



Bird Disturbance Survey of The Fleet, 2015



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Summary

Disturbance fieldwork was undertaken at three locations (Camp Road, East Fleet (Butterstreet Cove) and Herbury) on the Fleet, in Dorset to consider levels of disturbance in areas with existing access. The work was commissioned by Natural England to help inform the potential impacts of increasing the access around the Fleet in the future.

Key findings included:

- Camp Road was the busiest location in terms of access, with 76% of the access recorded within the whole survey at this location. Low levels of access were recorded at East Fleet and Herbury.
- Dog walking was the main activity at Camp Road (accounting for 88% of the access there). Dog walkers accounted for a smaller proportion of the access at East Fleet (50% of access was dog walkers) and at Herbury (where 38% of the access was dog walkers).
- Counts of birds were highest at East Fleet, which had the highest totals by far for waders and for wildfowl. Numbers of birds at Herbury and Camp Road were low and relatively similar, if slightly higher at Herbury.
- Despite the low numbers of birds present at Camp Road, at this location there were 35 potential disturbance events where the birds were disturbed (i.e. becoming alert, walk/swimming away or taking flight). By comparison 21 events were recorded causing disturbance at East Fleet and 20 at Herbury.
- Across all sites, dog walking was the main activity associated with disturbance: over half (58%) of all the major flights (major flights involved flights of more than 50m) and 83% of all the disturbance recorded were linked to dog walking with dogs off leads.
- Birds typically responded when people were within 100m, although responses were recorded up to 170m.

The data provide a snapshot of disturbance levels at three different locations across the winter. Habitat, birds present and types of access were different at each location. The implications of the results in terms of access provision are discussed.

Contents

| | |
|--|-----------|
| 1. Introduction | 4 |
| Overview | 4 |
| Disturbance to Wintering Waterfowl | 4 |
| Chesil Beach and the Fleet | 5 |
| Coastal Access | 7 |
| Aims of this report | 7 |
| 2. Methods | 8 |
| Survey Points and Survey Effort | 8 |
| Access Recording: 'Diary' | 10 |
| Response of the Birds | 10 |
| Count of Birds | 11 |
| Analysis and Data Presentation | 11 |
| 3. Results | 12 |
| Levels of Recreation | 12 |
| Numbers of Birds Present | 13 |
| Distribution of Birds in Relation to Levels of Access | 14 |
| Responses of the Birds | 14 |
| Responses by Site | 14 |
| Responses and Activities | 15 |
| Responses by Species | 16 |
| Responses According to Location where Activity Takes Place | 20 |
| Distances at which birds responded | 20 |
| 4. Discussion | 23 |
| 5. References | 25 |

6. Appendix 1: Summary of Survey Dates.....27

Acknowledgements

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1. Introduction

Overview

1.1 This report was commissioned by Natural England to compare the levels of disturbance to wintering waterfowl at different locations along the Fleet. Chesil Beach and the Fleet are classified as a Special Protection Area (SPA) for wintering waterfowl (Brent Goose) and is nationally important for wintering waterfowl and waders. Natural England is currently considering options for a coastal path around the West Fleet and an understanding of current levels of access and disturbance is important to inform where the route might go and the assessment of any new route.

Disturbance to Wintering Waterfowl

1.2 There is a strong body of evidence showing how access to the countryside can have negative impacts on nature conservation sites and their wildlife interest. A particularly challenging impact relates to disturbance to waterfowl on coastal sites. Disturbance has been identified by Natural England as a generic issue across many European Marine Sites (see Coyle & Wiggins 2010), and can be an issue for a range of species

1.3 Disturbance to wintering and passage waterfowl can result in:

- A reduction in the time spent feeding due to repeated flushing/increased vigilance (Fitzpatrick & Bouchez 1998; Stillman & Goss-Custard 2002a; Bright *et al.* 2003; Thomas, Kvitek & Bretz 2003a; Yasué 2005)
- Increased energetic costs (Stock & Hofeditz 1997; Nolet *et al.* 2002)
- Avoidance of areas of otherwise suitable habitat, potentially using poorer quality feeding/roosting sites instead (Cryer *et al.* 1987; Gill 1996; Burton *et al.* 2002a; Burton, Rehfish & Clark 2002)
- Increased stress (Regel & Putz 1997; Weimerskirch *et al.* 2002; Walker, Dee Boersma & Wingfield 2006; Thiel *et al.* 2011)

1.4 It is difficult to determine the extent to which the impacts listed above can result in an impact for wintering birds on a site. On a single site, localised disturbance in a small part of the site for a small amount of time is unlikely to result in a likely significant effect, as birds are highly mobile, and on a large site there will be nearby options where birds can feed. Switching to such locations within an estuary might take seconds, and the impact from a single brief event will therefore be negligible.

1.5 However, more chronic disturbance, regularly affecting larger parts of sites, will have more serious effects. Notably, disturbance can be considered as similar to habitat loss (Sutherland 1996) or even worse because the flushing has energetic costs that would not be incurred if the habitat was simply not available to the birds at all (West *et al.* 2002). Thinking of disturbance purely in terms of habitat loss, it follows that if the area available to the birds is reduced, birds are forced to redistribute and it is possible they will end up switching to locations with reduced amounts of food and possibly more competition and interference from other birds due to the reduced amount of space.

They may also be forced to switch to areas which are more exposed to the weather, where they are at greater risk from predators, or where they are further from their feeding or roost sites. The ability of the site to support a given number of birds is therefore compromised.

- 1.6 The impact of disturbance is not easy to quantify when increased mortality is not yet apparent or a marked drop in numbers (that can be linked directly to disturbance) recorded. Of course, individual birds may well be able to compensate by modifying their behaviour (Swennen, Leopold & Bruijn 1989), for example feeding for longer (Urfi, Goss-Custard & Lev. Dit Durell 1996), feeding at night (Burger & Gochfeld 1991b; McNeil, Drapeau & Goss-Custard 1992) or temporarily switching to other estuaries/sites. In such cases the birds may still survive, but with increased pressure put on the system it is likely to be more vulnerable in the long-term, and the 'slack' in the system greatly reduced. There is evidence that bird breeding success and migration patterns are linked to the quality of the wintering sites (Gill *et al.* 2001) so gradual deterioration on wintering sites might link to reduced breeding success, or even to reduced numbers of birds able to migrate back to the breeding grounds at the end of each winter. Such changes will only be apparent over long time periods and may not necessarily be apparent at all if other factors are also suppressing bird numbers at a particular site. Changes in disturbance levels relating to new access provision are likely to be gradual, and there is unlikely to be any sudden influx of visitors at a given moment in time. As noted above, a gradual and progressive impact to the site is therefore to be expected.
- 1.7 It is now increasingly recognised that access to the countryside is crucial to the long term success of nature conservation projects and has wider benefits such as increasing people's awareness of the natural world and health benefits (English Nature 2002; Alessa, Bennett & Kliskey 2003; Morris 2003; Bird 2004; Pretty *et al.* 2005). Natural England has a statutory role regarding access to the countryside and the Marine and Coastal Access Act will provide enhanced coastal access (with spreading room) around the English coastline.
- 1.8 Given a remit to enhance access and oversee the implementation of the coastal route around England, there is a potential for conflict where new or increased access occurs within or alongside areas of conservation importance.

Chesil Beach and the Fleet

- 1.9 The Fleet is a barrier-built saline lagoon, lying inland of Chesil Beach, one of the major shingle beaches in the UK. The lagoon supports a range of substrates and the salinity increases along a west to east gradient, as such the site supports a range of habitats and vegetation. The Fleet and much of the shingle bank are privately owned.

