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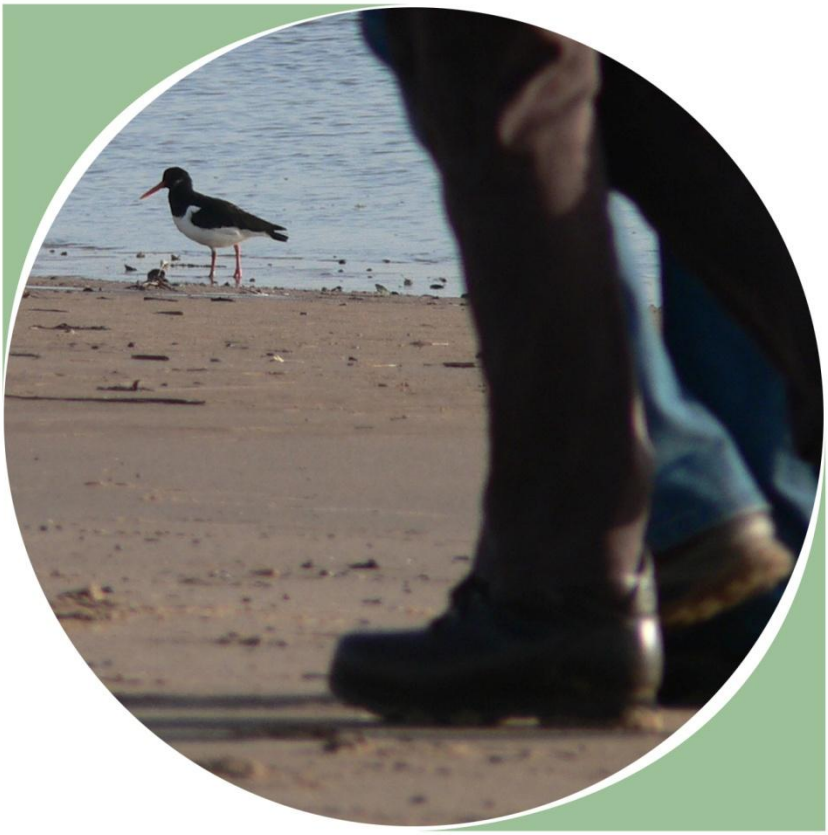
The Solent Disturbance & Mitigation Project

Phase II - Results of the Solent household survey



Fearnley, H., Clarke, R.T., and Liley, D.

Forest Office
Cold Harbour
Wareham
Dorset BH20 7PA
Tel/Fax: 01929 552444
info@footprint-ecology.co.uk

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www.footprint-ecology.co.uk

The Solent Disturbance & Mitigation Project

Phase II – Results of the Solent household survey

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Summary

This report sets out the results of the postal household survey component of the Solent Disturbance and Mitigation project. The work was commissioned by the Solent Forum in response to concerns over the impact of recreational pressure on features of the Solent SPA, SAC and Ramsar Sites. Of particular concern are the cumulative impacts of recreational use arising from potential new housing developments in Chichester District and South Hampshire.

The household survey was distributed to 5000 households within 25km of the coastline between Hurst Castle, including the north shoreline of the Isle of Wight. The questionnaires and reminders were sent between October and December 2010. The household survey contained three sections which elicited information relating to general and specific visits to the coast and household demographics.

A total of 1382 completed questionnaires were returned and 42% of these households had visited the coast the week prior to completing the survey. Only 4% of households (56) stated they never visited the coast. Households which did not visit the coast contained a lower number of people, lower number of dogs and a higher percentage did not have regular access to a private vehicle when compared to households that made regular coastal visits.

Of the households which visited the coast, 50% visited at least once a week. A total of 55% of households visited the coast equally all year and an additional 39% of households made more visits in the summer. There was a significant difference in coastal visit frequency between households which owned a least one dog and non dog owning households, with dog owning households making more visits. There was no significant difference in visit frequency between households who had garden access or whether the household dwelling type was a flat or 'non- flat'.

The 1155 households providing full responses to the survey made an estimated annual total of 153,433 visits to the Solent coastline. The project and this survey divided the coastline into 103 numbered sections. Households made on average 133 annual coastal visits to 3.7 different sections of the coastline. On average each section received a total of 1490 annual visits but the number of coastal visits made to different sections was significantly different.

The most frequently given activities undertaken during a coastal visit were walking (20% of all activity responses) and enjoying the scenery (20%), followed by being on the beach (11%) and meeting up with friends (11% of all activity responses).

Households indicated where they undertook their activity during the coastal visit and for 47% of the visit responses the activity (walking, cycling, enjoying the scenery etc) was undertaken on the sea wall or the river bank. A further 39% of responses by households indicated they venture onto the beach/mudflat and 15% of responses actually took to the water.

The majority (52%) of coastal visits by households were made by car with 39% made by foot, 4% by bicycle and 5% by public transport. Of the households which made visits by car, 50% travelled 9.5km or less by road to the section they visited and 90% travelled 29.0km or less to their visited section by road. Of the households who visited specific sections by foot half lived within 1.0km of the section

(straight line distance from postcode to nearest point on section) and 90% lived within 4.0km of the visited section.

Features that act as a deterrent for some households when selecting a coastal location to visit may also attract other households. For example, a requirement for dogs to be on leads and the presence of dog restrictions is rated as attractive to non dog owning households but as a deterrent by dog owning households. By far the most popular attractive feature when households choose which coastal location to visit was 'sea views and attractive scenery' followed by 'feel safe', 'ability to do a range of different walks/routes 'and the 'presence of wildlife'.

Predictions were derived by fitting formal statistical models to the observed (household survey) data. Specifically these models used observed visitor numbers per section per distance band and analysed these in relation to factors representing distance to section and section characteristics. Different models are presented within the report and separate models were generated for car and foot visitors, with each model showing a declining visitor rate with distance from the section – i.e. the further away people live the fewer visits they make. These models suggest some 52 million visits are made each year, by households within a 30km radius of the coastline between Hurst Castle to Chichester Harbour, including the north shore of the Isle of Wight. The models identify Portsmouth's seafront (South Parade Pier to Fort Cumberland) as the most heavily visited coastal section, with over 3 million household visits per annum.

These predictive visit models will be used alongside the bird models, commissioned separately and subject to a further report, to assess the impacts of disturbance to wintering birds under different housing scenarios. The use of the visitor models and how they will link to the bird models within the next stages of the Solent Disturbance and Mitigation Project are discussed.

Contents

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This report falls under the umbrella of the Solent Mitigation and Disturbance Project and our extended thanks go to Richard Stillman (Bournemouth University) and Andy West (Bournemouth University) who helped ensure the design and interpretation of this work complimented and enhanced other elements of the wider project. Thanks also to Katie Cruickshanks (Footprint Ecology) for comments and advice.

1 Introduction

Context

1.1 A real and current issue for nature conservation in the UK is how to accommodate increasing pressure for recreation and access to the countryside without compromising the integrity of protected sites. In the past access and nature conservation have typically been viewed as opposing goals (Adams 1996; Bathe 2007), to the extent that nature reserves often restricted visitor numbers and access (e.g. through permits, fencing and restrictive routes). 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; Maller *et al.* 2006; Pretty *et al.* 2007; Cutt *et al.* 2007). Yet recreational use can have impacts on the nature conservation interest, and these impacts are now well documented (for general reviews see: Liddle 1997; Saunders *et al.* 2000; Penny Anderson Associates 2001; Newsome, Moore, & Dowling 2002; Buckley 2004; Penny Anderson Associates 2006; Lowen *et al.* 2008; Liley, Lake, *et al*. 2010).

1.2 Access patterns are changing. There is evidence that we visit the countryside more (TNS Research International Travel & Tourism 2010) and the human population is also increasing within England. The activities people undertake are changing. In coastal environments, a range of activities are becoming increasingly popular (Brown *et al*. 2010), activities such as kite surfing, the use of personal watercraft (Whitfield & Roche 2007) and coasteering (Tyler-Walters 2005; Rogers 2010) are now widespread.

