal interest listed above. For clarity, smaller dots are used to display the distributions of all of these species. Furthermore, maps for Lapwing and Dunlin are displayed at a scale of one dot representing five and ten birds respectively. Additional maps of total birds and total birds weighted by 1% threshold value are also presented (Figure 4.45.3). The remaining species (Bewick's Swan, White-fronted Goose and Gadwall) are mostly concentrated around the upper Severn and WWT Slimbridge, although a few Gadwall were recorded at the Axe Estuary.

The totals map suggests that, within those areas covered by the counts, the highest bird densities were to be found between the River Usk and Cardiff, especially off Peterstone, and between Chittening and Oldbury. The weighted totals map adds little to the overall picture at a broad scale but gives greater emphasis to the Axe Estuary and the Rhymney area. The individual species maps show that, within the surveyed area, five species were largely confined to the Peterstone to Rhymney shore, these being Pintail, Shoveler, Pochard, Tufted Duck and Grey Plover, although it is likely that if coverage had been more complete, larger numbers of the first four would have been found elsewhere in the SPA, notably around Slimbridge in the upper estuary. Both Wigeon and Lapwings were more concentrated in the upper parts of the surveyed area, north of Severn Beach and the River Wye, although with smaller concentrations elsewhere, such as at the mouths of the Rivers Yeo and Axe. Teal and Mallard showed similar distributions, but with larger numbers at Peterstone. Shelducks were widespread (apart from at the aforementioned Redwick to Goldcliff stretch), as were Dunlin, Curlews and Redshanks. The highest densities of Dunlin also occurred off Peterstone. Black-tailed Godwits were virtually all found at the Axe Estuary and at New Passage.

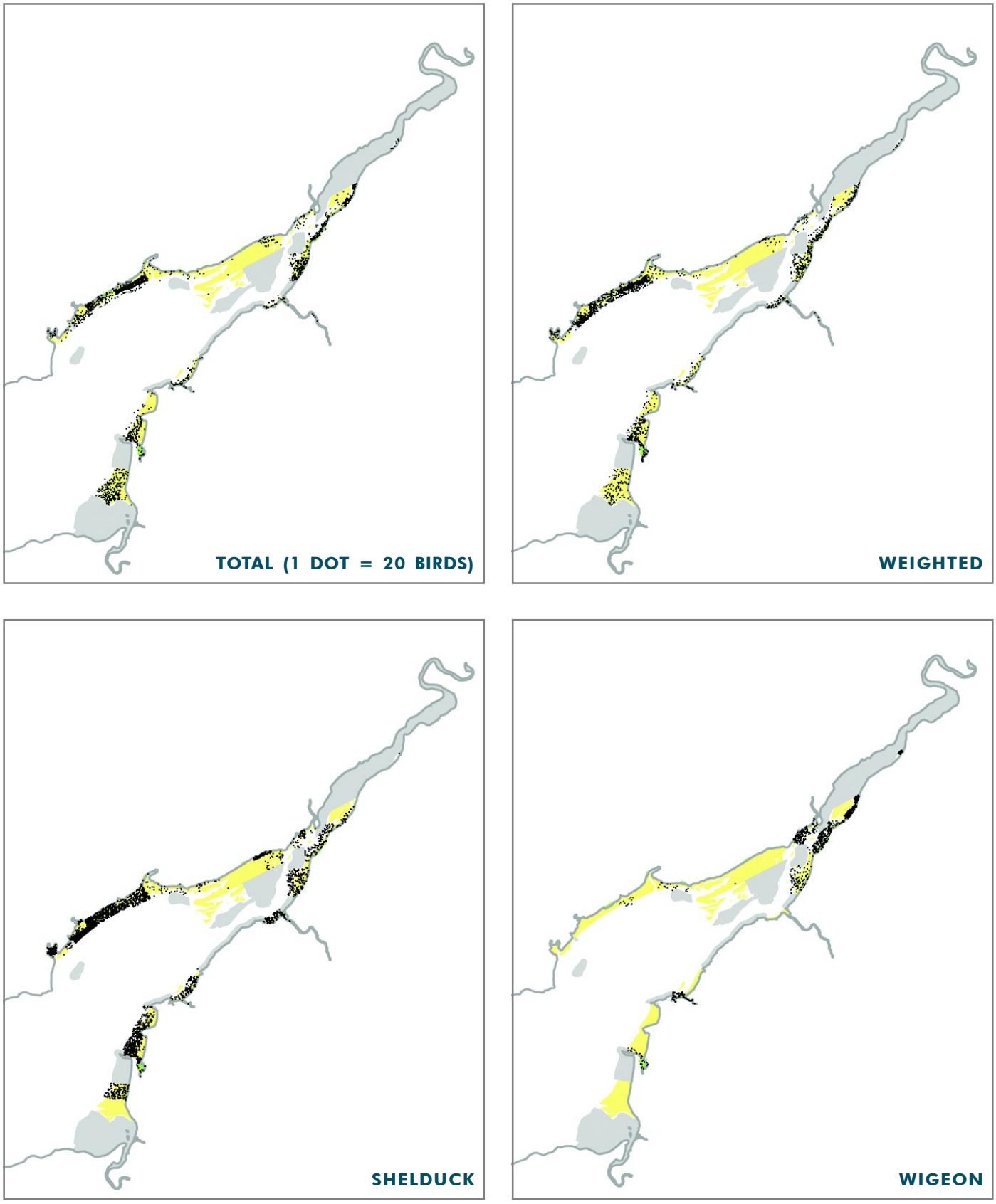


Figure 4.45.3 (i): **Low tide waterbird distributions recorded at the Severn Estuary, winter 1998–99**

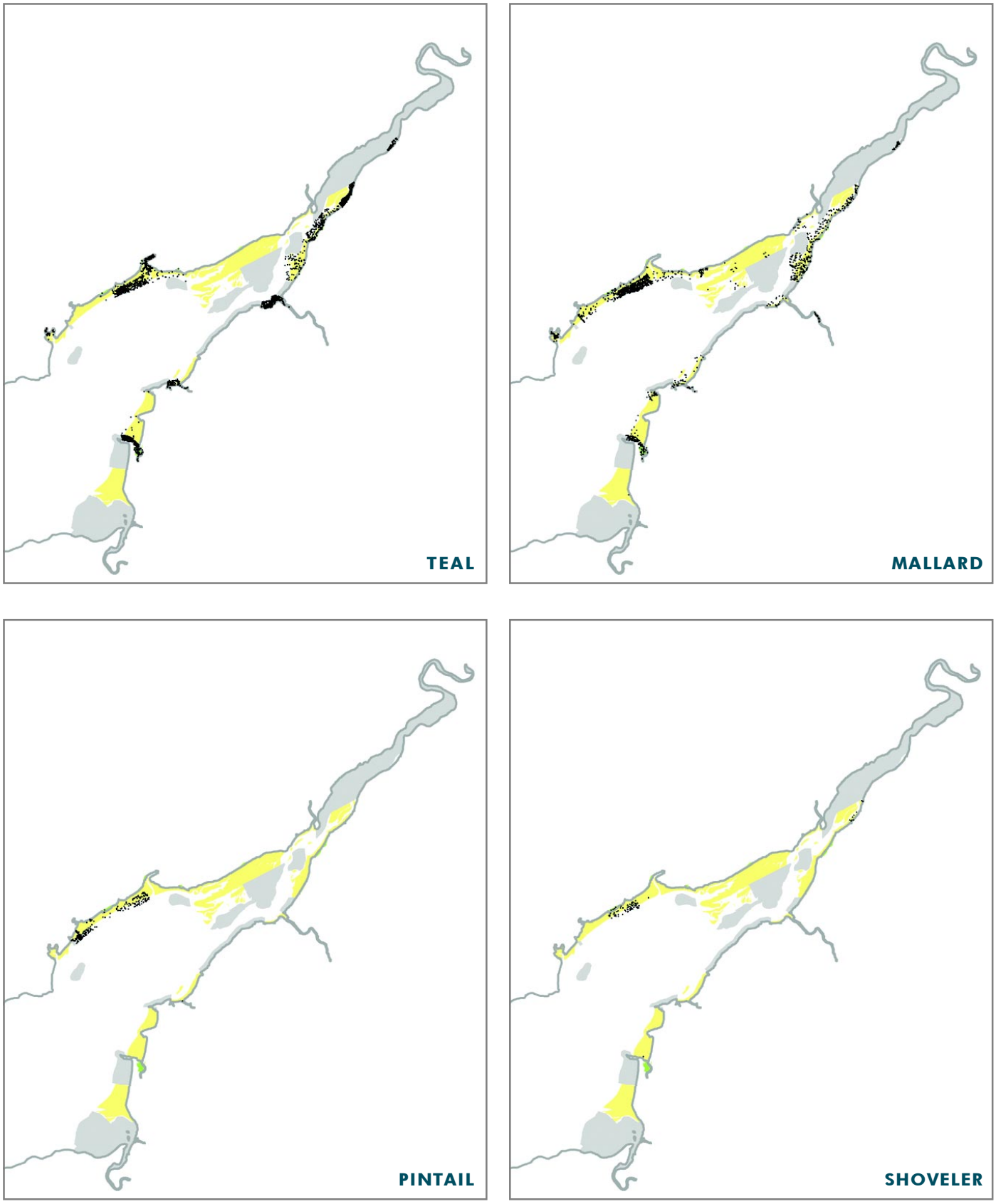


Figure 4.45.3 (ii): **Low tide waterbird distributions recorded at the Severn Estuary, winter 1998–99**