- 1.10 Chesil Fleet was designated as a Special Protection Area in July 1985 under Article 4.2 of the Birds Directive¹, as it regularly supports 1.1% of the wintering population of dark-bellied Brent goose *Branta bernicla bernicla*.
- 1.11 The site has also been listed as a RAMSAR site under Criterion 6 for peak counts in winter of dark-bellied Brent goose with an average population of 1,400 individuals representing 1.4% of the GB population and of Mute swan *Cygnus olor* with an average of 1,169 individuals representing an average of 3.1% of the GB population.
- 1.12 In addition, the RAMSAR designation includes the following as noteworthy species:
- Species regularly supported during the breeding season:*
- Little tern *Sterna albifrons albifrons* - 81 apparently occupied nests representing an average of 4.1% of the GB population
- Species with peak counts in spring and autumn*
- Common greenshank *Tringa nebularia* - 6 individuals representing an average of 1% of the GB population
- Species with peak counts in winter:*
- Little egret *Egretta garzetta* - 24 individuals representing an average of 1.4% of the GB population
 - Common pochard *Aythya farina* - 659 individuals representing an average of 1.1% of the GB population
 - Red-breasted merganser *Mergus serrator* - 270 individuals representing an average of 2.7% of the GB population
 - Common Coot *Fulica atra atra* - 2,139 individuals representing an average of 1.2% of the GB population
- 1.13 Chesil Fleet is also part of the Chesil and The Fleet SSSI for a wide range of features. These include up to 1,200 wintering mute swans and a breeding colony of 20-100 pairs of this species and up to 7,500 wintering wigeon *Anas penelope*.
- 1.14 The report on water birds in the UK in 2011/2012 (Austin, GE *et al.* 2014) gives an average peak count for the number of waterbirds on Chesil Fleet and the Wey for the previous five years as 15,873 with a peak in 2010/2011 of 22,545 individuals. It lists the 21 sites of national importance for dark-bellied Brent geese of which The Fleet and Wey are number 14 with a five year mean peak of 2,040 and a peak of 2,416 in 2010/11.
- 1.15 A recent review (Underhill-Day, Pickess & Lake 2014) noted that the western end of the The Fleet makes a contribution to the local importance of The Fleet as a whole for a range of bird species including shelduck, great-crested grebe, moorhen, wigeon and gadwall.
- 1.16 The western end makes a significant contribution to the regionally important populations of red-breasted merganser, little egret and shoveler which winter on The

¹ Council Directive 2009/147/EC on the Conservation of Wild Birds (CD1).

Fleet and, most importantly, makes a major contribution to the national importance of The Fleet for the populations of wintering mute swans, pochard and coot as this area holds a substantial proportion of the populations of these species found on The Fleet as a whole.

Coastal Access

- 1.17 The majority of the site is largely inaccessible to casual visitors, and access is currently focussed at the eastern end of the site, at around Ferrybridge, where access to the shore is easiest. There is little public access to Chesil Beach as walking is difficult on the shingle and the Beach is some 22km long. There are however a number of places where authorised boats cross The Fleet to the Beach although the disturbance from these seems limited to the immediate vicinity of the crossing places.
- 1.18 The South West Coast Path follows the inland shore of The Fleet from Ferrybridge to the south east to Rodden Hive, about two-thirds of the way to Abbotsbury, where it diverts inland. There are access points to The Fleet at a number of places, with the last of these about 1.25km south east of Rodden Hive. Between Rodden Hive and Abbotsbury there are currently no public paths on the Fleet shoreline or public access points to The Fleet. However, Natural England has been tasked with extending recreational access around the coast under the Coastal Access Scheme and is currently negotiating access along the coast between Lyme Regis to Rufus Castle. This includes consideration of the hitherto undisturbed stretch between Abbotsbury and Rodden Hive where there is currently no public access. This area includes locally important reed beds and a part of The Fleet of national and regional importance for wintering wildfowl and waders.

Aims of this report

- 1.19 This report was commissioned by Natural England to explore current levels of access and the impacts of disturbance to wintering waterfowl within that part of The Fleet adjoining a public footpath. Fieldwork was focussed on areas of the Fleet with existing levels of access to collect systematic data on the number of people, the number of birds and the interaction between the two.

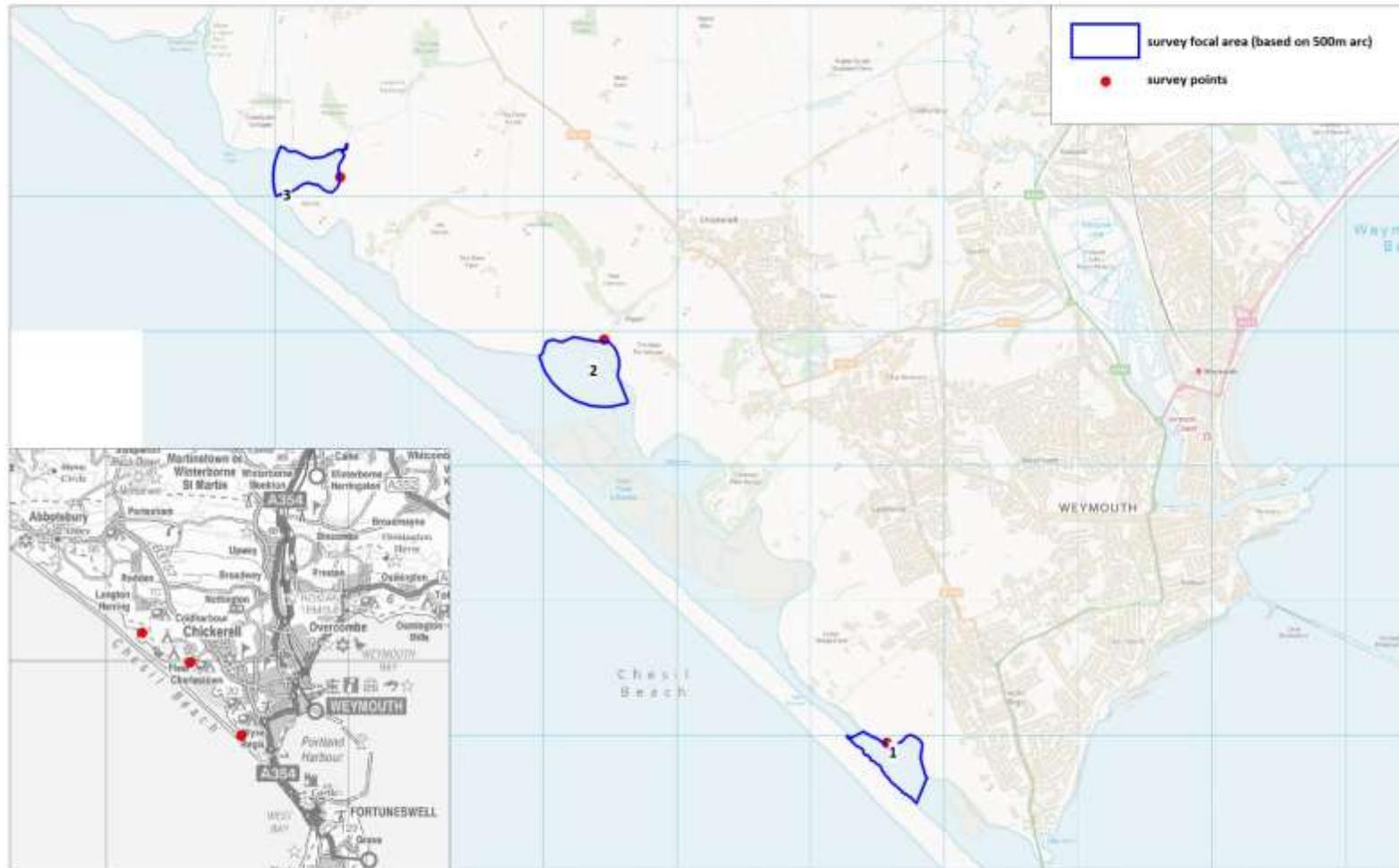
2. Methods

Survey Points and Survey Effort

- 2.1 Fieldwork was undertaken at three survey points, carefully selected to provide a clear vantage point of the Fleet and its shoreline at a location that could be easily accessed without the surveyor causing disturbance to birds using the water or shoreline. The survey points were located at the eastern end of the Fleet, in areas with existing access. At each survey point recording for the birds was focussed on a focal area based on a 500m arc that encompassed the Fleet. These arcs were a semi-circle going out from a section of shoreline, and each arc was a slightly different shape to reflect the area visible to the surveyor. Survey points and the focal areas are shown in Map 1.
- 2.2 Each survey point was visited ten times over the period September – January, with two visits undertaken per month. Visits encompassed a range of days, including weekend days. All fieldwork was undertaken by the same observer and all three survey points were surveyed in a single day, ensuring that coverage (i.e. dates visited) were the same for each survey point. The order in which each survey point was visited was varied with each visit. Dates and times of visits are summarised in Appendix 1.
- 2.3 Fieldwork consisted of:
- Recording all access and other events taking place around or within the focal area over a period of 90 minutes. Access was recorded as a **diary**, systematically logging each event in chronological order.
 - Recording the **response of birds** within the focal area if any of the diary events were within 200m (or if the birds responded at greater distances)
 - At the end of the survey period, a **count of birds** present within the focal area was undertaken

These different elements are described in detail below.