1.3 There is therefore the potential for conflict where there is pressure for recreational use and sites are of conservation importance, particularly where there are existing rights of access to those sites. The issues are often particularly acute in coastal areas, as coasts and estuaries will always have a strong draw for visitors and the areas attractive to people and wildlife tend to coincide along a narrow strip of land around the water's edge. Often managing the provision of access and maintaining the nature conservation interest involves a difficult balancing act. Increasingly, site management plans and local initiatives are developing ways to balance the issues, and there are a range of techniques available. In order to identify where and when management initiatives are necessary, and what measures to implement, good understanding is necessary across a wide area, it is necessary to understand the extent to which the access is concentrated in particular locations or evenly spread and where particular activities occur, and it is necessary to relate this information to ecological information such as the distribution of resources such as prey abundance or breeding sites. In order to achieve this understanding it is necessary to have information both on recreational use and the ecological issues.

Aims

1.4 This report presents the results of a postal household survey to residents within 25km of the Solent coastline. The household survey provides the strategic overview of recreational use, and will allow visitor models to be generated, exploring the link between housing (where people live and how many people might live in an area) and recreational use.

1.5 'The coast' in this report is used to define the section of coast described in the questionnaires and refers to the area of coast between Hurst Castle (near Lymington) to West Wittering, including the north shore of the Isle of Wight. Where we are not referring to this specific area of coast will refer to the 'the wider coastline'.

The Solent Disturbance and Mitigation Project

1.6 This report focuses on the Solent shoreline from Hurst Castle (near Lymington) to West Wittering and includes the north shore of the Isle of Wight from Warden Point near Colwell to Whitecliffe Bay near Bembridge, a length of shore totalling some 250km. It is an element within a series of different pieces of work which together comprise the Solent Disturbance and Mitigation Project. The Project was commissioned to guide future strategic planning and site management along the Solent shoreline and will test the extent to which development (with mitigation) can occur without compromising the integrity of the European Protected Sites and therefore avoiding contravening the Habitat Regulations. Specifically the Project will show the extent to which different scenarios of new housing in a wide area would impact the wintering bird populations, and will explore the potential for different mitigation measures to resolve or reduce any impacts. The wintering bird interest is summarised by Stillman *et al.* (2009) in Phase I of the Project. The bird interest includes three SPAs: the Solent & Southampton Water SPA, Chichester and Langstone Harbours SPA and Portsmouth Harbour SPA.

1.7 Other components within the Project, that have already taken place are:

- On-site visitor survey work, providing detailed information at a sample of sites on where people go, where they travel from and why they visit
- Bird fieldwork, exploring the behavioural responses of birds to different activities and quantifying the lost feeding time etc incurred as a result of disturbance

1.8 In parallel with this work an individual-based behavioural model will explore the impacts of disturbance on the number of birds that selected areas across the Solent coastline can support. The behavioural model also uses the results presented in this and the visitor report to determine the impacts of future development in the general area and will be used to determine the impacts of new housing on bird populations wintering around the Solent.

2 Methods

2.1 A postal questionnaire was sent out to just under 5000 addresses across the Solent region (see paragraph 2.10 for address selection methods). The postal survey contained a link to an on-line version of the questionnaire so responses could also be submitted via the internet. The link to the on-line survey was also distributed by the partners to residents of the Solent region.

2.2 A known problem associated with postal surveys is that there is little control over who fills in the questionnaire. Those people with busy lives may be less likely to complete a questionnaire and so be under represented and those people with less busy lives (those who are retired or unemployed) may be strongly represented. Postal surveys are also known to have a low response rate. Therefore the questionnaire was carefully designed to ensure that it looked, and was, simple and quick to complete. A covering letter formed the first page of the questionnaire which carried the logo of the Solent Forum, offered telephone support if needed and which made it clear that the survey was not part of a privately funded market research project. As an incentive households were also offered the chance to win £100 of shopping vouchers on completion and submission of the questionnaire.

Questionnaire Design

2.3 The questionnaire was designed to extract information from households specifically relating to their recreational coastal visits and demographic information. A copy of the questionnaire is presented in Appendix 1.

2.4 The questionnaire comprised three sections. 'General questions about visits to the coast' (section A), 'Identifying specific coastal locations that you visit' (section B) and 'About you and your household' (section C). The form was designed to make participation in the survey as simple and as easy as possible. The majority of questions required the respondent to tick the most appropriate box or boxes and the free text boxes were only present on a limited number of questions for respondents to provide additional details not covered by the tick box categories.

2.5 Section A of the questionnaire was designed to collate information relating to general visits across the whole coastline including visit frequency, seasonality and timing of visits and activities that households undertake during a coastal visit. Section A also asked respondents to consider whether a range of different features or characteristics would attract or deter them from making a visit to a coastal location. The first question in Section A established when the last time a coastal visit was made and for households who last visited over a year ago, or never, no further visit information was requested and the respondents was directed to section C to complete the survey.

2.6 Section B of the questionnaire aimed to identify which specific coastal areas were visited by households. The coast was divided into the sections using the same section boundaries and nomenclature as those used in the visitor and bird work.

These boundaries were loosely based on WeBS (Wetland Bird Survey) boundaries, where similar WeBS patches were combined to produce a series of patches which was representative of discrete units in terms of access and/or habitat (Fearnley, Clarke, & Liley 2010; Liley, Stillman, & Fearnley 2010).

2.7 Each household was asked to identify a maximum of four specific sections of coast they most frequently visited. The postal survey also contained a map to help correctly identify each section which, clearly illustrated the section boundaries and contained a key which listed the start and end location of each discrete section and listed any visitor attractions or landmarks. The use of the same section boundaries as in the previous phases of the SMDP were essential to enable robust comparisons and collective analysis across and between all three data sets.

2.8 Section C elicited demographic information about each household, in particular information on the number of dogs per households, the employment status of household members and specifics linked to the property (number of bedroom and whether there is garden access).

2.9 Together sections A, B and C of the questionnaire were designed to collate the data to provide a comprehensive overview of coastal visits and the demographics of households making these coastal visits. When results from each completed questionnaire are cross referenced with the home postcode of the respondent there is a link between the qualitative and spatial data sets providing the opportunity to conduct complex geographical analysis. The survey also provides information relating to up to four specific visits to discreet sections of the coast and these data will be used generate the mathematical models of current visitor patterns and any predicted increase or change in visitor patterns in light of increased development within the Solent area.

Address selection

2.10 Addresses were selected in proportion to the number of houses within each relevant local authority, and with the sampling weighted so that 10 times as many questionnaires were sent within 0-5km of the coast as within the 5-25km band. This weighting ensured that the mailing was focused on people living near the coast that we assume are more likely to visit the coast. Each local authority was asked to provide a specific number of random addresses within 5km of the coast and also between 5km and 25km from the coast. Local authorities that just clipped the 25km were not included. The addresses provided from most authorities contained some invalid addresses/invalid postcodes or when plotted in the GIS actually fell outside the 25km distance band, such that in total 4966 different addresses were rather than the original target 5000 mailed questionnaires. The number of postcodes provided by each Local Planning Authority is summarised in Table 1.

Table 1: Number of random addresses with valid postcodes provided by each local authority for distribution of 5000 questionnaires.

Local authority	Number of postcodes used in survey
City of Southampton	1020
City of Portsmouth	858
New Forest District	501
Isle of Wight	500
Fareham District	466
Havant District	434
Gosport District	359
Chichester District	347
Eastleigh District	328
Winchester District	86
East Hampshire District	67
Invalid postcodes	34
Total	**5000**

Mailing dates

2.11 Questionnaires were posted on 28th October 2011 and reminders were sent on the 19th November 2010 and 3rd December 2010. The survey was closed on the 20th December 2010 which gave seven and a half weeks for households to return the completed questionnaires.

Data collection

2.12 All completed questionnaires were scanned for simple data entry (tick box responses) and 10% of those scanned were checked for accuracy (this was completed by SNAP surveys under contract). Free text was entered by hand and the digital survey data archived by Footprint Ecology.

Data Analysis

2.13 The analysis of questionnaire responses was structured to identify the following:

- Demographic of households which visit the coast.
- General visit patterns of households to the coast.
- Which areas of the coast are visited by households.
- How people travel to different areas of the coast.
- What activities do visitors undertake at the coast and specifically what activities are undertaken at each coastal section.
- Which factors influence the choice of site people visit.
- What features attract or deter households from deciding which coastal locations to visit.
- The proportion of households which go onto the beach/mudflat and on the water at coastal locations.