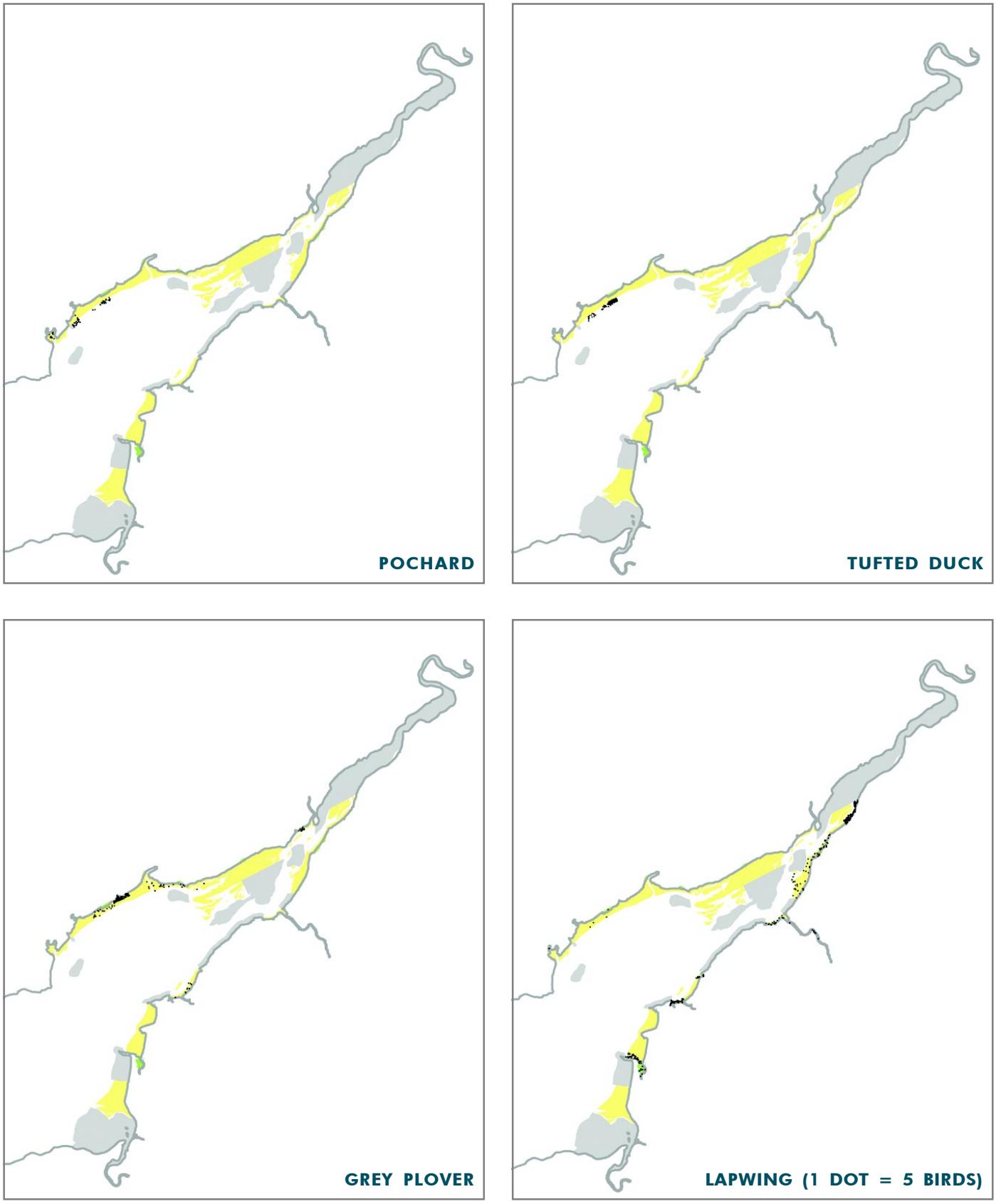


Figure 4.45.3 (iii): **Low tide waterbird distributions recorded at the Severn Estuary, winter 1998–99**

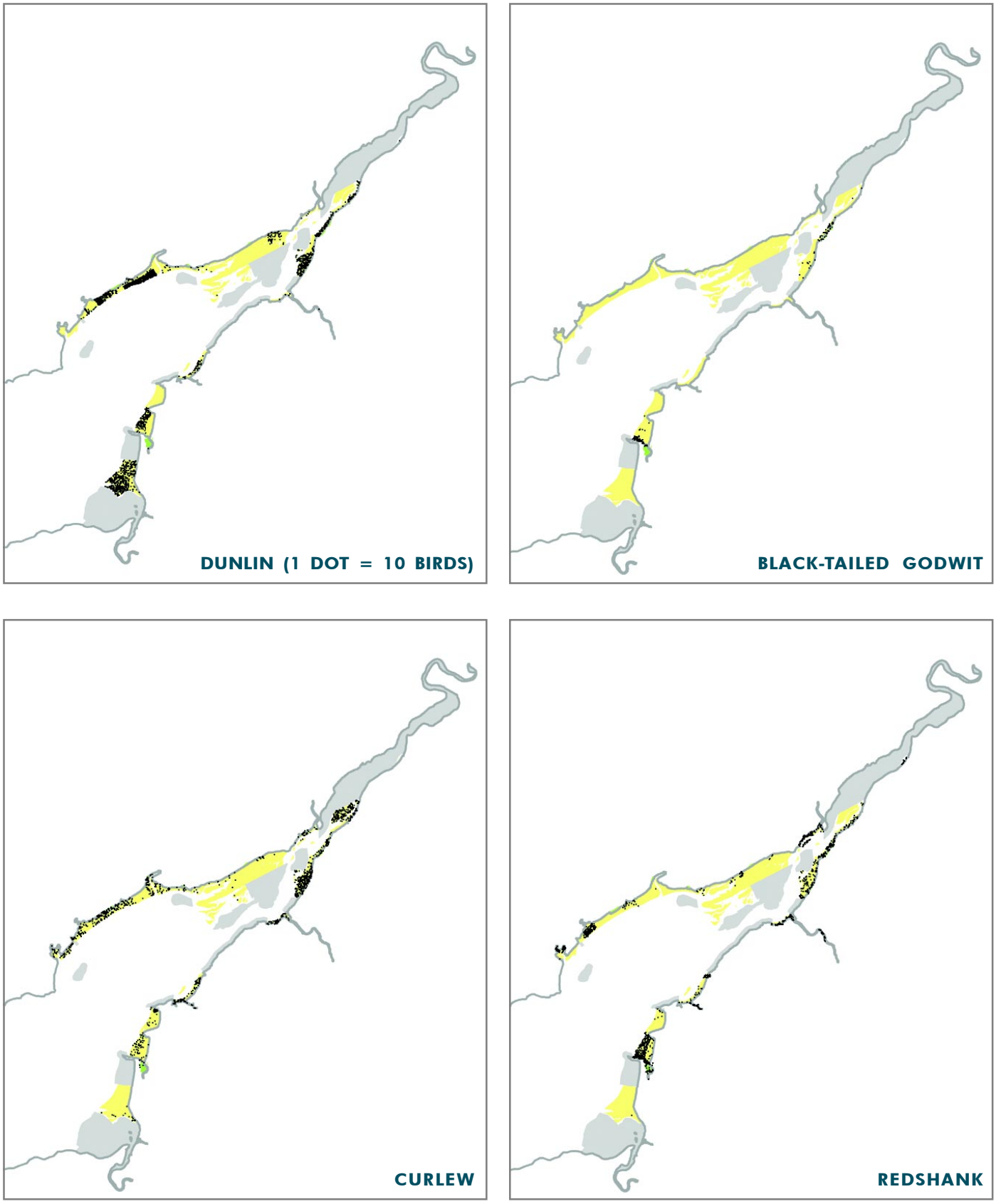


Figure 4.45.3 (iv): **Low tide waterbird distributions recorded at the Severn Estuary, winter 1998–99**

4.46 BURRY INLET

LTC site code:	DB
Centre grid:	SS4897
JNCC estuarine review site:	13
Habitat zonation:	3981 ha intertidal, 1092 ha subtidal, 1848 ha nontidal
Statutory status:	Burry Inlet SPA (UK9015011), Burry Inlet Ramsar (7UK054)
Winter waterbird interest:	Shelduck, Wigeon, Pintail, Shoveler, Oystercatcher, Knot, Dunlin, Black-tailed Godwit, Curlew, Waterbird assemblage

SITE DESCRIPTION

The Burry Inlet is the estuary of the Loughor, a small river draining the hills to the north of Swansea and forming a wide area of intertidal mudflats between the Gower peninsula to the south and the towns of Llanelli and Burry Port to the north. There is a large area of saltmarsh along almost the whole of the southern shore of the estuary. The mouth of the estuary is narrowed by flanking dunes, particularly those at Whiteford Point which demarcates the boundary of the estuary from Carmarthen Bay. The north side of the Burry Inlet has historically been heavily industrialised but this has been much reduced in recent years. There are extensive redevelopment plans for this area, including extensions to the WWT's reserve at Penclacwydd, which will almost certainly increase public access to the area. There has been, in the past, a proposal for damming the upper estuary (above Loughor Bridge) for leisure use. Any renewal of this proposal would clearly have a major impact on the waterbirds using the site (B. Howells, M. Humphreys pers. comm.).