Bird Disturbance Survey of the Fleet



Map 1: Survey Points

Contains Ordnance Survey Data. Crown copyright and database right 2014.

Access Recording: 'Diary'

- 2.4 All recreation events observed during the survey period were recorded in a diary form. Recording was of any event that had the potential to affect the birds within the arc, therefore the diary included people and events within and outside the 500m arc. The majority of events involved people walking along the shoreline path and therefore moving past the edge of the 500m arc. Events however were not just people, but included vehicles, planes and sudden noises such as gun-fire. Events were recorded regardless of whether birds were present in the 500m arc or not. All events were recorded in this diary – which allowed us to directly compare levels of human activity in different areas.
- 2.5 Events within the diary were given a unique reference, allowing individual events to be cross-referenced to data on the response of birds. For each entry in the diary, details were recorded that included activity type (categorised to standard codes), group size, zone (intertidal, on water or above mean high water mark (MHW)), length of time present in area and notes relating to behaviour.

Response of the Birds

- 2.6 We defined any event that is listed in the diary as a 'potential disturbance event' if:
- It coincides with birds of a particular species being present within the count area and
 - It occurs within 200m of birds within the recording area or
 - Birds are disturbed (i.e. seen to become alert, change position or are flushed).
- 2.7 For each potential disturbance event, additional information on the response of birds was recorded on a separate recording form. The disturbance data recorded the number of birds within 200m of the potential source of disturbance and the behaviour. Behaviour was categorised simply as feeding or roosting / preening / loafing. The response of the birds was recorded using simple categories ('Alert', 'Walk/Swim', 'Short Flight (less than 50m)', 'Major Flight' or 'No Response'). For each activity/event where disturbance occurred, the maximum distance from the birds to the event was recorded as the straight line distance from the source of disturbance to the birds. If there was no response from the birds then the minimum distance from each species present to the disturbance event was recorded (i.e. how close the disturbance event was to the birds). If the birds were in a tight flock or an individual then this distance was relatively easy to measure. If the birds are scattered over a wide area and all were disturbed, then the distance was the distance to the furthest bird disturbed. In all cases distances were estimated to the nearest 5m. In order to ensure consistency in recording distances:
- Accurate aerial photographs were used with distance bands plotted, in the field. Where blown up and printed on good quality paper, with distance bands overlaid, such images clearly show creeks, buoys, marker posts and landmarks.

- Laser rangefinders were used to determine the distance to key landmarks/features and the birds.
- Some distances were triangulated or paced out along the shore at the end of the survey – this can be helpful where the distances were hard to estimate during the survey period (for example due to the angles between the observer, source of disturbance and the birds).
- All fieldwork was undertaken by the same, experienced observer.

Count of Birds

2.8 At the end of the 90 minutes survey period a count of all birds present within the focal area was made. Only waders, wildfowl and a selection of other species (cormorants, divers, grebes, rails and herons) were counted.

Analysis and Data Presentation

2.9 Data were used to summarise the range of activities, counts of birds and responses of birds (by site, activity and species). More detailed statistical analysis involved the probability of disturbance (i.e. birds becoming alert, walking/swimming away or taking flight), modelled using logistic regression (Hosmer & Lemeshow 2000) with the response (i.e. disturbance taking place) being the dependent variable. The details of the models are presented within the report.

3. Results

Levels of Recreation

- 3.1 In total there were 399 events recorded in the diary. Nearly half (192 events) were within 200m of birds within the focal area. The 399 events involved 613 people and 484 dogs. Of the 484 dogs, 457 (94%) were off the lead.
- 3.2 Levels of access were highest in September and then remained relatively similar for the period October –January Table 1. Camp Road was by far the busiest location overall and was the busiest location in all months.

Table 1: Numbers of events (from diary) per month. Fieldwork effort same at all locations

| Row Labels | September | October | November | December | January | Total |
|--------------|------------|-----------|-----------|-----------|-----------|------------|
| 1 Camp Road | 77 | 48 | 57 | 53 | 69 | 274 |
| 2 East Fleet | 15 | 11 | 6 | 6 | 6 | 74 |
| 3 Herbury | 17 | 14 | 11 | 5 | 4 | 51 |
| Total | 109 | 73 | 74 | 64 | 79 | 399 |

- 3.3 Across all locations combined dog walking was the main activity, accounting for 78% of the events recorded in the diary (Table 2). The majority (74%) of these dog walkers were with dogs off leads. Camp Road was the main site where dog walkers were present: 67% of all the events recorded across all three locations were dog walkers at Camp Road. Herbury was notable in that dog walkers were not the main activity recorded; 53% of events recorded here were walkers without dogs compared to 38% of events involving dog walkers.
- 3.4 There were notable differences between locations in the proportion of dog walkers with dogs on leads: at Camp Road 3% (i.e. 7 out of 261) of dog walkers had their dogs on leads, this compared to 5% (i.e. 1 out of 21) of dog walkers at East Fleet and 37% (7 out of 12) at Herbury.

Table 2: Levels of access by activity. Tables gives number of events (column%).

| Activity | 1 Camp Road | 2 East Fleet | 3 Herbury | Total |
|--------------------------------|-------------|--------------|-----------|----------|
| Dog walker, dog off lead | 261 (86) | 21 (48) | 12 (24) | 294 (74) |
| Walking/rambling (without dog) | 17 (6) | 17 (39) | 27 (53) | 61 (15) |
| Dog walker, dog on lead | 7 (2) | 1 (2) | 7 (14) | 15 (4) |
| Birdwatching | 4 (1) | 2 (5) | 3 (6) | 9 (2) |
| Jogging | 4 (1) | 2 (5) | 0 (0) | 6 (2) |
| Canoe on water | 2 (1) | 0 (0) | 1 (2) | 3 (1) |
| Bait digging | 2 (1) | 0 (0) | 0 (0) | 2 (1) |
| Large boat (outboard motor) | 2 (1) | 0 (0) | 0 (0) | 2 (1) |
| Other/unknown | (0) | 1 (2) | 1 (2) | 2 (1) |
| Rowing boat | 2 (1) | 0 (0) | 0 (0) | 2 (1) |

Bird Disturbance Survey of the Fleet

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|--|------------------|-----------------|-----------------|------------------|
| Horse Riding | 1 (0) | 0 (0) | 0 (0) | 1 (0) |
| Kids playing (with or without parents) | 1 (0) | 0 (0) | 0 (0) | 1 (0) |
| Small fast boat | 1 (0) | 0 (0) | 0 (0) | 1 (0) |
| Total | 304 (100) | 44 (100) | 51 (100) | 399 (100) |

Numbers of Birds Present

3.5 The number of birds recorded across the survey visits is summarised in Table 3. In total 25 species were recorded in the counts (counts undertaken at the end of each survey visit). In general there were higher numbers of birds at East Fleet and the lowest number of birds at Camp Road. There were 12 species recorded at Camp Road, 18 at East Fleet and 14 at Herbury.

Table 3: Total number of birds recorded by site within the focal areas across all ten survey visits.

| Species | 1 Camp Road | 2 East Fleet | 3 Herbury | Total |
|----------------------------|-------------|--------------|------------|-------------|
| Bar-tailed Godwit | 0 | 1 | 0 | 1 |
| Curlew | 3 | 3 | 0 | 6 |
| Dunlin | 0 | 62 | 27 | 89 |
| Knot | 0 | 1 | 1 | 2 |
| Oystercatcher | 1 | 1 | 0 | 2 |
| Redshank | 0 | 26 | 67 | 93 |
| Turnstone | 3 | 23 | 0 | 26 |
| Total Waders | 7 | 117 | 95 | 219 |
| Brent Goose | 54 | 894 | 12 | 960 |
| Canada Goose | 0 | 70 | 0 | 70 |
| Goldeneye | 1 | 0 | 0 | 1 |
| Goosander | 0 | 2 | 0 | 2 |
| Mallard | 10 | 0 | 4 | 14 |
| Mute Swan | 0 | 195 | 167 | 362 |
| Pintail | 0 | 377 | 7 | 384 |
| Red-breasted Merganser | 152 | 16 | 36 | 204 |
| Shelduck | 0 | 7 | 9 | 16 |
| Shoveler | 0 | 0 | 1 | 1 |
| Teal | 0 | 0 | 22 | 22 |
| Wigeon | 0 | 3445 | 137 | 3582 |
| Total Wildfowl | 217 | 5006 | 395 | 5618 |
| Coot | 0 | 0 | 303 | 303 |
| Cormorant | 1 | 11 | 0 | 12 |
| Great-crested Grebe | 1 | 3 | 0 | 4 |
| Grey Heron | 1 | 0 | 0 | 1 |
| Little Egret | 12 | 3 | 7 | 22 |
| Shag | 4 | 0 | 0 | 4 |
| Total Other Species | 19 | 17 | 310 | 346 |
| Total | 243 | 5140 | 800 | 6183 |

Distribution of Birds in Relation to Levels of Access

3.6 Numbers of birds were clearly markedly different between the three survey points. Levels of access were relatively similar at East Fleet and Herbury and highest at Camp Road (Figure 1). The lowest numbers of birds were recorded at Camp Road, but numbers were also relatively low at Herbury (particularly wildfowl). Across all three survey points there were no high counts of birds that coincided with high levels of access.