2.14 In addition to the analysis of the questionnaires characteristics of each coastal section were categorically classified. This was to provide details which could help with the interpretation of visitor patterns (i.e. did coastal sections with a higher car parking capacity receive more annual visits than coastal sections with a limited formal car parking capacity).

2.15 All statistical tests and graphs were performed using Minitab (version 14) and all spatial queries and maps were generated using MapInfo (version 10). All errors where given, are standard errors.

Questionnaire response rate with distance to the coast

2.16 We investigated any possible geographic correlations between the proportion of households that returned the completed questionnaires and the distance of the household from the coast. This was calculated by adding a single buffer around all the coastal survey sections at 1km, 5km, 10km, 15km, 20km and 25km. A division was made between the IoW and the mainland to ensure households on the mainland (and vice versa) were not picked up in the catchment analysis for the IoW at the greater buffer distances.

Frequency of visits

2.17 To generate an estimate of the total number of visits households make to the coast each year and the number of visits made annually to each discreet section of coast the responses to question A3 were coded by converting the frequency of visit into a set number of annual visit days (Table 2).

Table 2: Assumed number of annual coastal visits made by households from their given responses to frequency of visit

Frequency	Assumed number of visits per year
Almost every day	300
About 2 – 4 times a week	150
About once a week	50
About once a month	12
A few times a year	4
About once a year	1

Features and characteristics that attract households to coastal locations

2.18 The features and characteristics listed in the questionnaire were rated by respondents as to whether each feature or characteristic would attract them to, or deter them from, a coastal location. Respondents had the option of selecting one of five categories ranging from strongly attract to strongly deter for each feature/characteristic.

2.19 The analysis considered the number of responses per category for each feature/characteristic; which features had the highest number of responses per category (i.e. which features scored highly for strongly attract, strongly deter etc.)

and also evaluated whether each feature was considered attractive or acted as a deterrent or both.

2.20 The analysis also considered whether activity (land or water based) could influence which features or characteristics of coastal locations would attract or deter households. Differences in responses between households which owned at least one dog and non dog owning households were also explored.

2.21 As the difference between 'attract' and 'strongly attract' and 'deter' and 'strongly deter' is essentially arbitrary and unlikely to be consistent between households the responses for attract and strongly attract were analysed collectively as were the responses for deter and strongly deter.

Identifying specific coastal locations that are visited

2.22 For each questionnaire we calculated the number of visits (by the household) to each of our numbered sections of coast, based on the frequency with which respondents stated they visited. We used this data to determine the number of visits to each section and then subsequently broke this down into the number of visits undertaking each activity to each section. In order to achieve this breakdown there were a number of data manipulation steps which were necessary and these are outlined below.

2.23 Questionnaires from respondents who had not visited the coast within the past year or never made visits to the coast (in total 164 questionnaires) were removed from this part of the analysis. An additional 24 respondents did not complete question A1 and all these respondents failed to complete any fields in section B. In total therefore 188 questionnaires were excluded from this section of analysis.

2.24 Respondents who returned the paper questionnaire did not consistently complete section B. The coastal section numbers were manually entered on 12 questionnaires where the respondents had detailed the location name but failed to identify and complete the section number. In addition 219 questionnaires (262 instances) were received which contained multiple sections listed in either question B1.1, B2.1, B3.1 and B4.1 (see questionnaire in Appendix 1). The majority of these responses listed adjacent sections.

2.25 The responses which listed multiple sections were considered individually and where five or less sections were entered (on 197 questionnaires) it was deemed acceptable that households may visit up to five different sections of coast once a week. In these cases each listed section was considered to be a visit record and treated as such.

2.26 Where more than five coastal sections were given in a response to section B*.1 (38 responses in total) each response was considered individually and edited to reflect the likely visiting pattern of the household. Some responses listed two to four sets of consecutive coastal sections and stated they visited 2-4 times per week, however it is unlikely that four different areas of the coast could be visited four times a week and in these responses the frequency of visit was edited to 'once a week'. Of these

instances thirty responses were edited and eight remained unclassifiable due to data omissions or information conflicts. Although the end result of this editing process produced more than four responses per household, we did not fully appreciate the extent that the coastal routes of respondents would cross multiple consecutive sections (especially when respondents were cycling). Therefore we feel that rather than omit the responses it is best to incorporate them into the analysis to better represent visitation patterns. By editing the data in this manner, we conservatively reflect the visiting patterns of the respondents, so establish the current minimum number of visits from households.

2.27 Inconsistencies were also present in the responses given to questions B*.6 .The question asked respondents to tick their visit reason (activity) to each listed coastal section. Several surveys ticked activities which could not happen in the same visit for example, fishing from a boat and dog walking; fishing from a boat and swimming; kayaking and cycling; sailing and cycling; swimming and fishing from the shore. Two sets of activities which could not occur on the same visit were noted in 493 responses. These responses were edited in a similar fashion in that the record was duplicated and the frequency of visit amended to a lower category dependent on how many activities (which could not occur together were given). For example if a questionnaire listed sailing, fishing from the shore and kayaking as occurring on section 34 almost every day the record was edited to sailing occurred about once a week on section 34, fishing (from shore) occurred once a week on section 34 and kayaking occurred once a week on section 34 and all duplicated records were referenced to the original questionnaire.

2.28 Once section B had been edited the responses of the household survey produced a total of 4234 records for activities across all the coastal sections.

Visit frequency by transport type to individual sections

2.29 To understand the visitation patterns of households we needed to explore how households travel to individual coastal sites. As some households who returned the paper surveys had ticked more than one mode of transport, the data needed to be split further, and this was simply done such that the total number of visits was split evenly according to the modes of transport given. For example, where a household advised they visit section (x) 150 times a year and ticked, foot, car and public transport we kept the total number of visits to that section at 150 and allocated 50 annual travel visits by foot, 50 annual travel visits by car and 50 annual travel visits public transport.

2.30 Separate analyses of the distance from the home postcodes of respondents to the section of coast visited were conducted for visitor arriving to sections ‘by foot’ and ‘by car’ and all other modes of transport (boat, public transport and bicycle) were treated as ‘other’. ‘Other’ also included responses where travel category was left blank, but the coastal section number had been provided.

Distances to coastal sections by visitors who arrived by foot

2.31 The number of annual visits to each coastal section made by households arriving on site were generated using GIS by linking the section numbers of coast to the section numbers of visited coast in the data.

2.32 Distance bands (buffers) were created around each coastal section every 500m up to and including 25km using standard Euclidean (straight-line) measure of distance. A further GIS query identified the number of households (by postcode location) present in each buffer who made a visit by foot and summed the annual number of visits made by respondents whose postcode fell within each distance band around each section. This query was executed for all 103 individual coastal sections.

Distances to coastal sections by visitors who arrived by car and other modes

2.33 The annual number of visits made to each coastal section by households who indicated they arrived by car or responses relating to visits which fell into the 'other' category were also generated using GIS by linking their household post code to the visited coastal section given in section B.

2.34 Simple straight-line distances bands around each survey section could not be used to identify the real travel distance from the visit location to the home postcode of the household as this would provide inaccurate distance information for coastal sections around estuaries. For example, a 3km distance band around section 13 (Calshot Castle to Fawley) would include households which lived on the other side of the Southampton water (near to section 32 Newton Farm to Solent Breezer caravan site) even though the actual travel distance by car is in excess of 20km.

2.35 Distance bands were therefore generated using road travel distance instead of Euclidean distance. The Ordnance Survey Meridian 2 GIS layer was used as a base layer to generate the road distance from survey sections to postcode locations. Meridian 2 is a 1: 50 000 vector scale map and contains a generalised road network (not necessarily every UK road). The data is derived from different Ordnance Survey databases and is accurate to at least 20 metres[1].