COVERAGE AND INTERPRETATION

Some counts were made at the Burry Inlet in the 1993–94 winter but coverage was relatively limited and the dataset is now limited to a further set of counts made during the 1996–97 winter, when data were returned for all four months. Figure 4.46.1 shows the positions of the 27 sections counted for the survey.

Figure 4.46.2 shows that the SPA and LTC boundaries are very similar, with the major exception that the narrower part of the estuary upstream of the Loughor Bridge is not currently included within the SPA designation. The precise boundary around the Pembrey Coast also differs slightly. The boundaries of the Ramsar site are entirely coincident with those of the SPA.

Most birds roosting around the Burry Inlet also use it for feeding, although movements within the site clearly occur on a tidal basis. For example, a large number of Oystercatchers which roost at high tide between Llanrhidian and Wernffrwd move over to feeding grounds off Llanelli (C. Peake pers. comm.). However, some of the birds roosting at

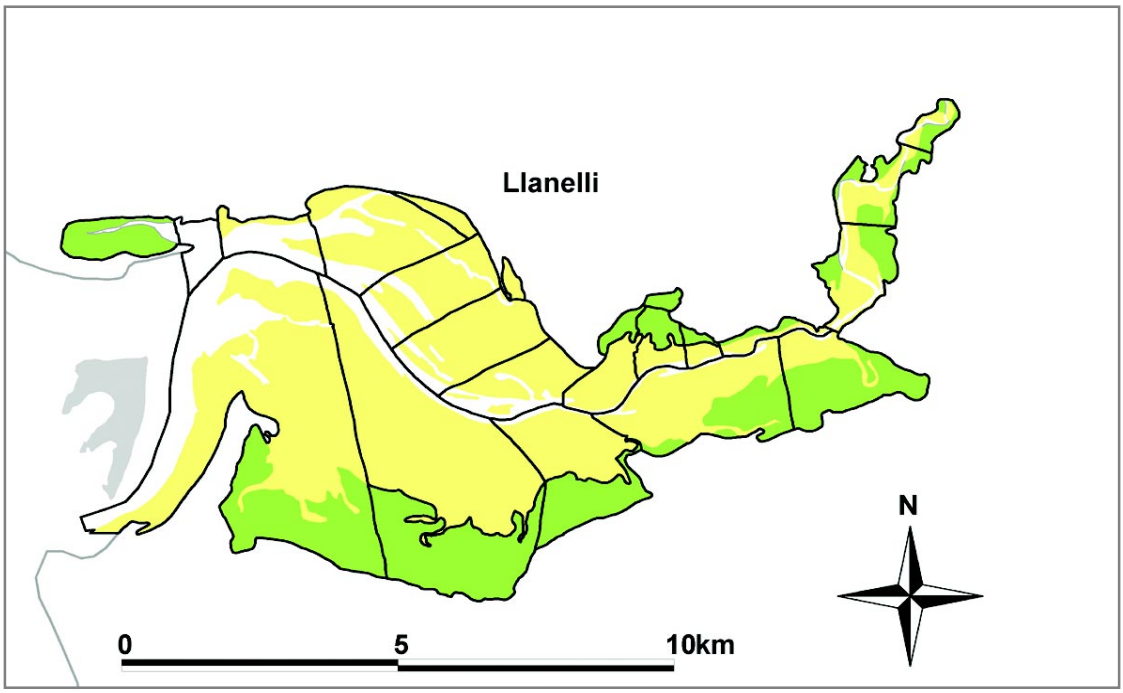


Figure 4.46.1: **LTC sections at the Burry Inlet, winter 1996–97**

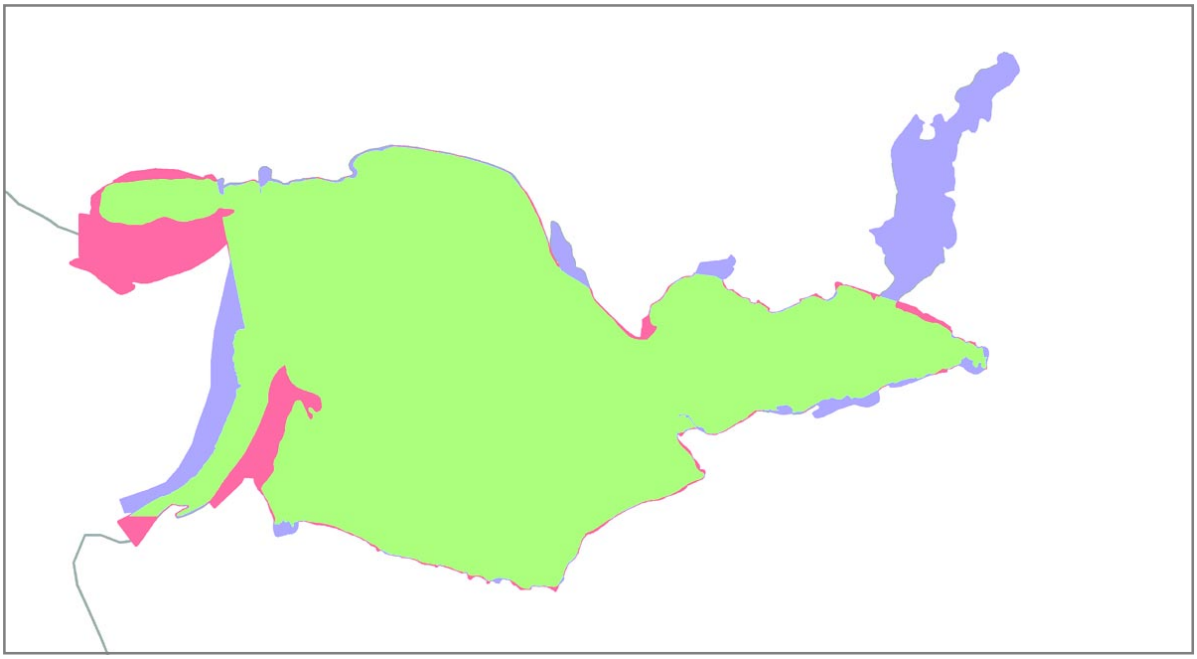


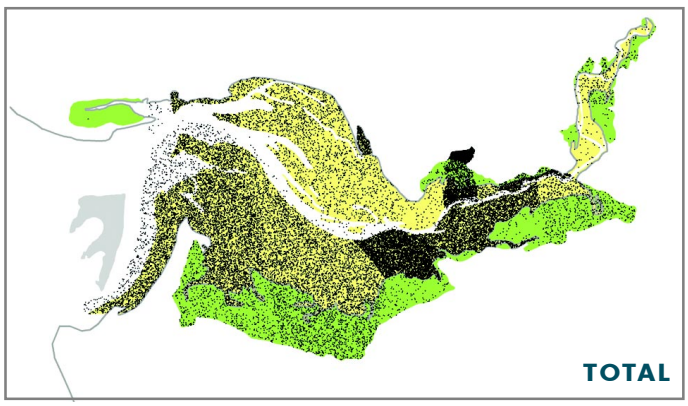
Figure 4.46.2: LTC and SPA boundaries, with overlap, at the Burry Inlet

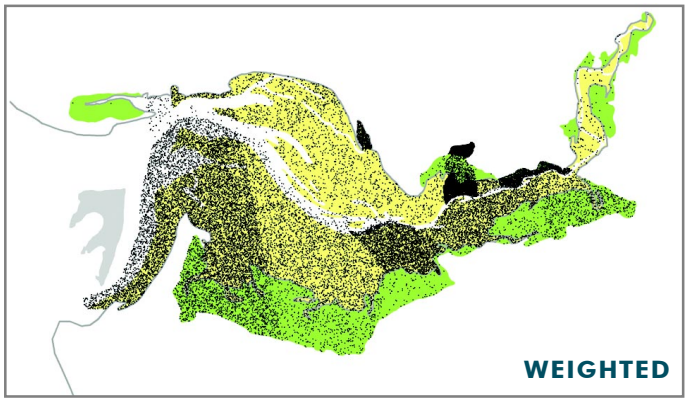
Whiteford Point could potentially be feeding along the Cefn Sidan Sands shore of Carmarthen Bay. Similarly, Eiders roosting on Whiteford Point probably disperse offshore into Carmarthen Bay.

WATERBIRD DISTRIBUTION

Low tide distribution maps from the winter of 1996–97 are presented for all of the nine species of principal interest listed above. For clarity, smaller dots are used to display the distributions of Wigeon, Oystercatchers and Dunlin. Additional maps of total birds and total birds weighted by 1% threshold value are also presented (Figure 4.46.3).

The totals map shows that higher densities of birds were found on the inner half of the SPA-designated part of the estuary. However, it should be noted that as the outer south sections were relatively very large it is quite possible that densities of some species may have been as high in parts of these sections as they were further upstream. The weighted totals map also draws attention to the north shore between Llanelli and Loughor Bridge. The mid-south area held the highest densities of Oystercatchers, Knot and Dunlin, although Oystercatchers were particularly widespread around the site. Curlews, Shelducks and Pintail were fairly widespread but all had clear concentrations south of Penclacwydd. Shovelers were also mostly found upstream from Penclacwydd along the north shore and Black-tailed Godwits occurred over much of the inner half of the SPA. Wigeon were widespread and numerous, the highest densities present at Penclacwydd.