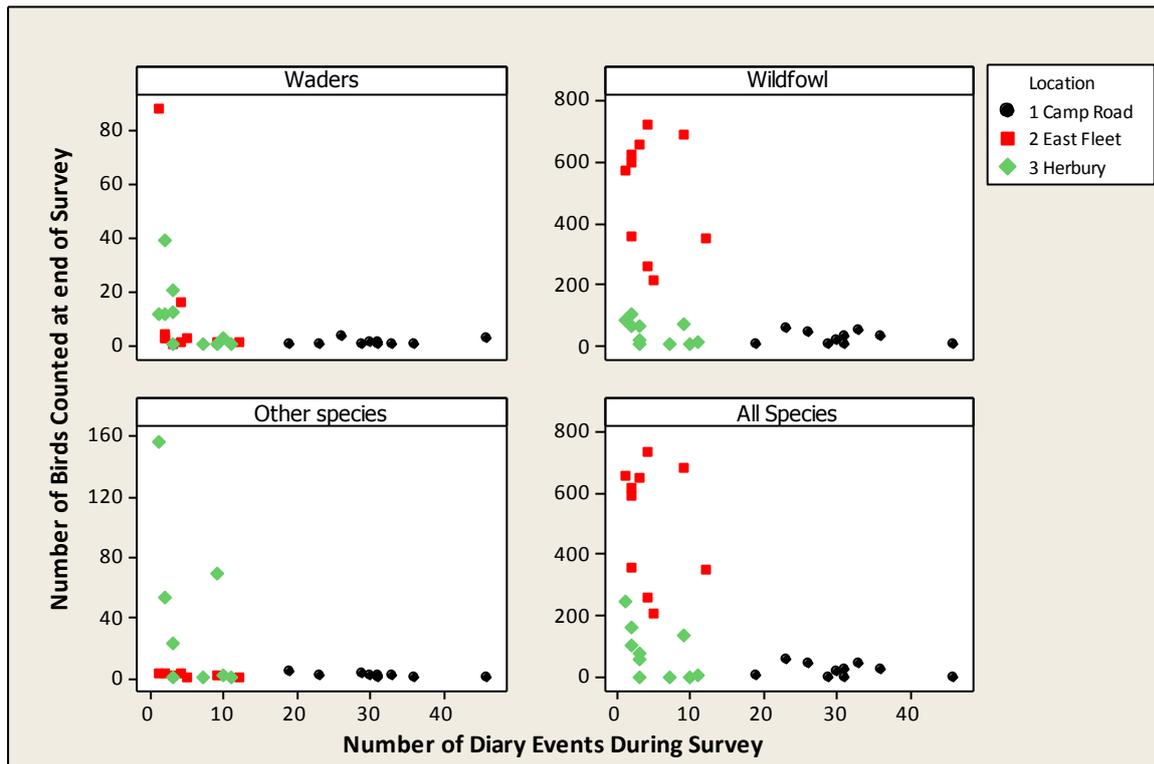


Figure 1: Numbers of birds (from counts at end of each survey) and levels of access during survey

Responses of the Birds

3.7 In total there were 303 potential disturbance events, i.e. events where access and birds (of a single species) coincided.

Responses by Site

3.8 The highest number of potential disturbance events (i.e. where birds and people occurred together) were at Camp Road.

3.9 Across all sites 75% of potential disturbance events involved no responses from the birds (Table 4). The highest proportion of major flights were recorded at East Fleet, where one in five (20%) of potential disturbance events involved birds undertaking major flight.

Table 4: Responses by site. Table gives number of potential disturbance events (row %).

| Site | No Response | Alert | Walk/Swim | Minor Flight | Major Flight | Total |
|------|-------------|-------|-----------|--------------|--------------|-------|
|------|-------------|-------|-----------|--------------|--------------|-------|

Bird Disturbance Survey of the Fleet

| | | | | | | |
|--------------|-----------------|--------------|---------------|--------------|----------------|------------------|
| 1 Camp Road | 132 (79) | 4 (2) | 11 (7) | 3 (2) | 17 (10) | 167 (100) |
| 2 East Fleet | 54 (72) | 0 (0) | 6 (8) | 0 (0) | 15 (20) | 75 (100) |
| 3 Herbury | 41 (67) | 1 (2) | 5 (8) | 5 (8) | 9 (15) | 61 (100) |
| Total | 227 (75) | 5 (2) | 22 (7) | 8 (3) | 41 (14) | 303 (100) |

Responses and Activities

3.10 Data on responses of birds are summarised in Table 5 and Figure 2. For only four activities were there more than ten potential disturbance events and for all these (dog walking with and without dog, walking and bird-watching) the proportion of events causing major flights was relatively low. From Figure 2 it would appear that a higher proportion of dog walkers with dogs on leads cause major flights compared to dog walkers with dogs off leads, but note that dog walkers with dogs on leads were mainly recorded at Herbury, so such differences could relate to sites rather than activity. Moreover, dogs off leads at Camp Road were unable to approach The Fleet shoreline due to the low cliffs for much of its length but were attracted to the open grass field inland of the path so were more likely to stray away from the edge of The Fleet

3.11 Across all sites dog walking was the activity that resulted in the most disturbance: over half (59%) of the major flights recorded and 83% of all the disturbance (i.e. birds becoming alert, walking/swimming away or taking flight) recorded.

Table 5: Responses by activity. Table gives number of potential disturbance events (row %).

| Activity | No Response | Alert | Walk/Swim | Minor Flight | Major Flight | Total |
|-----------------------------|-----------------|--------------|---------------|--------------|----------------|------------------|
| Dog walker, dog off lead | 162 (78) | 4 (2) | 18 (9) | 1 (0) | 22 (11) | 207 (100) |
| Walking/rambling | 43 (70) | 0 (0) | 4 (7) | 4 (7) | 10 (16) | 61 (100) |
| Dog walker, dog on lead | 11 (85) | 0 (0) | 0 (0) | 0 (0) | 2 (15) | 13 (100) |
| Birdwatching | 10 (91) | 0 (0) | 0 (0) | 0 (0) | 1 (9) | 11 (100) |
| Canoe on water | 0 (0) | 1 (20) | 0 (0) | 1 (20) | 3 (60) | 5 (100) |
| Jogging | 0 (0) | 0 (0) | 0 (0) | 2 (50) | 2 (50) | 4 (100) |
| Large boat (outboard motor) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1 (100) | 1 (100) |
| Small fast boat | 1 (100) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1 (100) |
| Total | 227 (75) | 5 (2) | 22 (7) | 8 (3) | 41 (14) | 303 (100) |