2.36 The Routefinder™ add-in for MapInfo was used to generate travel-distance isochrones around each section, and these isochrones were then used to calculate the travel distance for each postcode to each coastal section. In order to generate realistic travel distance isochrones, a series of individual points were generated for each section, using previously mapped car park locations within or adjacent to each section and additional points were added at the end points and middle part of each section. These points were then 'snapped' to the nearest road from the Meridian 2 and a drive distance polygon (visually represented by doughnut) was generated for each point on each section through Routefinder using the road network on the Meridian 2 GIS layer. The road distances from each postcode to each survey section point were extracted using Routefinder v3.1 where drive distance polygons (road

[1] http://www.ordnancesurvey.co.uk/oswebsite/docs/user-guides/meridian-2-user-guide.pdf

distance polygons) were created at 500m intervals from each section. The distance and distance band from a postcode to a particular section was taken as the minimum of the road distances from the postcode to any of the measured points in the section.

Development of models

Characteristics of each coastal section

2.37 In order to help generate the visitor models we derived derive a series of measures of different characteristics of each section. It is intuitive that households that lie close to the coast will visit more frequently than those households further away. It is also likely that certain features, such as the attractiveness of the coast or the facilities present, will mean a stretch of coast has a particular draw. It was therefore necessary to characterise sections, and this was done using existing available GIS data (Table 3).

Table 3: Characteristics used to classify each coastal section for the visitor models

Characteristic	GIS data used
Area of mudflat within section (ha)	Mudflat habitat layer, downloaded from Natural England website
Area of section (ha)	Total area of section, section boundaries drawn using a buffer of 250m either side of MHWM (Mean High Water Mark). For more details see previous reports within the Solent Disturbance and Mitigation Project
Number of Parking Spaces	Point data describing locations of formal car-parks and their car parking spaces, generated as part of Phase I.
Presence of a slipway	Binary data (i.e. 1 or 0) indicating whether a slipway is present or not. Slipways mapped as part of Phase I.
Presence of marina	Binary data (i.e. 1 or 0) indicating whether a marina is present or not. Marinas mapped as part of Phase I.
Urban	Binary data (i.e. 1 or 0) indicating whether a section is 'urban' or not. Sections manually categorised using 1:50,000 OS base layer and assigning all urban seafront or docks (i.e. Southampton, Portsmouth etc) as 1.
Wooded	Binary data (i.e. 1 or 0) indicating whether a section contains woodland or not. Lowland deciduous woodland BAP (Biodiversity Action Plan) habitat layer used within the GIS to identify woodland.
Monitored Bathing	Binary data (i.e. 1 or 0) indicating whether a section contains a monitored bathing site or not. Monitored bathing sites downloaded as point data from MAGIC (Multi-Agency Geographic Information for the Countryside[2]).

[2] http://magic.defra.gov.uk/DataDoc/datadoc.asp

Characteristic	GIS data used
Open Coast	Binary data (i.e. 1 or 0) indicating whether a section is open coast or not. Sections manually categorised using 1:50,000 OS base layer and assigning estuarine/harbour sections as not open coast (0).

Development of predictive models of visitor rates and numbers

2.38 The aim of the modelling was to develop a means to predict the number of visits, per household, to each section. From the questionnaire data we had spatially referenced information on the number of visits made by each respondent to each section. Potential explanatory variables available to use to build the models were the details of the characteristics of the individual sections and the (straight-line or road travel) distance from the respondents home to the relevant section(s) visited.

2.39 Models were developed separately for visitors arriving on foot and by car using the most appropriate measure of distance, namely straight-line and road travel respectively, as explained above. Initial analyses and models tested for differences in visitor rates per distance band according to section characteristics. However, final models allowed for individual section variation in overall (foot or car) visitor rates about a general curve of decline in rates with distance band.

2.40 Observed foot visitor rates (per household per year) were calculated for each section and distance band based on all responding households within, and up to, that distance band of the section. Statistical significance tests (non-parametric Mann-Whitney tests of ranked rates) were used to assess whether the median across sections of the foot visitor rates varied with the presence (Y) or absence (N) of each of a range of section features. This was done separately for foot visitor rates amongst all responding households within 1km and over all distances within the survey (i.e. up to 25km). For these analyses the quantitative features of the sections (i.e. car parking spaces, length along MHWN line (m), section area (Ha.) and percentage of the section covered by mudflats) were divided (high/low) at their median (Med) value to form two equal-sized groupings of the sections for the Mann-Whitney tests.

2.41 Car visitor rates (per household per year) were calculated for each individual section and road distance band based on all responding households within, and up to that road distance band of the section. As with the foot visitors, statistical significance tests (non-parametric Mann-Whitney tests of ranked visitor rates) were used to assess whether the median across sections of the car visitor rates within the distance limits varied with the presence (Y) or absence (N) of each of the section features. This was done separately for car visitor rates amongst all responding households within 2km road distance and also amongst all responding households within 10km road distance.

2.42 Intermediate analyses used the findings from these statistical tests of the influence of section characteristics on visitor rates per section to derive potential groupings of the sections on which to based visitor rates per distance band in intermediate models.

2.43 Final models were based on fitting formal statistical generalised linear models (GLM) and generalised linear mixed models (GLMM) to the observed data. Specifically, we fitted GLMs of observed visitor numbers per section per distance band in relation to factors representing distance band, section and section characteristics, using a log link function, with log (all logarithms to base e) number of responding households in the distance band of the section as a GLM 'offset' term. We used a quasi-Poisson (over-dispersed) residual error distribution to allow for the unexplained variation in observed visitor numbers, which had to be estimated from our household survey response categories for frequency of visit to individual sections. Numerous potential models were assessed allowing for distance band or smoothed functions of distance (untransformed, square root or log transformed) together with the effect of the individual sections and/or one or more of their characteristics. Both distance band and section were treated as fixed level factors as the sections are the whole set of sections in our study region not just a 'random' subset. Models were fitted using the 'glm' function in the statistics package R (obtainable free from http://cran.r-project.org).

2.44 Equivalent generalised linear mixed models (GLMM) were also fitted (using the 'glmer' function in the R package) whereby 'section' was treated as a 'random' factor to aid testing for effects of section characteristics in explaining inter-section variability and to allow for potential statistical 'shrinkage' of estimates of section effects. However, for the primary model involving distance bands and individual section differences, the GLM and GLMM gave very similar predictions, the only differences being for those few sections with no recorded visits on foot for which the GLM predicted no visits and the GLMM predicted a few visits per year. The differences between GLM and GLMM predicted annual foot or car visits to a section were never more than 840 which is completely trivial relative to the variability between sections in predicted annual foot and car visits which ranged from <1000 to over one million).

2.45 The final selected separate models for foot and car visit rates were GLM models with parameters for each distance band and each individual section. The two models were used with the current total numbers of households (not just those surveyed) in each distance band from each section to derive predictions of the total foot visits and total car visits per year to each section with the current regional housing distribution. The foot and car visits were then summed to give an estimate of total annual household visits per annum per section on foot or by car. In order to include other means of transport (such as public transport, bicycle or boat), the proportion (Q) of all coastal visits made by 'other' transport modes was calculated from the total of all household survey responses and the section (Foot + Car) visitor estimates

adjusted upwards by a factor 1/(1-Q) to provide estimates of the total visits per year to each of the 103 Solent coastal sections.

2.46 Predictions of future foot, car and thus total visitor numbers to each section following planned new housing development can be made by re-using the same GLM predictive models with the future total numbers of households in each distance band from each section.

3 General Results

Response Rates

3.1 From the 5000 postal questionnaires sent, 1334 were completed and returned giving a response rate of 27% (i.e. just over 1 in 4 households returned paper questionnaires). Figure 1 shows that, following the initial distribution of the questionnaire, 698 surveys were returned. After one postal reminder and additional 472 questionnaires were returned and the second reminder prompted the return of a further 164. Together the reminders encouraged the return of 636 questionnaires, nearly a 100% increase from the number of surveys received after the initial mailing.