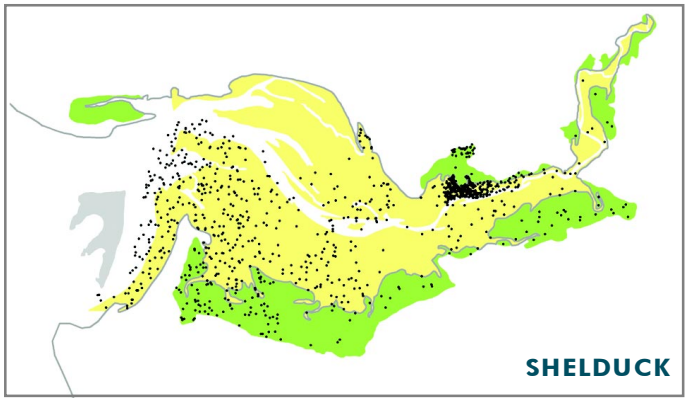


Figure 4.46.3 (i): Low tide waterbird distributions recorded at the Burry Inlet, winter 1996–97

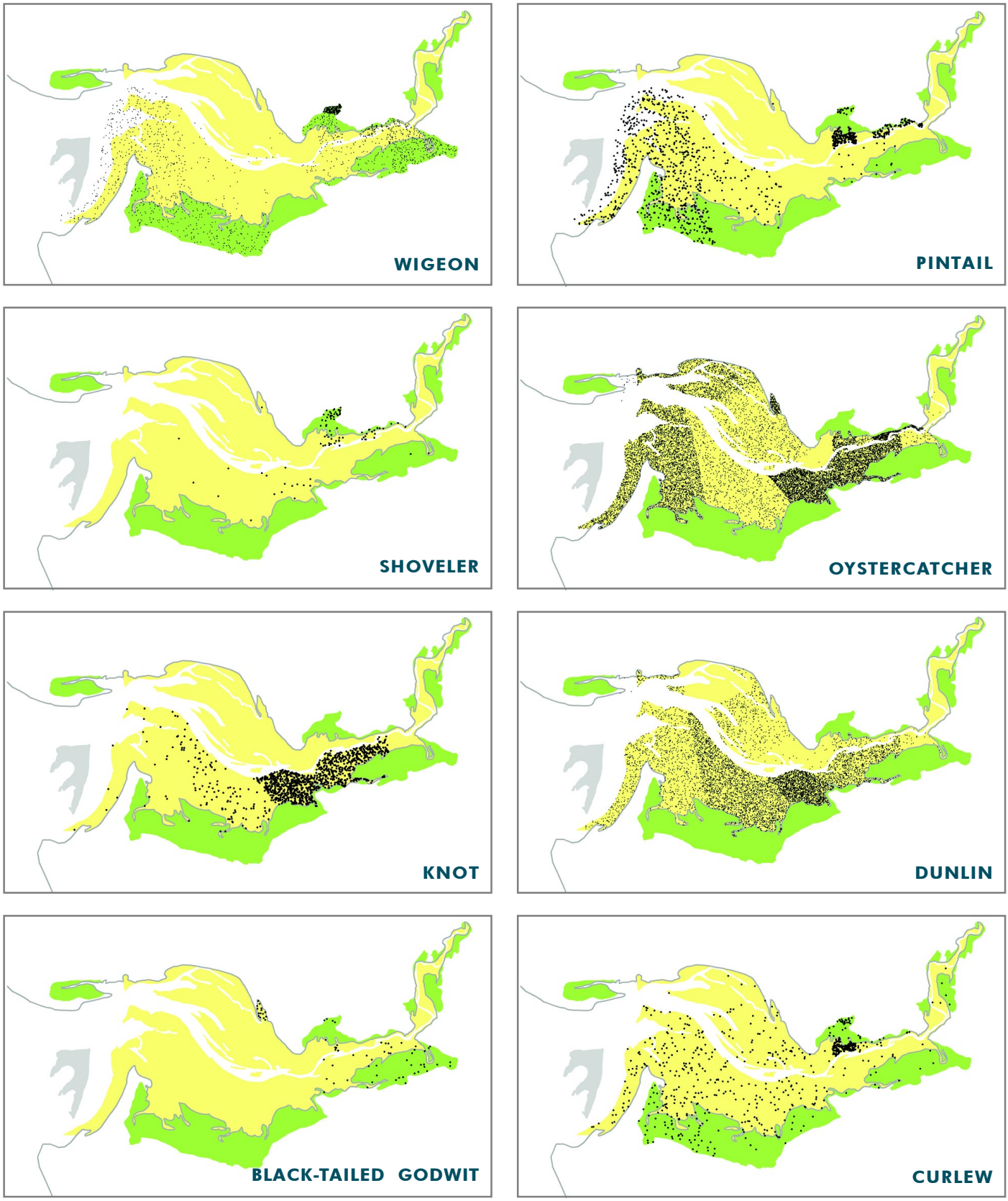


Figure 4.46.3 (ii): **Low tide waterbird distributions recorded at the Burry Inlet, winter 1996–97**

4.47 CLEDDAU ESTUARY

LTC site code:	DG
Centre grid:	SM9403
JNCC estuarine review site:	15
Habitat zonation:	1208 ha intertidal, 505 ha subtidal, 110 ha nontidal
Statutory status:	Milford Haven SSSI
Winter waterbird interest:	Little Grebe, Shelduck, Wigeon, Teal, Dunlin, Curlew

SITE DESCRIPTION

The WeBS site known as the Cleddau Estuary is in reality a series of small estuaries all opening into the sheltered waters of Milford Haven in south-west Wales. In character, the complex is similar to the Fal and Tamar in south-west England, all of these sites being drowned river valleys (or rias) in which mudflats and some areas of saltmarsh have later developed. The *Sea Empress* oil spillage of early 1996 illustrates extremely well one of the principal threats to the area, which is a major centre for oil transport and refining. However, both leisure and fishery-related activities are also widespread.

COVERAGE AND INTERPRETATION

The Cleddau Estuary was covered by the scheme during the 1997–98 winter, counts being received for all four months. Figure 4.47.1 shows the positions of the 60 sections (some of which were relatively small) counted for the survey. Most of the main intertidal areas were covered for the scheme, although some of the intervening stretches of rocky coast, as well as the open waters of Milford Haven, were not covered.

The Cleddau is not a designated SPA but does overlap with the Milford Haven SSSI, as shown in Figure 4.47.2. Of the areas included in the SSSI, the major ones not covered by the LTCs were at Pwllcrochan Flats and the upper reaches of Eastern Cleddau and Cresswell rivers, as well as much of the 'non-estuarine' stretches of shoreline between the smaller creeks. The main area counted for the LTCs but not included in the SSSI is at Castle Pill on the east side of Milford Haven town.

Movements of estuarine waterbirds between the Cleddau and other estuaries are unlikely to occur on a daily basis, given the isolation of the site. Some species (such as Lapwing and Golden Plover) are likely to use nearby nontidal habitats for a part of each day. There may be some dispersal out to the rocky shore areas outside the Milford Haven complex and to the intervening shore that was uncounted during the LTCs.

WATERBIRD DISTRIBUTION

Low tide distribution maps from the winter of 1997–98 are presented for all of the six species of principal interest listed above. For clarity, smaller dots are used to display the distributions of Wigeon, Teal and Dunlin. Additional maps of total birds and total birds weighted by 1% threshold value are also presented (Figure 4.47.3).