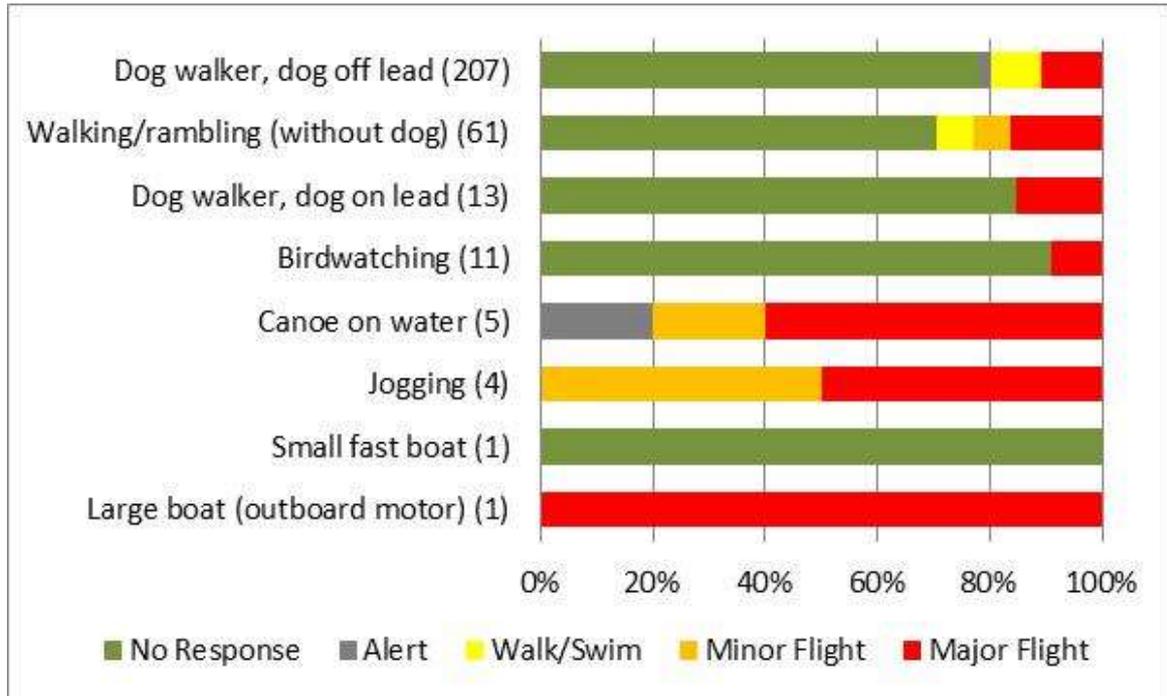


Figure 2: Responses by activity. Numbers in brackets give the number of observations for each activity.

Responses by Species

3.12 Data by species are summarised in Table 6 and Figure 3. Waders tended to show the highest proportion of disturbance, particularly redshank where over half (53%) of observations involved major flight. Brent Goose was the species with the most observations of disturbance: 22 potential disturbance events out of 67 potential disturbance events involving this species involved some kind of response to the presence of people.

Table 6: Response by species. Species are listed in order of sample size (i.e. number of potential disturbance events involving each species). Data give the number of potential disturbance events (row %).

| Species | No Response | Alert | Walk/Swim | Minor Flight | Major Flight | Total |
|------------------|-------------|-------|-----------|--------------|--------------|----------|
| Brent Goose | 45 (67) | 2 (3) | 10 (15) | 0 (0) | 10 (15) | 67 (100) |
| Red-b. Merganser | 42 (89) | 0 (0) | 4 (9) | 0 (0) | 1 (2) | 47 (100) |
| Wigeon | 28 (65) | 0 (0) | 4 (9) | 2 (5) | 9 (21) | 43 (100) |
| Oystercatcher | 28 (90) | 1 (3) | 0 (0) | 0 (0) | 2 (6) | 31 (100) |
| Little Egret | 25 (83) | 1 (3) | 0 (0) | 1 (3) | 3 (10) | 30 (100) |
| Redshank | 9 (47) | 0 (0) | 0 (0) | 0 (0) | 10 (53) | 19 (100) |
| Curlew | 13 (87) | 0 (0) | 0 (0) | 0 (0) | 2 (13) | 15 (100) |
| Mute Swan | 10 (77) | 1 (8) | 2 (15) | 0 (0) | 0 (0) | 13 (100) |
| Pintail | 6 (55) | 0 (0) | 1 (9) | 2 (18) | 2 (18) | 11 (100) |
| Dunlin | 4 (67) | 0 (0) | 0 (0) | 1 (17) | 1 (17) | 6 (100) |
| Coot | 2 (50) | 0 (0) | 1 (25) | 1 (25) | 0 (0) | 4 (100) |
| Shag | 4 (100) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 4 (100) |
| Cormorant | 2 (100) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 2 (100) |

Bird Disturbance Survey of the Fleet

| | | | | | | |
|-------------------|-----------------|--------------|---------------|--------------|----------------|------------------|
| Great-c. Grebe | 2 (100) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 2 (100) |
| Mallard | 2 (100) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 2 (100) |
| Shelduck | 1 (50) | 0 (0) | 0 (0) | 1 (50) | 0 (0) | 2 (100) |
| Turnstone | 1 (50) | 0 (0) | 0 (0) | 0 (0) | 1 (50) | 2 (100) |
| Bar-tailed Godwit | 1 (100) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1 (100) |
| Canada Goose | 1 (100) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1 (100) |
| Grey Heron | 1 (100) | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 1 (100) |
| Total | 227 (75) | 5 (2) | 22 (7) | 8 (3) | 41 (14) | 303 (100) |

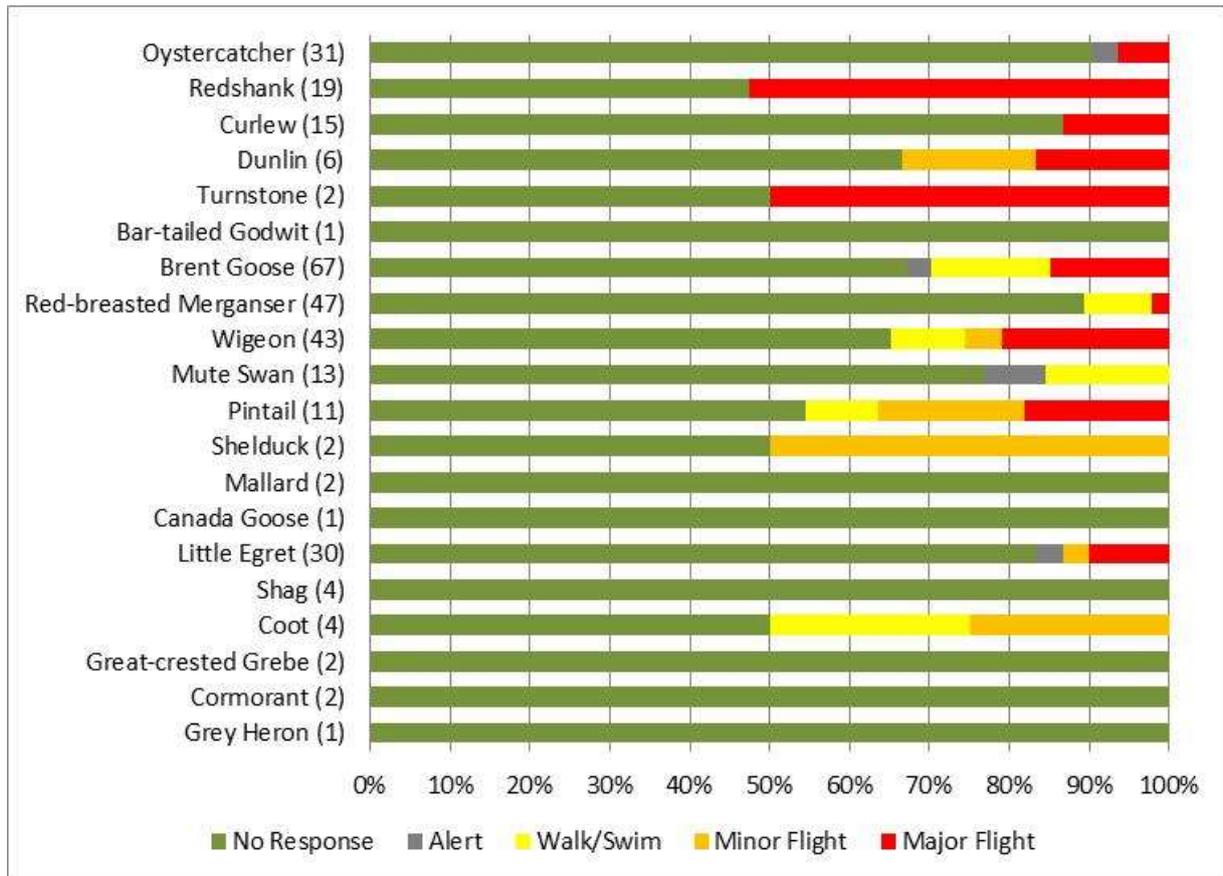


Figure 3: Responses by species. Species are grouped into waders (top), wildfowl (middle) and other species (bottom) and then within each group species are listed according to sample size – the number of potential disturbance events (given in brackets).