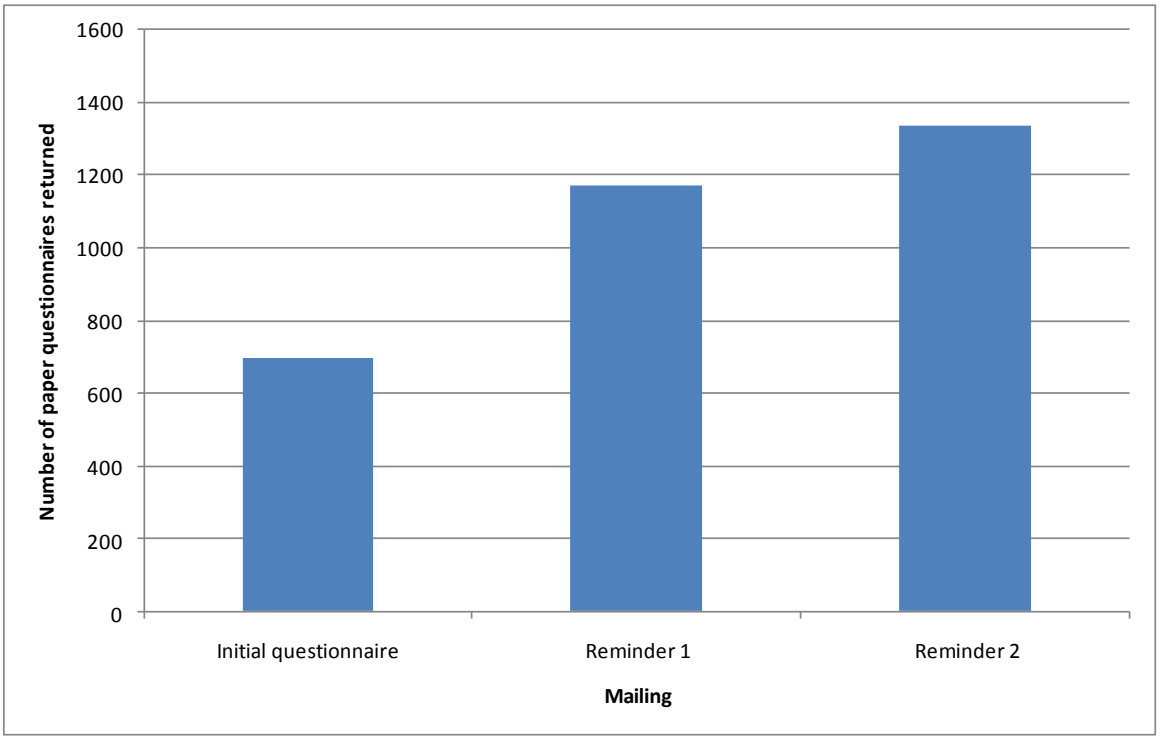
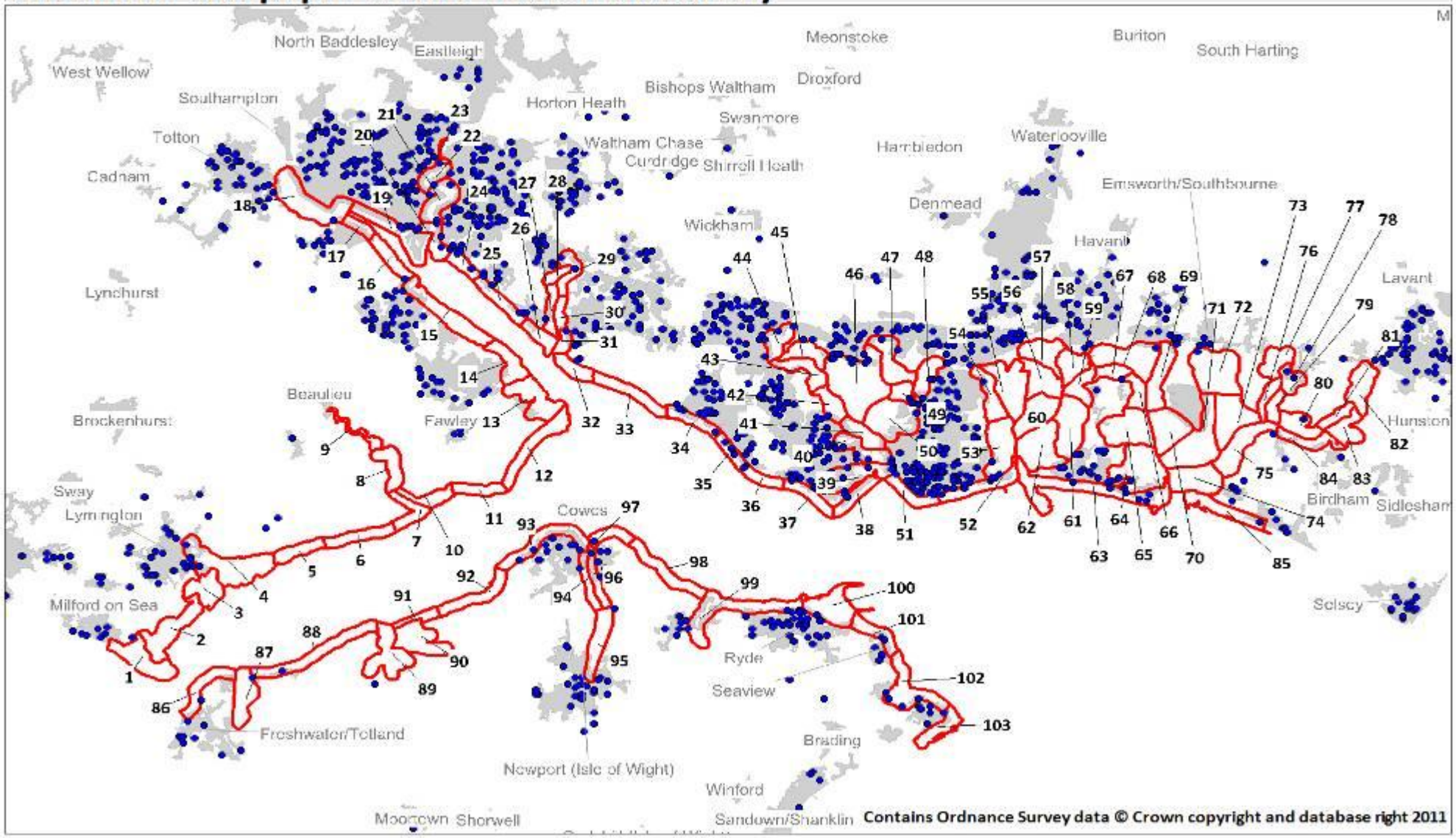


Figure 1: The number of returned paper questionnaires following the initial distribution to 5000 households and the subsequent two postal reminders

3.2 The postal questionnaires also contained instructions on how to complete and submit an online version of the questionnaire and further 48 on-line responses were returned. In total the results represent the responses of 1382 households in and around the Solent region. The spatial distribution of the home postcode locations of online and paper respondents and all the coastal sections are shown in Map 1.

Map 1: Coastal section numbers and postcode locations of repondents who completed the online and paper Solent household survey



3.3 The proportion of households who completed and returned the questionnaires living within different distance bands from the coast were analysed independently for the Isle of Wight and mainland addresses. There was no statistically significant variation in response rate with distance band from the coast on either the mainland (Table 4, χ^2_5= 5.205, p=0.391) or Isle of Wight ((Table 5, χ^2_3= 1.094, p=0.778).

Table 4: The proportion of households responding to the postal questionnaire on the mainland within different fixed distance bands from the coast.

Distance band from coast (km max)	Total number of questionnaires sent	Total number of responses received	Percentage of questionnaires received from those sent per distance band
1	1795	462	26
5	2440	658	27
10	135	45	33
15	25	6	24
20	52	17	33
25	18	4	22

Table 5: The proportion of households responding to the postal questionnaire on the Isle of Wight within different fixed distance bands from the coast.

Distance band from coast (km max)	Total number of questionnaires sent	Total number of responses received	Percentage of questionnaires received from those sent per distance band
1	358	99	28
5	115	32	28
10	22	4	18
15	5	1	20

3.4 There was no significant difference between the proportion of households on the mainland which completed the postal questionnaires in different distance bands from the coast (χ^2_5= 5.21, p=0.39) and there was also no significant difference between the proportion of households on the Isle of Wight which completed the postal questionnaires in different distance bands from the coast (χ^2_3= 1.08, p=0.78). This would therefore suggest that there was no bias in return rates for the questionnaire according to how far away from the coast people lived.

3.5 The proportion of households responding to the postal survey across all distance bands on the mainland (27%) was exactly the same as the overall response rate from households on the Isle of Wight (27%) (Table 6).

3.6 The proportion of households responding did differ significantly according to their local authority (χ^2_{10}= 60.7, p<0.001). Winchester City Council had the highest proportion of households responding to the postal questionnaire (36%) and Southampton City Council the lowest (21%) (Table 6).