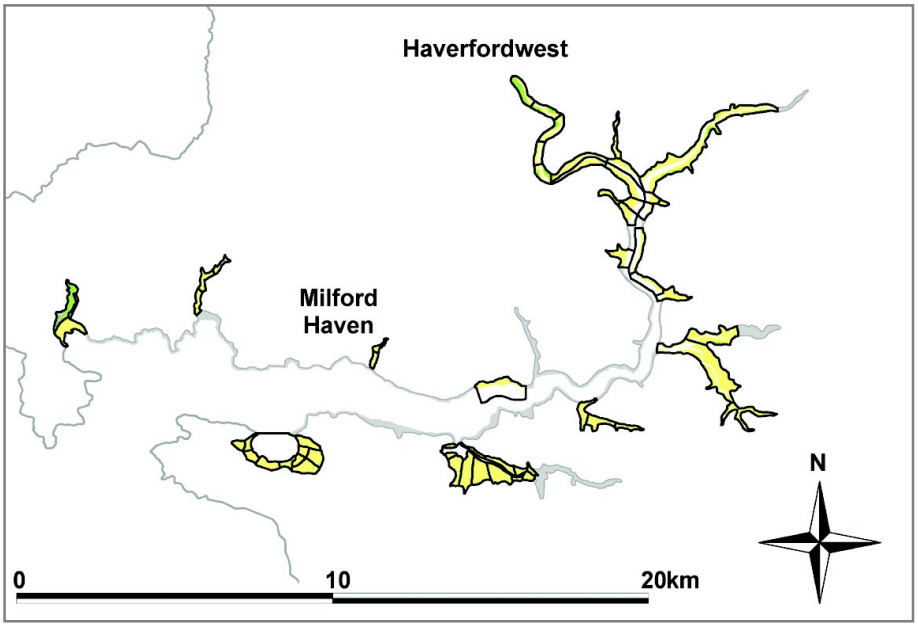


Figure 4.47.1: **LTC sections at the Cleddau Estuary, winter 1997–98**

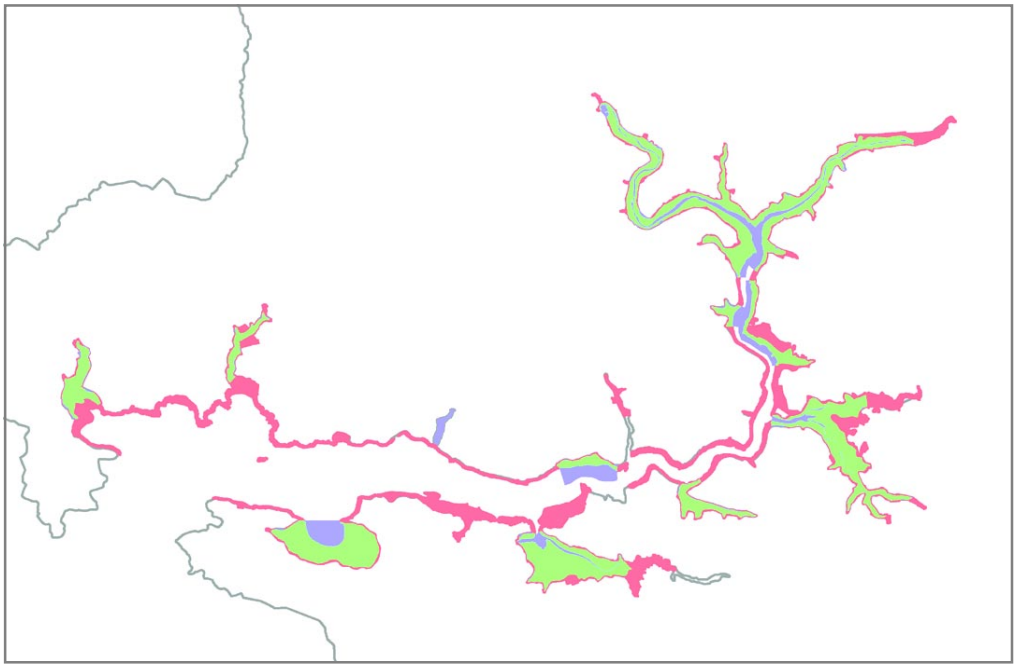


Figure 4.47.2: LTC and SSSI boundaries, with overlap, at the Cleddau Estuary

The totals map shows concentrations of birds at widely scattered locations across the site but with the highest overall densities at the Pembroke River and Landshipping Quay; the weighted totals map gave somewhat less emphasis to these areas but more to others such as at Sandyhaven Pill. Shelducks were mostly found at Pembroke River and Sprinkle Pill but were widespread elsewhere, including Angle Bay, Cosheston Pill and the Cresswell river. Wigeon were found across most of the site but especially at Angle Bay, west Pembroke River, Beggar's Reach and Sprinkle Pill, amongst others. Teal were much more restricted to inner parts of the site, especially at Sprinkle Pill and Millin Pill. Dunlin were found on any wider areas of mudflats throughout with the highest concentrations on Pembroke River and Cresswell River. Curlews were widespread but notably present in Sandy Haven Pill, unlike many other species. Little Grebes were widespread in small numbers but mostly on the pools at the Gann Estuary.

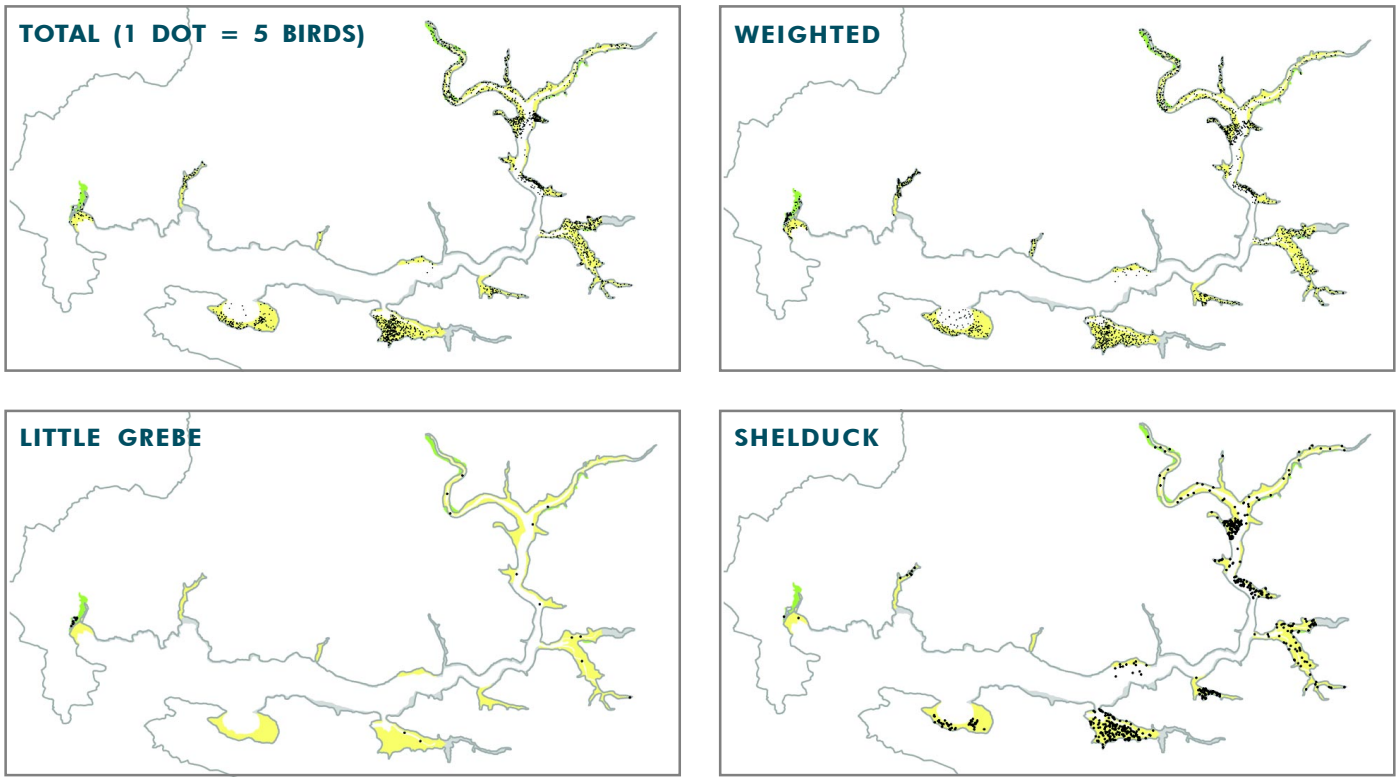


Figure 4.47.3 (i): Low tide waterbird distributions recorded at the Cleddau Estuary, winter 1997–98

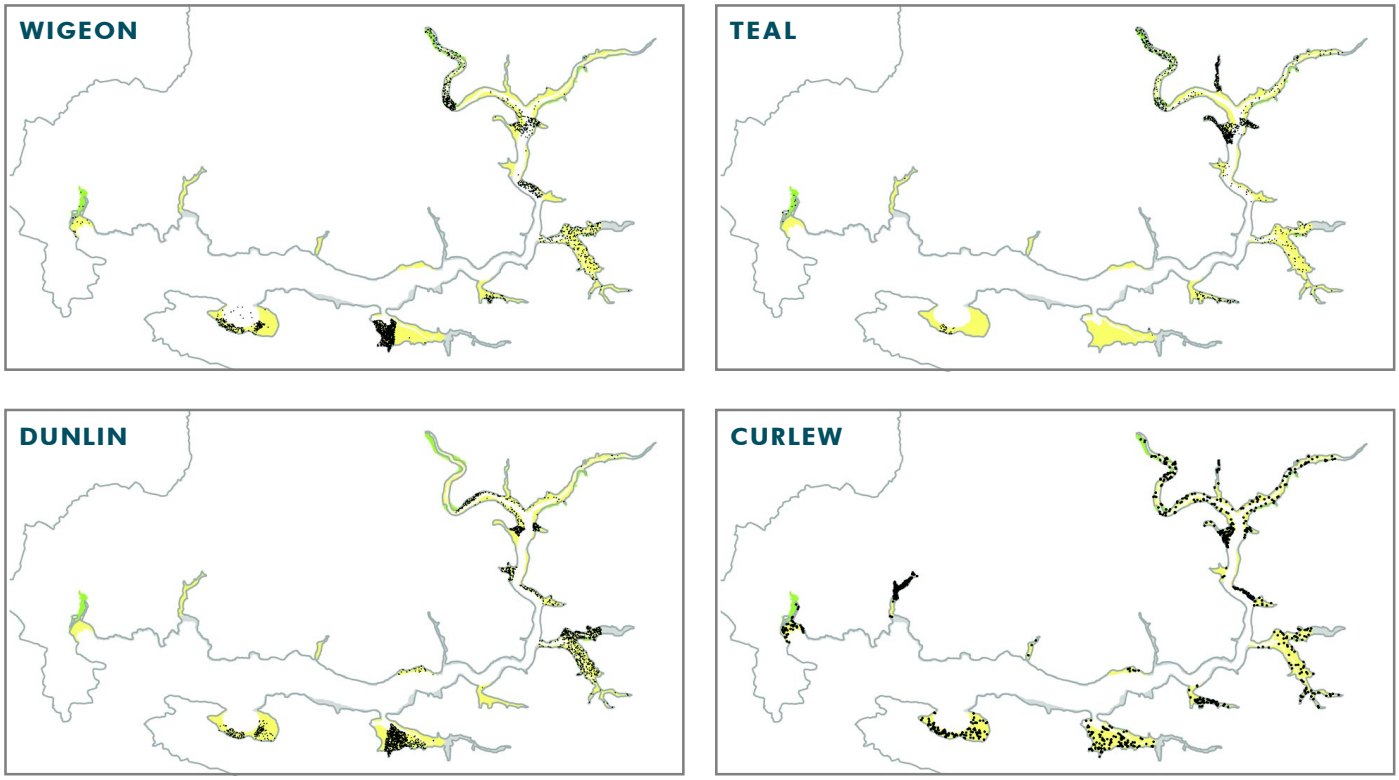


Figure 4.47.3 (ii): **Low tide waterbird distributions recorded at the Cleddau Estuary, winter 1997–98**