3.13 The numbers of birds disturbed are summarised in Table 7. The table gives the total number of birds (from all potential disturbance events) where no response was recorded and where a response (i.e. alert, walk/swim or flight) was recorded. Note that these totals do not give the actual total of individual birds, rather the numbers of birds across the potential disturbance events; for example if 10 geese were present and not disturbed by a series of 10 groups of different people walking past during the survey period, then there were 10 potential disturbance events and involving a total of 100 birds. The data show relatively high numbers of wildfowl (particularly Brent Geese and

Bird Disturbance Survey of the Fleet

Wigeon) disturbed at Camp Road. The number of birds within the focal area when people were present was much higher at East Fleet and the proportion disturbed was much lower here. At Herbury the percentage of birds recorded showing no response was similar to East Fleet but the overall number of birds was lower.

Bird Disturbance Survey of the Fleet

Table 7: Numbers (%) of birds disturbed at each site. Disturbed birds responded by becoming alert, walking/swimming away or taking flight. Totals are across all potential disturbance events. Grey cells indicate species/sites where the percentages disturbed are above 23% and the NR (no response) column is below 77% (the averages across all sites and species).

| Species | 1 Camp Road | | 2 East Fleet | | 3 Herbury | | All Sites | |
|-------------------|------------------|------------------|------------------|------------------|------------------|-----------------|-------------------|------------------|
| | NR | TOTAL DISTURBED | NR | TOTAL DISTURBED | NR | TOTAL DISTURBED | NR | DISTURBED |
| Bar-tailed Godwit | | | 1 (100) | 0 (0) | | | 1 (100) | 0 (0) |
| Brent Goose | 483 (49) | 510 (51) | 1051 (82) | 236 (18) | 1484 (94) | 102 (6) | 3018 (78) | 848 (22) |
| Canada Goose | | | 2 (100) | 0 (0) | | | 2 (100) | 0 (0) |
| Coot | | | 4 (100) | 0 (0) | 45 (43) | 60 (57) | 49 (45) | 60 (55) |
| Cormorant | 2 (100) | 0 (0) | | | | | 2 (100) | 0 (0) |
| Curlew | 13 (87) | 2 (13) | | | | | 13 (87) | 2 (13) |
| Dunlin | | | | | 19 (43) | 25 (57) | 19 (43) | 25 (57) |
| Great-c. Grebe | 1 (100) | 0 (0) | 1 (100) | 0 (0) | | | 2 (100) | 0 (0) |
| Grey Heron | 1 (100) | 0 (0) | | | | | 1 (100) | 0 (0) |
| Little Egret | 19 (79) | 5 (21) | | | 6 (100) | 0 (0) | 25 (83) | 5 (17) |
| Mallard | 8 (100) | 0 (0) | | | | | 8 (100) | 0 (0) |
| Mute Swan | | | 155 (84) | 29 (16) | 110 (85) | 20 (15) | 265 (84) | 49 (16) |
| Oystercatcher | 198 (97) | 7 (3) | 1 (100) | 0 (0) | | | 199 (97) | 7 (3) |
| Pintail | 0 (0) | 70 (100) | | | 6 (67) | 3 (33) | 6 (8) | 73 (92) |
| Red-b. Merganser | 890 (91) | 85 (9) | 1 (100) | 0 (0) | | | 891 (91) | 85 (9) |
| Redshank | 0 (0) | 1 (100) | 7 (58) | 5 (42) | 36 (35) | 66 (65) | 43 (37) | 72 (63) |
| Shag | 7 (100) | 0 (0) | | | | | 7 (100) | 0 (0) |
| Shelduck | | | 2 (100) | 0 (0) | 0 (0) | 2 (100) | 2 (50) | 2 (50) |
| Turnstone | 13 (100) | 0 (0) | 0 (0) | 2 (100) | | | 13 (87) | 2 (13) |
| Wigeon | 80 (9) | 800 (91) | 6284 (83) | 1250 (17) | 36 (75) | 12 (25) | 6400 (76) | 2062 (24) |
| Total | 1715 (54) | 1480 (46) | 7509 (83) | 1522 (17) | 1742 (86) | 290 (14) | 10966 (77) | 3292 (23) |

Responses According to Location where Activity Takes Place

3.14 By far the majority of events occurred on the shore, with only 53 (17%) occurring on the water and/or the intertidal. Activities categorised as on the water included canoes and small boats and activities on the intertidal involved walkers and dog walkers. Events on the water or intertidal were more likely to involve major flights compared to activities on the shore (Table 8).

Table 8: Responses split by zone where activity taking place. Some events occurred across multiple zones and therefore column totals will not match other tables within the report. Data give the number of potential disturbance events (row %).

| Zone where activity taking place | No Response | Alert | Walk/Swim | Minor Flight | Major Flight | Total |
|----------------------------------|-------------|--------|-----------|--------------|--------------|-----------|
| Shore | 224 (76) | 4 (1) | 22 (7) | 7 (2) | 37 (13) | 294 (100) |
| Intertidal | 24 (53) | 1 (2) | 9 (20) | 1 (2) | 10 (22) | 45 (100) |
| Water | 2 (25) | 1 (13) | (0) | 1 (13) | 4 (50) | 8 (100) |

Distances at which birds responded

3.15 Across all species and survey points, the median distance at which birds responded (any response) to the presence of people was 74m, while for events where no response was recorded the median distance was 114m. The closest distance that was recorded where there was no response from nearby birds was 11m (recorded for a dog walker with dog off lead and Brent Geese, at Camp Road) and while most responses occurred when birds were within 100m of people, there were responses recorded up to a distance of 170m.

3.16 Response distances are summarised (for all species and activities combined) by site in Figure 4. The median distance at which birds responded is broadly similar across all three sites, but there was a much bigger range in the distances at which birds responded at Herbury, suggesting that birds were particularly responsive at this location.

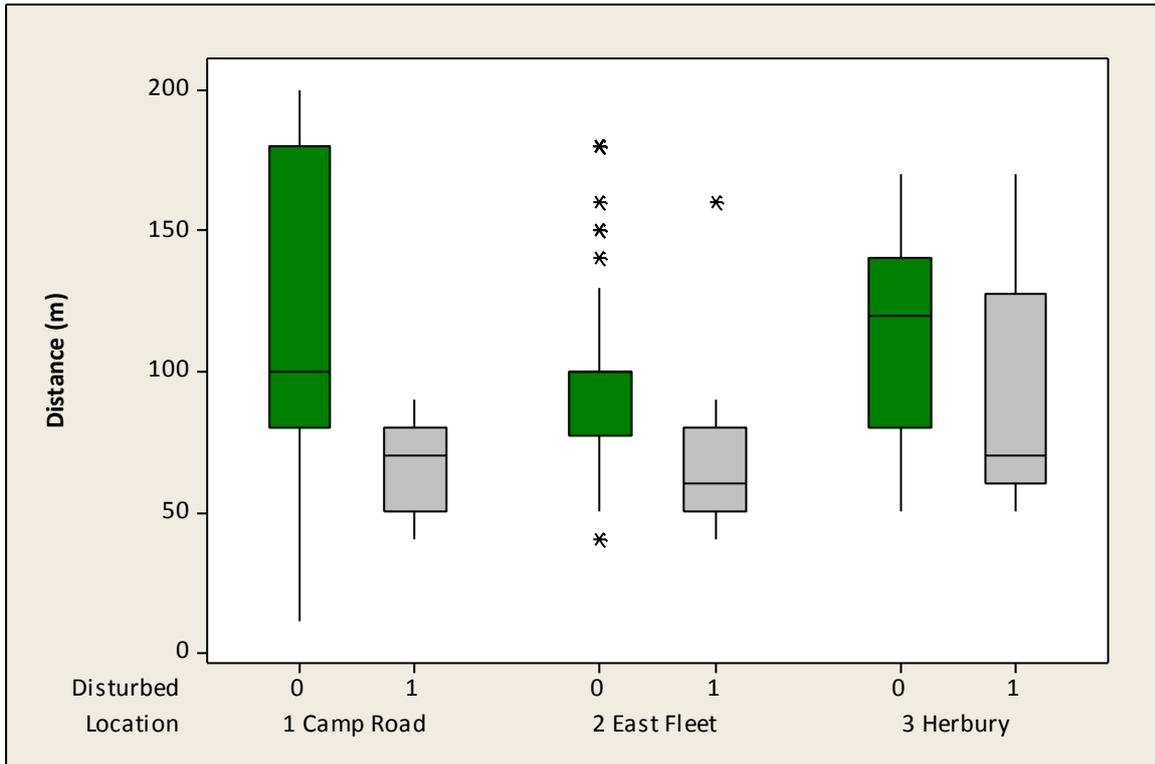


Figure 4: Response distances by site. Disturbed 0 is no response and disturbed 1 is any response (alert, walk/swim or flight).