Table 6: The proportion of households responding to the postal questionnaire by local authority.

Local authority	Total number of questionnaires sent	Total number of responses received	Percentage of questionnaires received from those sent per local authority
Winchester District	91	33	36
Fareham District	468	161	34
New Forest District	501	168	34
Havant District	385	113	29
Chichester District	356	104	29
Gosport District	358	99	28
Eastleigh District	326	85	26
East Hampshire District	68	17	25
City of Portsmouth	890	197	22
City of Southampton	1022	213	21
All Mainland	**4465**	**1190**	**27**
Isle of Wight	500	136	27

General access patterns to the coast

Households which do and do not visit the coast

3.7 A number of households had returned the questionnaires without completing a single question of a section. Section A contained blank responses to all questions from 24 submitted surveys. These are excluded from further analysis from the questions in section A and details of blank responses are detailed.

3.8 Overall, 42% of households responding said they 'had visited the coast within the last week' prior to completing the questionnaire and a total of 68% of respondents had made one or more coastal visits within the previous month (Table 7).

3.9 A small number of households (56) stated they never visited the sections of coast highlighted on the questionnaire. These households accounted for 4% of the total responses. Grouping these households with those 8% who last visited over a year ago accounted for 12% of the total number of responses and represent the visitation patterns of 164 households (Table 7).

Table 7: Responses to question A1, when was the last time a member of the household visited the coast as number of and percentage of responses per category.

Last time a member of household visited the coast	Number of responses	Percentage of total number responses
Within the last week	565	42
Within the last month	326	24
Within the last 6 months	227	17
Within the last year	76	6
More than a year ago	108	8
Never	56	4
Total	**1358**	**100**

3.10 The number of people living in households which had never or had not visited the coast in the past year was lower than those households who made a coastal visit within the past year (Table 8). This difference is significant (statistical comparison of the median values rather than the mean, Mann-Whitney test U= 81327.0 at $p<0.001$). Non coastal visiting households also had a lower number of children and a lower number of dogs per household. Both observations are statistically significant (children - Mann-Whitney U=88174.0, $p<0.001$; dogs – Mann-Whitney U=100220.0 $p=0.002$).

3.11 A significantly lower number of households which never visited or had not made a visit to the coast in the past year had regular access to a car/motorbike/van for transport ($\chi^2_1= 230.22$, $p<0.001$) in comparison to households who had visited the coast within the past year. Only 39% of households which never or had not visited the coast within the past year had access to private transport in comparison to 89% of households which had access to private transport and had made a visit in the past year.

Table 8: Demographic comparisons of households which have never visitor had not visited the coast within the past 12 months and households which had made a coastal visit within the past year (means +/- standard errors).

Household demographics	Never visit the coast or had not visited within the past year (n=164)	Those who had visited the coast within the past year (n=1194)
Mean household size	1.72 +/- 0.07	2.25 +/- 0.03
Median household size	1	2
Mean number of children	0.05 +/ -0.02	0.31 +/ 0.02
Mean number of dogs	0.12 +/ -0.03	0.25 +/0.02
Access to transport (%)	62 (39%)	1051 (89%)
No access to transport (%)	97 (61%)	130 (11%)

Seasonal visitation

3.12 Over half of all households (55%) stated they tend visit the coast equally all year and an additional 39% of households tend to visit the coast more in the summer time (Table 9). Only 4% of households make more visits in either Spring, Autumn and Winter (which could be partly explained by households with dogs visiting the coast more outside of beach restrictions).

Table 9: Responses to question A2, when do you or your household tend to visit the coast as counts and as a percentage of respondents.

Tendency for household to visit the coast	Responses	Percentage of total responses
Visit equally all year	662	55
Visit more in summer	465	39
Blank	28	2
Visit more in spring	26	2
Visit more in autumn	7	1
Visit more in winter	6	1
Total	**1194**	**100**

Frequency of coastal visits

3.13 Households were asked how frequently they made visits to the Solent region coast. Their responses were converted to an annual number of coastal visits (Table 10) in order to derive estimates of total visits per household, to enable quantitative statistical modelling of visitor rates and to develop predictive models of annual visitor numbers to individual sections. An estimated total of 90,920 annual visits to the Solent region coast as a whole were made by the 1178 responding households. A quarter (25%) of households are estimated to visit the coast a few times a year (equated to 4 annual visits each). Half (51%) of all households visited the coast at least once a week (equated to between 50 and 300 annual visits) and 13% of households visited almost every day (equated to 300 visits a year) (Table 10). Thus 51% of respondents were estimated to make at least 50 annual coastal visits and 29% of households were estimated to make at least 150 annual coastal visits. The average number of annual visits to the Solent region coast as a whole made by all responding households was 76.1 (standard error (SE) = 2.84 (Table 10).

Table 10: Responses to question A3, how frequently do you or your households visit this (Solent region) coast, as counts of responses and percentage of total responses (excludes 16 blank responses).

Frequency of visit	Number of annual visits made to the coast	Responses	Percentage of total responses	Cumulative percentage of total responses	Number of visits made
None	0	8	1	1	0
About once a year	1	28	2	3	28
A few times a year	4	291	25	28	1164
About once a month	12	244	21	49	2928
About once a week	50	266	22	71	13300
About 2-4 times a week	150	192	16	87	28800
Almost every day	300	149	13	100	44700
Total		**1178**		**100**	**90,920 (mean of 76.1 per household)**

Visit frequency of households with and without dogs

3.14 Households that didn't visit the coast were less likely to own a dog (see paragraph 3.11). There was a significant difference in number of annual visits made to the coast by households which owned at least one dog and non dog owning households (χ^2_6= 66.44, P<0.001). Most noticeably, 28% of households which owned a dog visited the coast almost every day (300 times a year) compared to only 9% of the households which did not own a dog (Table 11).

Table 11: Responses to question A3, how frequently do you or your households visit the coast, as counts of responses for those households with and without dogs and percentage of total responses per household category.

Number of annual visits to coast	Response total (%) of households who have at least one dog	Response total (%) of households who do not have dogs
0	1 (0)	7 (1)
1	10 (4)	18 (2)
4	40 (17)	251 (27)
12	38 (16)	206 (22)
50	44 (19)	222 (23)
150	35 (15)	157 (17)
300	64 (28)	85 (9)
Blank	22 ---	182 ---
Total (excl. blanks)	232 (100)	946 (100)

Visit frequency and household characteristics

3.15 A slightly higher proportion of respondents who lived in flats made 300 annual visits to the coast (i.e. visited almost every day) when compared with respondents who lived in non flats (17% compared with 12%) (Table 12) but the overall difference in visit rates between the two groups was not significant (χ^2_6= 8.072, p=0.233).

Table 12: The number of respondents living in flats and non flats by visit frequency to the coast by response count and percentage.

Number of annual visits	No. (%) of households living in flats	No. (%) of households not living in flats	Blanks	Total responses per visit category for flats and non flats
0	2 (1)	6 (1)	0	8
1	6 (3)	22 (2)	0	28
4	46 (24)	236 (24)	9	291
12	42 (22)	201 (21)	1	244
50	32 (17)	232 (24)	2	266
150	30 (16)	160 (16)	2	192
300	32 (17)	113 (12)	4	149
Blank	57 ---	143 ---	4	204
Total (excl. blanks)	**190 (100)**	**970 (100)**	**22**	**1382**

3.16 The vast majority (92%) of the 1169 households responding had access to a garden, but access to a garden did not have any statistically significant association with the

number of annual visits to the coast made per household (Table 13)(χ^2_6= 0.123, p=1.000).

Table 13: The number of respondents with and without access to a garden and annual visit frequency to the coast as response counts and percentages.