4.48 INLAND SEA

LTC site code: BI
Centre grid: SH3081
JNCC estuarine review site: 28
Habitat zonation: 368 ha intertidal, 337 ha subtidal, 20 ha nontidal
Statutory status: Beddmanarch–Cymyran SSSI
Winter waterbird interest: N/A

SITE DESCRIPTION

The Inland Sea lies between Anglesey and the smaller Holy Island, and is bordered to south and north by two road bridges, the Four Mile Bridge and the Stanley Embankment respectively, with a second road crossing constructed just south of the Stanley Embankment recently. To the north of the Stanley Embankment is the small estuary of the Afon Alaw which empties into Holyhead Bay past the sands of Traeth y Gribin. For the LTCs, the whole intertidal area from Porth Dryw on the east shore and Gorsedd-y-penrhyn on the west shore south to Four Mile Bridge was counted. The sandy creek running south from Four Mile Bridge to the sea at Cymyran Bay was not included in the survey area. The shore is largely rocky, with a small area of sand dunes at the mouth of the Afon Alaw. Apart from an aluminium smelter to the north-west of the site, there is relatively little industry in the area, although the port of Holyhead is nearby to the west. Recreational activities are widespread, notably canoeing and windsurfing, and the site is also used for training by military and coastguard aircraft (Ivor McLean pers. comm.).

COVERAGE AND INTERPRETATION

The Inland Sea was covered by the scheme during the 1995–96 winter only with counts made in all four months. Figure 4.48.1 shows the positions of the nine sections counted for the survey.

The area covered by the Inland Sea LTCs is not included within any SPA, although it does lie within the Beddmanarch–Cymyran SSSI (Figure 4.48.2). The SSSI, however, also includes the channel between Holy Island and Anglesey which lies to the south of Four Mile Bridge. This latter area would also appear to be suitable waterbird habitat, so any assessment of the birds of the SSSI should take this difference into account.

Although birds may move between the site and adjacent nontidal habitats, or into more terrestrial habitats, the Inland Sea is a very isolated site and there are unlikely to be daily movements between here and other estuaries. Interestingly, as the Inland Sea proper is bounded to north and south by the two road bridges, with narrow openings for the tidal flow, the high and low tides within the Inland Sea are delayed by about two hours compared to those outside the road bridges. As a result, the area provides an extended period when feeding opportunities are available and birds will move around the site to take advantage of this (Ivor McLean pers. comm.).

WATERBIRD DISTRIBUTION

Low tide distribution maps from the winter of 1995–96 are presented for total birds and total birds weighted by 1% threshold value (Figure 4.48.3).

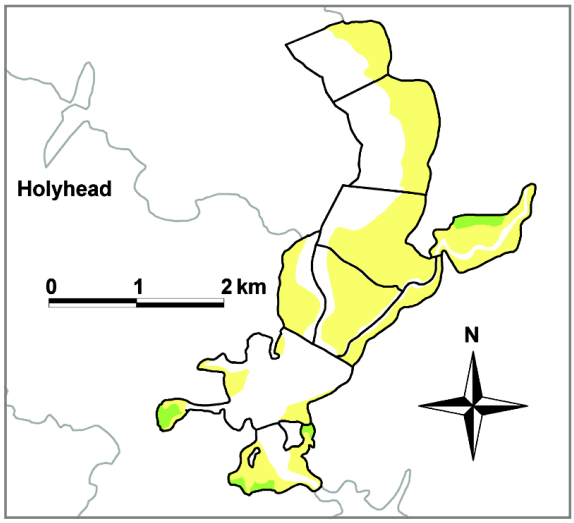


Figure 4.48.1: LTC sections at the Inland Sea, winter 1995–96

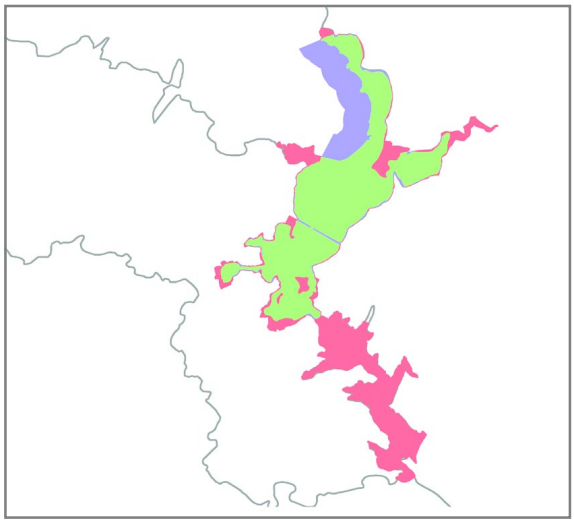


Figure 4.48.2: LTC and SSSI boundaries, with overlap, at the Inland Sea

Both the totals map and the weighted totals map suggest a very even spread of birds around the site. Amongst the individual species recorded, Shelducks and Ringed Plovers were found to be distributed very evenly throughout the site. However, the small flock of Light-bellied Brent Goose (at the time the only regular wintering flock in Britain of the Canadian population, most of which winter in Ireland) and Red-breasted Mergansers were more restricted to the Inland Sea itself (*i.e.* between the two road bridges). Dunlin occurred throughout but with clearly higher densities at Beddmanarch Bay and near Four Mile Bridge. Bar-tailed Godwits were restricted to the wider flats north of the Stanley Embankment.

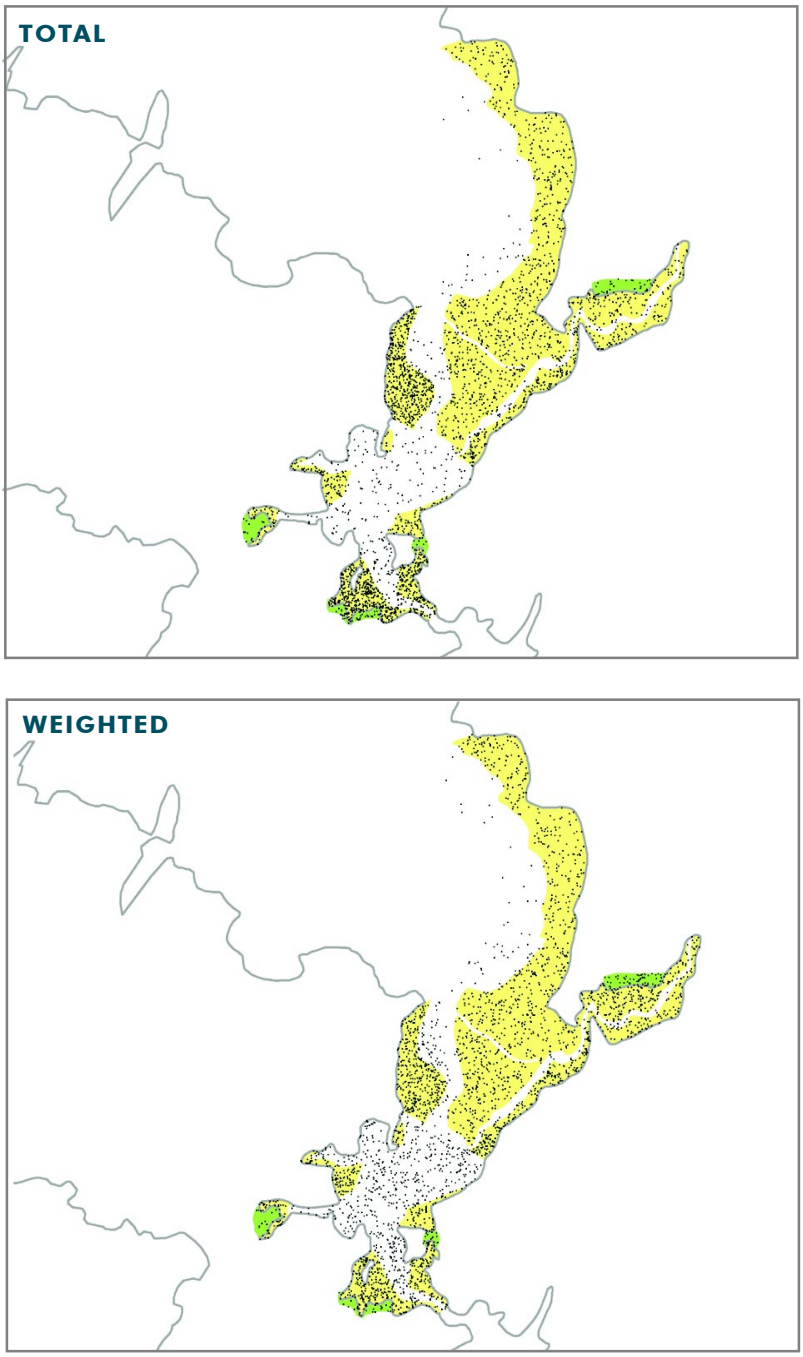


Figure 4.48.3: **Low tide waterbird distributions recorded at the Inland Sea, winter 1995–96**