3.17 The probability of birds being disturbed declined with distance – as would be expected as birds were more likely to be disturbed when the source of disturbance was closer. The effect of distance (across all species) was such that at 20m the probability of any response taking place was 0.72, i.e. approximately three out of four observations are predicted to involve a response at this distance. The probability drops with distance (Figure 5), such that at 150m the probability is around 0.05 (i.e. 1 in 20 observations predicted to cause disturbance).

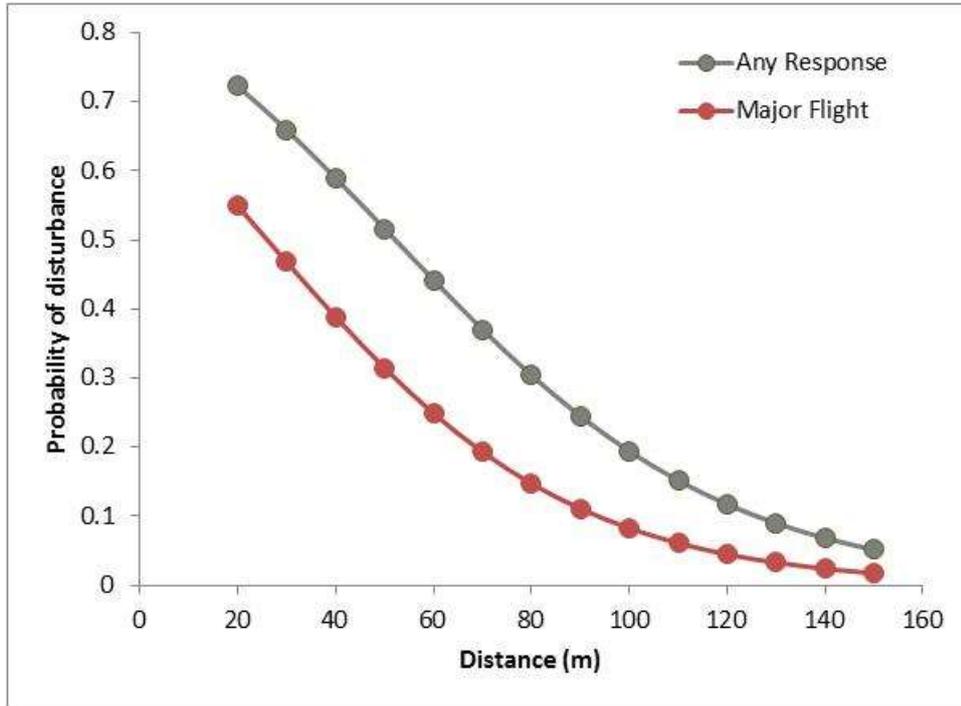


Figure 5: Probability of disturbance in relation to distance. Plot generated from logistic regression models predicting the probability of birds responding (any response, i.e. alert, walk/swim or flight) and major flights. For Any Disturbance: Intercept (coefficient + SE) = 1.553+0.447; Z=3.48, p=0.001; distance (coefficient + SE) = -0.030+0.005, z=-5.60; p<0.001. For Major Flights: Intercept (coefficient + SE) = 0.848+0.578; Z=1.47, p=0.142; distance (coefficient + SE) = -0.032+0.008, z=-4.33; p<0.001.

4. Discussion

- 4.1 The results provide comparison of the levels of access, the number of birds and the response of birds to access at three locations within the Fleet. Camp Road was a very busy site with dog walkers accounting for a high proportion (88%) of access. Counts of birds tended to be low here, and they were also relatively low at Herbury. Despite the low numbers of birds present at Camp Road it was this location where the most disturbance was recorded (35 potential disturbance events compared to 21 at East Fleet and 20 at Herbury).
- 4.2 At East Fleet the numbers of birds were by far the highest. The focal area included Butterstreet Cove, which is a key area for birds, especially Brent and Wigeon plus other waterfowl. Generally disturbance was minimal but at one particular spot to the south of the vantage point the surveyor noted that people passing a gap in the reeds (which otherwise screened any people from the birds) the birds became spooked when people passed.
- 4.3 Herbury was generally relatively quiet in terms of access and there were generally few birds in the area. There appeared relatively little disturbance where access was along the paths. One incident at this site involved a dog running out into the bay chasing birds on the mud and running through the shallows.
- 4.4 Across all sites, dog walking was the main activity associated with disturbance: over half (58%) of all the major flights and 83% of all disturbance recorded were linked to dog walking with dogs off leads.
- 4.5 Birds typically responded when people were within 100m, although responses were recorded up to 170m.
- 4.6 The results provide a snapshot of access levels and numbers of birds at the surveyed locations. Given the salinity gradient between the entrance and areas further west in The Fleet, differences in habitat and size of area, some caution has to be used in drawing comparisons between the locations. Clearly Camp Road is the busiest location in terms of access and bird numbers are low, but it is not possible to speculate how the area might be used if access levels were lower here. Even with the low numbers of birds, levels of disturbance are higher at Camp Road, which is also the location with by far the highest numbers of dogs off leads. Dog walking is clearly the main issue in terms of disturbance.
- 4.7 Much of The Fleet between Rodden Hive and Shipmoor Point is 100-150 m wide so it would be expected that for much of this length of West Fleet could be disturbed by walkers or dogs on a path along the shoreline. At most points along this shoreline, the ground rises so that if they moved inland walkers or dogs would become more visible to birds on the water. It is not known how this might affect the birds.
- 4.8 At Camp Road, the high and regular levels of use may have resulted in some conditioning of the birds, whereas further west the use of the path is more sporadic and

conditioning may not have occurred, evidenced by the high level of disturbance caused by the sudden appearance of people in a gap in the vegetation at Butterstreet Cove.

- 4.9 This study did not examine the levels of disturbance or the distances involved where birds were foraging or loafing on the fields above The Fleet as none were observed. This may have been due to the arable nature of the adjoining fields or the regular use of the shoreline path. Above the West Fleet the fields are grazed pasture, ideal for grazing geese and there is no current disturbance.
- 4.10 Table 7 shows that those species most vulnerable to disturbance include Brent Goose, coot, pintail, shelduck and wigeon. The West Fleet makes a very significant contribution to the internationally important population of wintering Brent geese on the Fleet, a significant contribution to the nationally important population of wintering Coot and a significant contribution to the regionally important populations of wintering pintail and shelduck (Underhill-Day, Gartshore & Liley 2015).

5. References

- Alessa, L., Bennett, S.M. & Kliskey, A.D. (2003) Effects of knowledge, personal attribution and perception of ecosystem health on depreciative behaviors in the intertidal zone of Pacific Rim National Park and Reserve. *Journal of Environmental Management*, **68**, 207–218.
- Austin, GE, Read, WJ, Calbrade, Mellan, Musgrve, A.J., Skellorn, W., Hearn, R.D., Stroud, D.A., Wotton & Holt, CA. (2014) *Waterbirds in the UK 2011/2012: The Wetland Bird Survey*. BTO, RSPB and JNCC in association with WWT, Thetford.
- Bird, D.M. (2004) *Natural Fit, Can Green Space and Biodiversity Increase Levels of Physical Activity*. RSPB, Sandy, Bedfordshire.
- Bright, A., Reynolds, G.R., Innes, J. & Waas, J.R. (2003) Effects of motorised boat passes on the time budgets of New Zealand dabchick, *Poliocephalus rufopectus*. *Wildl. Res.*, **30**, 237–244.
- Burger, J. & Gochfeld, M. (1991) Human Activity Influence and Diurnal and Nocturnal Foraging of Sanderlings (*Calidris alba*). *Condor*, **93**, 259–265.
- Burton, N.H.K., Armitage, M.J.S., Musgrove, A.J. & Rehfish, M.M. (2002) Impacts of man-made landscape features on numbers of estuarine waterbirds at low tide. *Environ. Manage.*, **30**, 857–864.
- Burton, N.H., Rehfish, M.M. & Clark, N.A. (2002) Impacts of disturbance from construction work on the densities and feeding behavior of waterbirds using the intertidal mudflats of Cardiff Bay, UK. *Environ Manage*, **30**, 865–71.
- Coyle, M. & Wiggins, S. (2010) *European Marine Site Risk Review*. Natural England Research Report, Natural England.
- Cryer, M., Linley, N.W., Ward, R.M., Stratford, J.O. & Randerson, P.F. (1987) Disturbance of overwintering wildfowl by anglers at two reservoir sites in South Wales. *Bird Study*, **34**, 191–199.
- English Nature. (2002) *Revealing the Value of Nature*. English Nature, Peterborough.
- Fitzpatrick, S. & Bouchez, B. (1998) Effects of recreational disturbance on the foraging behaviour of waders on a rocky beach. *Bird Study*, **45**, 157–171.
- Gill, J.A. (1996) Habitat choice in wintering pink-footed geese: quantifying the constraints determining winter site use. *Journal of Applied Ecology*, **33**, 884–892.
- Gill, J.A., Norris, K., Potts, P.M., Gunnarsson, T.G., Atkinson, P.W. & Sutherland, W.J. (2001) The buffer effect and large-scale population regulation in migratory birds. *Nature*, **412**, 436–438.
- Hosmer, D.W. & Lemeshow, S. (2000) *Applied Logistic Regression*. John Wiley and Sons.
- McNeil, R., Drapeau, P. & Goss-Custard, J.D. (1992) The occurrence and adaptive significance of nocturnal habitats in waterfowl. *Biological Reviews*, **67**, 381–419.
- Morris, N. (2003) *Health, Well-Being and Open Space Literature Review*. Edinburgh College of Art and Heriot-Watt University, Edinburgh.