Number of annual visits	No. (%)of households without access to garden	No. (%) of households with access to a garden	Blank	Total number of responses (excl. blanks)
0	0 (0)	8 (1)	0	8
1	2 (2)	26 (2)	0	28
4	22 (24)	264 (24)	5	286
12	20 (22)	224 (21)	0	244
50	20 (22)	245 (23)	1	265
150	15 (16)	176 (16)	1	191
300	12 (13)	135 (13)	2	147
Blank			9	
Total (excl.blanks)	**91 (100)**	**1078 (100)**		**1169**

Diurnal visitation

3.17 The survey asked households whether there were any particular times of day when they tended to visit the coast. Households could tick up to seven multiple answers and in total 2739 responses were ticked. The majority of households (32%) stated a tendency to visit in the afternoons and just over half of all households (55%) would visit in either the morning or afternoon. Almost a quarter (24%) of respondents considered the tidal cycle in whether and when to visit with an equal proportion (7%) of households tending to visit at low and high tide (Table 14). A small proportion (5%) of households did make visits to the coast during evening darkness or night (Table 14).

Table 14: Responses to question A4, are there particular times of day when you or your household visit the coast, as counts of responses (where a category was ticked) and percentage of responses which ticked each category.

Time of day household tended to visit the coast	No. (%) of responses
Afternoon	870 (32)
Morning	627 (23)
Evening in daylight	429 (16)
Tide and weather dependent	285 (10)
High tide	204 (7)
Low tide	197 (7)
Evening/night in darkness	127 (5)
Total	**2739 (100)**

3.18 Most commonly, 38% of households only marked one category indicating their preferred time of day or state of tide to visit the coast. A further 25% indicated two categories, while 18% indicated four or more time of day or tide categories when they tended to visit the coast (Table 15).

Table 15: Number of categories ticked by households in response to question A4. The counts (as absolute and percentage values) of number of responses per household to the question on if there particular times of day when you or your household visit the coast.

Number of categories ticked in question A4.	Number different categories ticked in response to question A4
0	23 (2)
1	448 (38)
2	313 (26)
3	193 (16)
4	80 (7)
5	72 (6)
6	49 (4)
7	16 (1)
Total	**1194**

Activities undertaken at the coast

3.19 In addition to questions relating to timing and frequency of coastal visits, households were also asked which activities they undertake during their visit. There were 21 pre-defined categories listing land and water based activities and two categories considered the scenery and the location. Households were able to tick as many of these categories that applied and a text box was provided to provide additional details on other activities undertaken at the coast.

3.20 The majority of the 1194 responding households stated walking (74%), to enjoy the scenery (73%) and being on the beach (52%) as the three most popular activities to 'do' at the coast (Table 16). Visitors to the coast do not just go to undertake an activity, there is an aesthetic element to their visit with the enjoyment and appreciation of the surroundings features.

3.21 Overall only ten percent of all responses ticked related to water based activities (most of which are coast specific) and 341 (29%) households undertook at least one water based activity. Shore fishing (105 responses) was more frequently stated by respondents than fishing from a boat (55 responses) (Table 16).

3.22 A total of 99 households listed 'other' as an activity which they undertook while making a visit to the coast. Water based or on the water activities listed in this section included wake boarding, surfing, attending a sea baptism and spear fishing. Supplementary land based activities undertaken by households ranged from picnicking, kite boarding, horse riding, visiting the children's playground and watching the boats. A summary of all responses can be found in Appendix 2.

3.23 We considered the number of different activities that each household marked on the survey. Most commonly (18%), households undertook a total of three activities during their coastal visits within a year, but over half (56%) of all respondents undertook at least four activities during their combined coastal visits over a whole year , with the maximum being 17 by one household (Table 17).

Table 16: Response to question A5, have you or your household visited the coast to undertake any of the following activities. Multiple answers were allowed and the number of ticks per category are detailed with the corresponding percentage of the 1194 responding households which ticked each category.

Activity	Number and (%) of responses per category for activities undertaken during a visit.
Walking	885 (74)
To enjoy the scenery	871 (73)
Being on the beach	619 (52)
Meet up with friends	446 (37)
Wildlife Watching	359 (30)
Attending an event	334 (28)
Dog walking	297 (25)
Cycling	215 (18)
Photography	212 (18)
Swimming	182 (15)
Sailing	120 (10)
Fishing (from shore)	105 (9)
Jogging /Running	105 (9)
Other	99 (8)
Fishing (from boat)	55 (5)
Digging for bait /	39 (3)
Powerboating	37 (3)
Kayaking	30 (3)
Windsurfing	13 (1)
Jetskiing	8 (1)
Diving	8 (1)
Kite Surfing	7 (1)
Total	**5046 (100)**

Table 17: Number of categories ticked by households in response to question A5, Have you or your household visited the coast to undertake any of the following activities. The counts of number of responses and the percentages for the number of categorised selected are presented.

Number of activities ticked per survey	Total number of households which ticked different categories	Total percentages
0	10	1
1	130	11
2	162	14
3	220	18
4	183	15
5	161	13
6	131	11
7	93	8
8	52	4
9	22	2

Number of activities ticked per survey	Total number of households which ticked different categories	Total percentages
10	13	1
11	6	1
12	6	1
13-17	5	0
Total	**1194**	**100**

Features that attract and deter households to/from coastal locations

3.24 Households were asked what features and characteristics of coastal areas are important to them when deciding which coastal locations to visit. Respondents were asked to consider 25 features and categorise the extent each feature either attracted or deterred them from making a visit (Figure 2). In total 26,259 responses were given out of a possible 29,850, in 12% of the question responses at least one feature was not categorised.

3.25 The results show that the same single feature can both strongly attract and strongly deter visitors when households decide which coastal location to visit, and that many of the listed features are neither deemed as attractive or a deterrent and do not influence a households choice of locations to visit (Figure 2)

3.26 The feature which had the highest number of 'attract' responses were 'sea views and attractive scenery' with over 1000 responses of 'strongly attract' or 'attract'. The presence of sea views and attractive scenery was listed by 51% of the respondents as a strong attraction and as an attraction by 37%, combined this means that 88% of households will consider this when deciding which coastal location to visit (Table 18). To the majority of visitors the presence of sea views and attractive scenery is an important draw to the sections of coast they visit (as it is to the coast in general). Other features which also scored highly were 'feel safe' with 73% of households stating this would either strongly attract or attract them to a location; 'ability to do a range of different walks and routes' was listed as either strongly attract or attract by 74% of households ; 'the presence of wildlife' listed by 73% of households as strongly attract or attract and 'short travel time from home' listed by 74% of households as either strongly attract or attract (Figure 2).

3.27 Over half of all households stated that their decision on which area of coast to visit was not influenced by the presence of a visitor centre (57%), nearby camping (56%) or the presence of grazing animals (50%). Slightly fewer households also stated that coastal views from the car park (42%), the requirement for dogs to be on a short lead (41%) or areas where dogs could run off the lead (39%) had no influence over their choice of visit location (Table 18). All these values are summaries of factors which influenced the choice of visit location for all responding household, and does not consider whether a household is dog owning or non dog owning, this is explored in section 3.34.

Table 18: Responses to question A6, which features attract you or your household to coastal locations expressed as the percentage of responses in category per feature or characteristic. The table should be read by row and the emboldened text illustrates the majority response per feature. Blank cells represent the categories where no selection was possible.

Feature or characteristic	Strongly Attract	Attract	No influence	Deter	Strongly Deter	Blanks
Sea views and attractive scenery	**51**	37	5			8
Feel safe	31	**42**	17			9
Ability to do a range of different walks / routes	28	**46**	15	0	1	10
Presence of wildlife	27	**46**	16	0	1	9
Availability of toilets	22	**40**	26	1	2	9
Short travel time from home	20	**54**	18	1	0	8
Site good for your favoured activity (e.g. good wind for kite surfing)	19	**27**	38			17
Benches / places to sit comfortably	18	**47**	25	0	1	8
Car parking spaces available	17	**43**	18	3	8	11
Easy access onto the beach / intertidal area	16	**49**	23			11
Cafe or similar nearby	16	**45**	26	0	2	10
Low numbers of other people	16	**39**	32	1	1	12
Designated walking and cycle trails	14	**37**	31	0	2	16
Areas for picnics	13	**38**	34	0	2	14
Coastal view from car park	12	35	**42**			11
Dog restrictions present with 'No-go' dog areas	12	18	39	10	8	14
Dogs can be off lead	11	11	**39**	11	14	13
Dog restrictions present where dogs are required to be on a short lead	11	22	**41**	6	7	13
On site visitor information	7	34	**46**			14
Surfaced paths (e.g. tarmac / gravel)	7	31	**46**	1	3	12
Car parking charges	6	9	21	24	**30**	11
Presence of grazing animals (cattle and ponies)	6	22	**50**	2	7	13
Substantial distance from car park to water	4	9	**46**	6	21	14
Visitor Centre	2	21	**57**	1	4	14
Camping nearby	2	5	**56**	6	11	20

3.28 Of all the features, car parking charges were the most frequently given feature that both 'deter' households and 'strongly deter' households from visiting coastal location (as stated by 24% and 30% of the respondents respectively). The second most frequently cited features which can either 'deter' or strongly deter' visitors were 'dogs can be off lead ' (25% of households) and 'substantial distance to car park' (27%)(Figure 2).