4.49 LAVAN SANDS

LTC site code:	CL
Centre grid:	SH6375
JNCC estuarine review site:	31
Habitat zonation:	2713 ha intertidal, 636 ha subtidal, 0 ha nontidal
Statutory status:	Traeth Lafan/Lavan Sands, Conwy Bay SPA (UK9013031)
Winter waterbird interest:	Great Crested Grebe, Goldeneye, Red-breasted Merganser, Oystercatcher

SITE DESCRIPTION

Lavan Sands is an extensive intertidal area on the south side of the Menai Strait whose shoreline stretches from Bangor to Llanfairfechan. The intertidal flats are almost unbroken except for the freshwater streams of the Afon Ogwen in the west and the smaller Afon Aber to the east. The flats comprise muddy sediments close to the shore grading into sandier sediments further out. The area is used for recreational activities, with boating along the main channel and disturbance of high tide roosts by walkers and dogs especially around the main access points along the mainland coastline. A key issue in relation to the management of the site is commercial shellfish exploitation, principally cockling. There has been hydraulic suction dredging carried out in the past along with periodic hand collection depending upon stock levels (M. Howe, L. Kay pers. comm.).

COVERAGE AND INTERPRETATION

Lavan Sands was counted for the scheme during all four months of the 1995–96 winter, jointly as part of a study being carried out by the Countryside Council for Wales looking into the use of the site by birds and the potential impact of cockling activities. Figure 4.49.1 shows the positions of the 20 sections counted for the survey. The northern shore of the Strait, along the coast of Anglesey, was not surveyed, nor was the offshore area known as Dutchman's Bank.

As Figure 4.49.2 shows, there is a high level of agreement between the area covered for the LTCs and covered by the SPA boundary, the only difference being that the LTCs extended slightly further westwards at Bangor Harbour. Neither the Anglesey shore nor the offshore Dutchman's Bank were included in the SPA or the LTCs.

Lavan Sands is not contiguous with any other estuaries but intertidal habitat is to be found east, west and north of the surveyed site. Some dispersal of birds to and from the site therefore seems likely, with colour-marking of Oystercatchers in the 1970s confirming that this species, at least, does move between the site and the Conwy Estuary to the east (M. Howe pers. comm.).

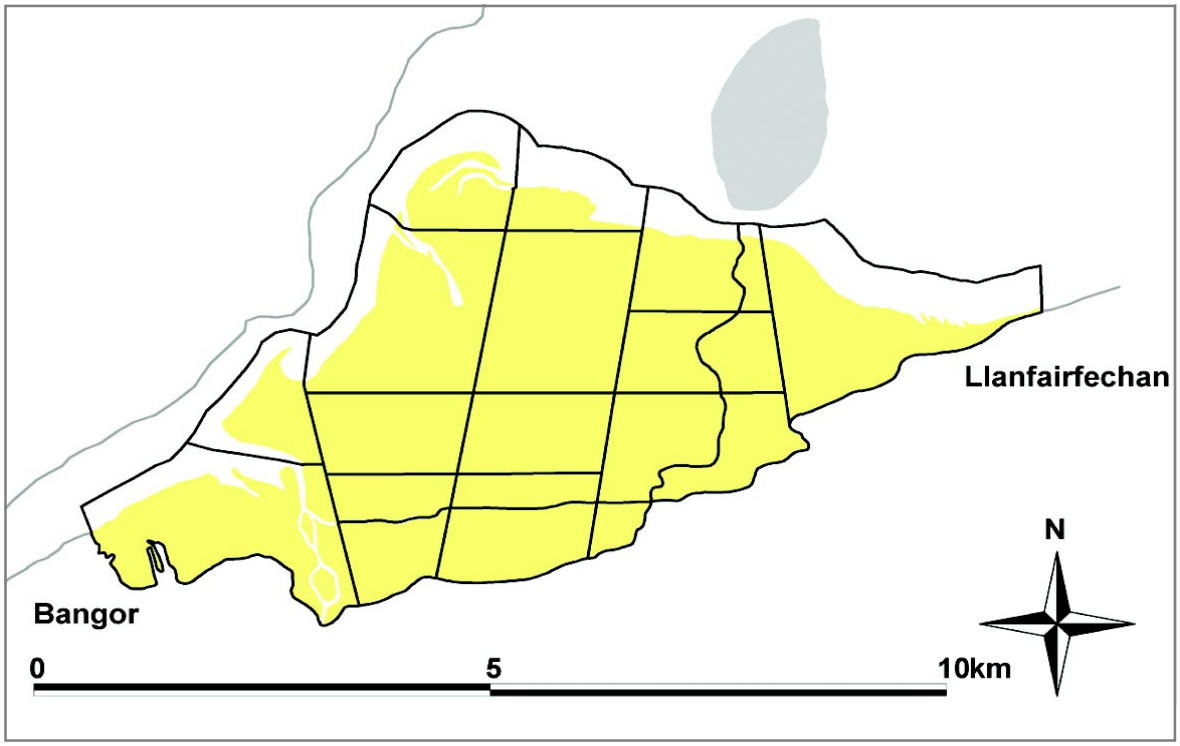


Figure 4.49.1: **LTC sections at Lavan Sands, winter 1995–96**

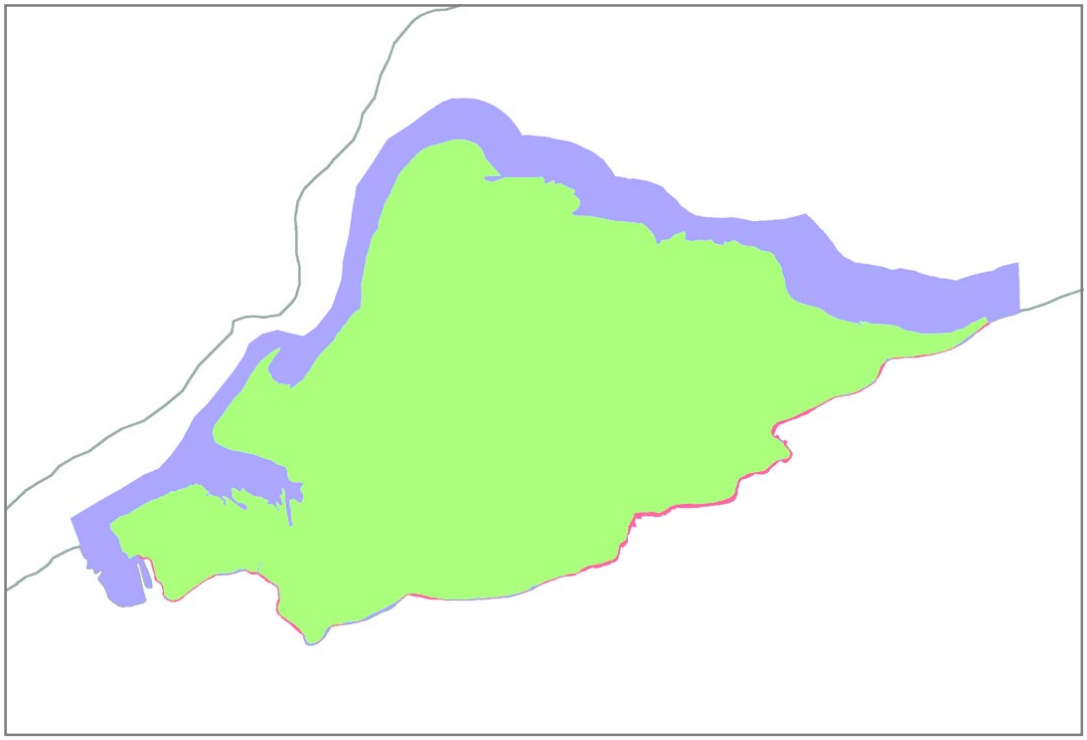
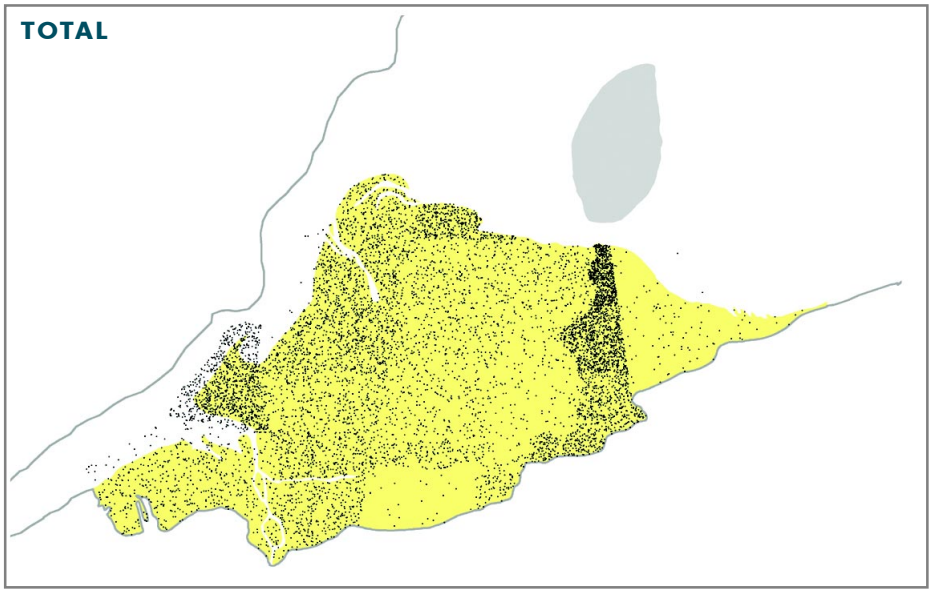