- Nolet, B.A., Bevan, R.M., Klaassen, M., Langevoord, O. & Van der Heijden, Y. (2002) Habitat switching by Bewick's swans: maximization of average long-term energy gain? *J. Anim. Ecol.*, **71**, 979–993.
- Pretty, J., Griffin, M., Peacock, J., Hine, R., Selens, M. & South, N. (2005) A countryside for health and well-being: the physical and mental health benefits of green exercise. *Countryside Recreation*, **13**, 2–7.
- Regel, J. & Putz, K. (1997) Effect of human disturbance on body temperature and energy expenditure in penguins. *Polar Biology*, **18**, 246–253.
- Stillman, R.A. & Goss-Custard, J.D. (2002) Seasonal changes in the response of oystercatchers *Haematopus ostralegus* to human disturbance. *J. Avian Biol.*, **33**, 358–365.
- Stock, M. & Hofeditz, F. (1997) Compensatory limits: energy budgets of Brent Geese, *Branta bernicla*, the influence of human disturbance. *Journal Fur Ornithologie*, **138**, 387–411.
- Swennen, C., Leopold, F. & Bruijn, L.M. (1989) Time-stressed Oystercatchers *Haematopus ostralegus*, can increase their intake rate. *Animal Behaviour*, **38**, 8 – 22.
- Thiel, D., Jenni-Eiermann, S., Palme, R. & Jenni, L. (2011) Winter tourism increases stress hormone levels in the Capercaillie *Tetrao urogallus*. *Ibis*, **153**, 122–133.
- Thomas, K., Kvitek, R.G. & Bretz, C. (2003) Effects of human activity on the foraging behavior of sanderlings *Calidris alba*. *Biological Conservation*, **109**, 67–71.
- Underhill-Day, J., Gartshore, N. & Liley, D. (2015) *Establishing Patterns of Usage by over-Wintering Birds within the West Fleet, Chesil Fleet and Assessing Potential Impacts of Future Bird Disturbance*. Unpublished Report to Natural England, Footprint Ecology, Wareham.
- Underhill-Day, J.C., Pickess, B. & Lake, S. (2014) *A Literature Review of the Birds of Chesil Fleet between Abbotsbury and Rodden Hive*. Unpublished report to Natural England, Footprint Ecology, Wareham Dorset.
- Urfi, A.J., Goss-Custard, J.D. & Lev. Dit Durell, S.E.A. (1996) The Ability of Oystercatchers *Haematopus ostralegus* to Compensate for Lost Feeding Time: Field Studies on Individually Marked Birds. *Journal of Applied Ecology*, **33**, 873–883.
- Walker, B.G., Dee Boersma, P. & Wingfield, J.C. (2006) Habituation of Adult Magellanic Penguins to Human Visitation as Expressed through Behavior and Corticosterone Secretion. *Conservation Biology*, **20**, 146–154.
- Weimerskirch, H., Shaffer, S.A., Mabile, G., Martin, J., Boutard, O. & Rouanet, J.L. (2002) Heart rate and energy expenditure of incubating wandering albatrosses: basal levels, natural variation, and the effects of human disturbance. *J Exp Biol*, **205**, 475–83.
- Yasué, M. (2005) The effects of human presence, flock size and prey density on shorebird foraging rates. *Journal of Ethology*, **23**, 199–204.

6. Appendix 1: Summary of Survey Dates

Summary of visit dates, times and weather conditions. Wind strength recorded using Beaufort Scale; Rain: 1 indicates some rainfall (for less than 25% of survey period)

| Location | Date | Start Time (Diary) | Finish Time (Diary) | Time of Bird Count | Wind Strength | Wind Direction | Rain Amount |
|--------------|------------|--------------------|---------------------|--------------------|---------------|----------------|-------------|
| 1 Camp Road | 21/09/2014 | 09:05 | 10:35 | 10:35 | 1 | NE | |
| 2 East Fleet | 21/09/2014 | 11:15 | 12:45 | 12:45 | 2 | NE | |
| 3 Herbury | 21/09/2014 | 13:25 | 14:55 | 14:55 | 2 | NE | |
| 2 East Fleet | 25/09/2014 | 08:50 | 10:20 | 10:20 | 2 | NW | |
| 3 Herbury | 25/09/2014 | 10:55 | 12:25 | 12:25 | 2 | NW | |
| 1 Camp Road | 25/09/2014 | 13:10 | 14:40 | 14:40 | 2 | W - SW | |
| 3 Herbury | 14/10/2014 | 10:30 | 12:00 | 12:00 | 2 | NW | |
| 1 Camp Road | 14/10/2014 | 12:50 | 14:20 | 14:20 | 1 | NW | |
| 2 East Fleet | 14/10/2014 | 15:10 | 16:40 | 16:40 | 1 | NW | |
| 1 Camp Road | 25/10/2014 | 08:10 | 10:40 | 10:40 | 2 | W | |
| 2 East Fleet | 25/10/2014 | 10:20 | 11:50 | 11:50 | 2 | W | |
| 3 Herbury | 25/10/2014 | 12:30 | 14:00 | 14:00 | 2 | W | |
| 3 Herbury | 09/11/2014 | 09:20 | 10:50 | 10:50 | 1 | SW | |
| 2 East Fleet | 09/11/2014 | 11:30 | 13:00 | 13:00 | 1 | SW | 1 |
| 1 Camp Road | 09/11/2014 | 13:55 | 15:25 | 15:25 | 2 | SW | |
| 2 East Fleet | 20/11/2014 | 08:10 | 09:40 | 09:40 | 1 | E | |
| 1 Camp Road | 20/11/2014 | 10:15 | 11:45 | 11:45 | 1 | E | |
| 3 Herbury | 20/11/2014 | 12:50 | 14:20 | 14:20 | 1 | E | |
| 3 Herbury | 03/12/2014 | 11:20 | 12:50 | 12:50 | 2 | N | |
| 2 East Fleet | 03/12/2014 | 13:35 | 13:05 | 15:05 | 2 | N | |
| 1 Camp Road | 03/12/2014 | 08:55 | 10:25 | 10:25 | 1 | N | |
| 3 Herbury | 14/12/2014 | 09:00 | 10:30 | 10:30 | 2 | N | 1 |
| 1 Camp Road | 14/12/2014 | 11:10 | 12:40 | 12:40 | 3 | SW | 1 |
| 2 East Fleet | 14/12/2014 | 12:20 | 14:50 | 14:50 | 3 | SW | |
| 2 East Fleet | 04/01/2015 | 09:00 | 10:30 | 10:30 | 1 | NNE | |
| 3 Herbury | 04/01/2015 | 11:05 | 12:35 | 12:35 | 1 | NE | |
| 1 Camp Road | 04/01/2015 | 13:30 | 15:00 | 15:00 | 1 | NE | |
| 1 Camp Road | 22/01/2015 | 08:40 | 10:10 | 10:10 | 2 | NE | |
| 2 East Fleet | 22/01/2015 | 10:45 | 12:15 | 12:15 | 1 | NE | |
| 3 Herbury | 22/01/2015 | 13:05 | 14:35 | 14:35 | 1 | NE | |