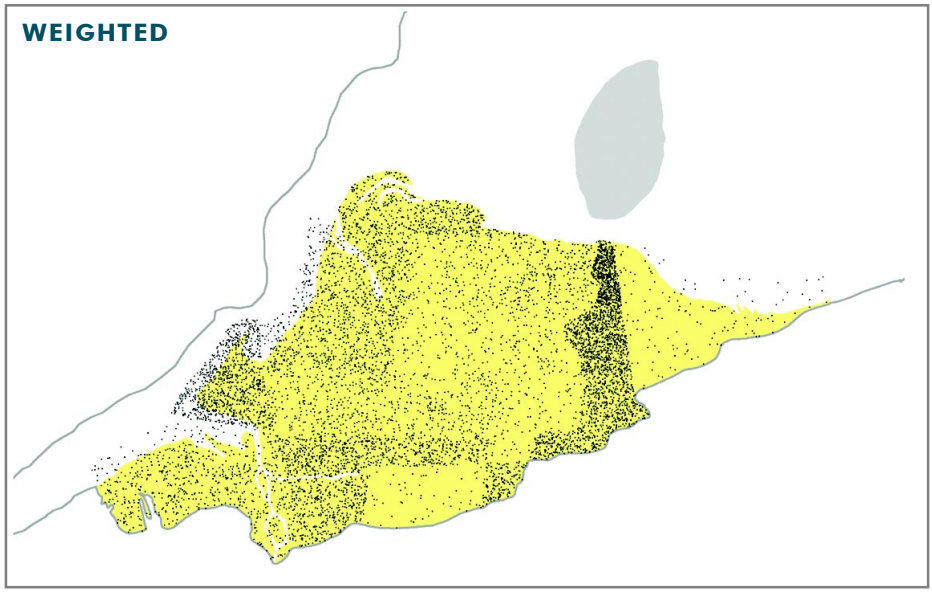
Figure 4.49.2: LTC and SPA boundaries, with overlap, at Lavan Sands

WATERBIRD DISTRIBUTION

Low tide distribution maps from the winter of 1995–96 are presented for three of the four species of principal interest listed above. Additional maps of total birds and total birds weighted by 1% threshold value are also presented (Figure 4.49.3). No Great Crested Grebes were recorded; this species was presumably too far offshore at low tide to see from the high water mark.

The totals map and weighted totals map are both clearly influenced strongly by the distribution of Oystercatchers at the site. This species was widespread but present in particularly dense concentrations just east of the channel of the Afon Aber, especially further from the shore. Most of the Goldeneyes and the few Red-breasted Mergansers recorded at low tide were present on the main Menai Strait channel, although more were doubtless present out of sight further offshore along with the aforementioned Great Crested Grebes. Amongst the other species present, Dunlin were mostly at the western end of the site, Wigeon were along the edge of the Menai Strait channel and Curlews were spread evenly across the site.





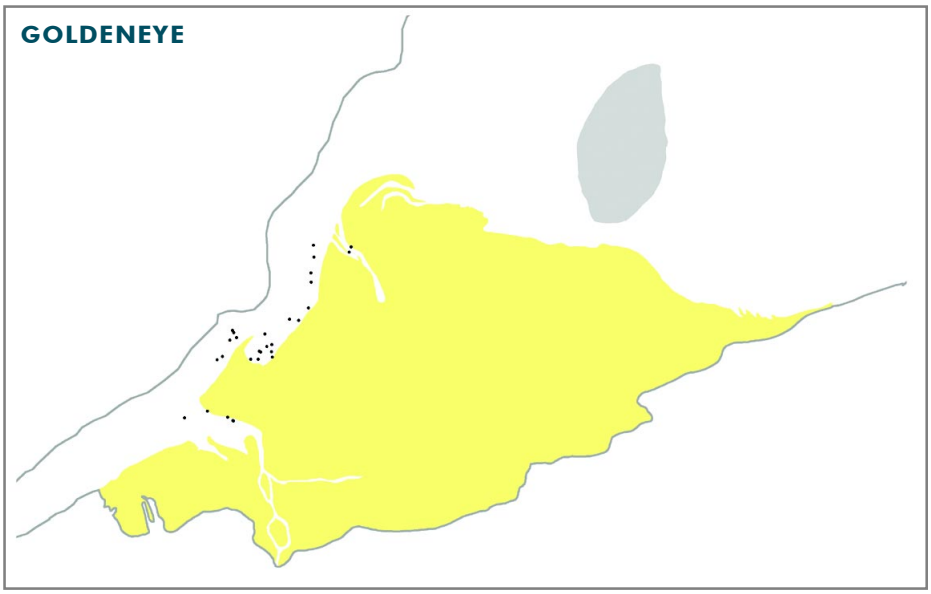
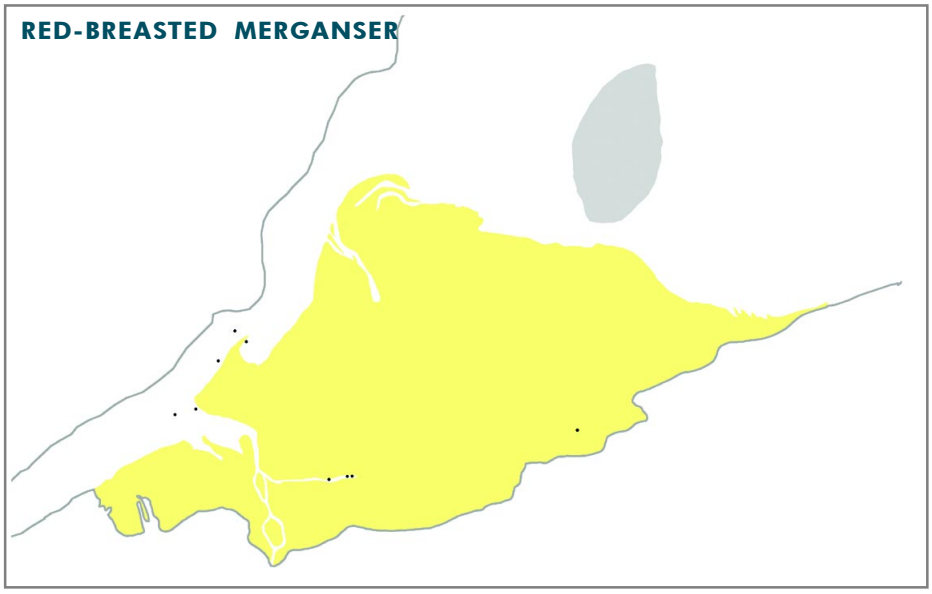


Figure 4.49.3 (i): Low tide waterbird distributions recorded at Lavan Sands, winter 1995-96



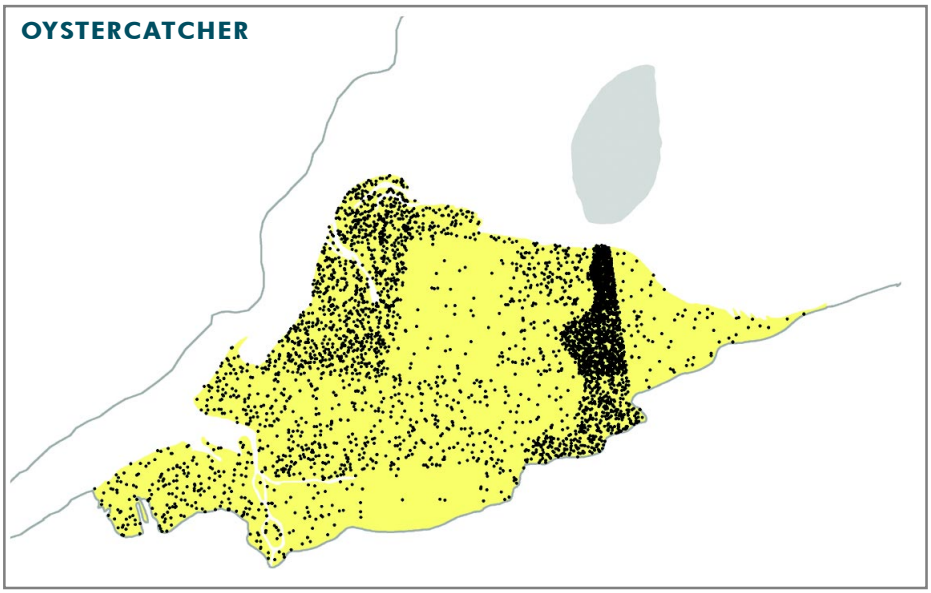


Figure 4.49.3 (ii): Low tide waterbird distributions recorded at Lavan Sands, winter 1995-96