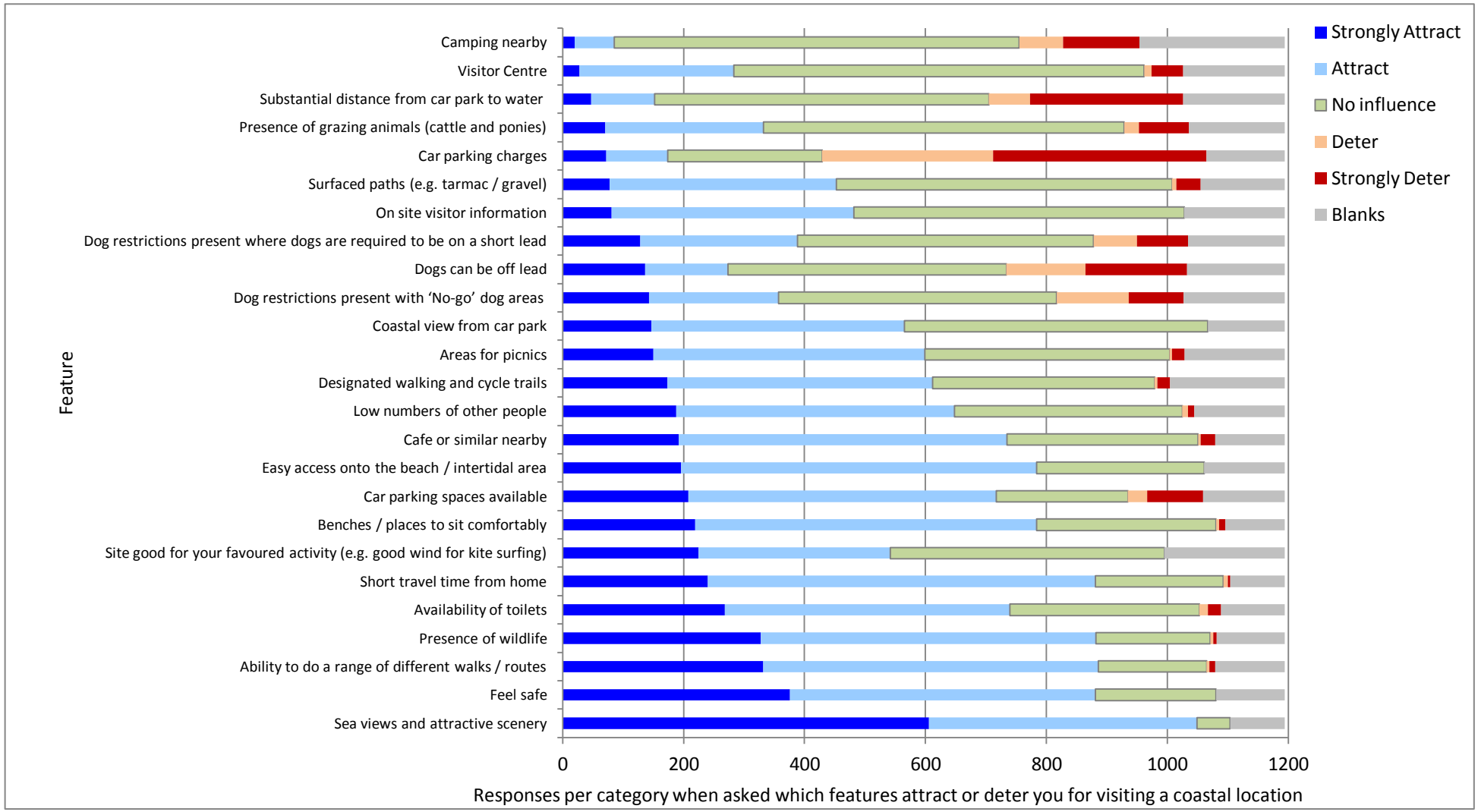


Figure 2: The number of responses to question A6, feature that attract or deter you or your household from coastal locations. Those features which had a higher number of 'attractive' responses are nearer the bottom half of the graph. n=1194.

3.29 Overall, “ability for dogs to be off lead”, and “dog restrictions present with no-go dog areas” are the two section characteristics which have the greatest extremes in attractiveness to visitors as they each both “strongly attract” and “strongly deter” at least 10% of all respondents. This suggests that what attracts dog walkers to an area may actively deter other non dog walking visitors.

Other features provided by households that would either attract or deter them from a coastal location

3.30 Respondents were invited to list any other features that would attract or deter them from coastal locations. Just under a quarter (23%) of responses related to the site being ‘clean’ or to site cleanliness. Households also cited scenery and coastal views (14%) and the presence of a good pub or cafe where they could get refreshments as important (Table 19). Family friendly was given by (8%) of respondents which included comments ‘children’s play area’, ‘easy pushchair access’ and ‘events for children’. Two percent of households cited that dog bins were an important feature and an additional two percent were drawn to sandy beaches (Table 19).

3.31 Of the other factors listed by households which deter them from making visits to coastal locations, the majority of respondents (19%) and an additional 13% referred to issues associated with dogs which include presence of ‘dog poo’ (Table 20). Three percent of respondents specifically listed issues they had with jet ski’s (mainly referring to the noise they make) and 1% of visitors would be deterred from making a visit to the coast if no disabled parking was present or wheelchair / disabled access was difficult (Table 20).

Table 19: Summary of the most frequent responses to question A6 where respondents listed other important features which attract them to visit coastal locations.

Feature / characteristic	Number (%) of responses
Clean	85 (23)
Scenery / coastal view	52 (14)
Other	36 (10)
Facilities pub/cafe nearby	35 (9)
Family friendly	29 (8)
Wildlife	23 (6)
Disabled/wheelchair access	22 (6)
Boats	19 (5)
Parking	16 (4)
Paths and good walks	12 (3)
Fresh air	9 (2)
Dog bins / dog friendly	9 (2)
Sandy beach	7 (2)
Traffic free	5 (1)
Fishing	5 (1)
Weather	4 (1)
Feel safe	3 (1)
Total	**371 (100)**

Table 20: Summary of the most frequent responses to question A6 where respondents listed other important features which deter them from visiting coastal locations.

Feature / characteristic	Number of responses
Litter	71 (19)
Dogs (including dog fouling)	51 (13)
Other	50 (13)
Too many people / Too busy / Crowds	47 (12)
Parking charges / Issues	46 (12)
Dirty areas	30 (8)
Antisocial behaviour	25 (7)
Traffic	19 (5)
Facilities	19 (5)
Jet Skis	11 (3)
Amusement arcades	6 (2)
Disabled / wheelchair access	3 (1)
Total	**378 (100)**

Features that attract or deter households with dogs to/from a coastal locations

3.32 To further explore whether different features act as a deterrent or attraction for visitors undertaking different activities at the coast the responses of households which owned at least one dog and households which did not own a dog (question C3) were considered independently. Of those responding households who had made a visit to the coast within a year, 20% (235) owned at least one dog and 80% (951) did not.

3.33 The two features or characteristics of coastal areas which were listed most frequently as either strongly attractive or attractive by 93% of respondents with dogs were 'short travel time from home' and 'sea views and attractive scenery'. Only 7% of dog owning respondents stated that sea views and attractive scenery did not influence their choice of visit location. Other features and characteristics which would either attract or strongly attract dog owning households were 'dogs can be off the lead' (77%), 'feel safe' (81%), 'the ability to do a range of different walks / routes' (87%), 'presence of wildlife' (84%) and 'substantial distance from car park to water' (78%) (Figure 3).

3.34 A total of 84% of dog owning households stated the presence of wildlife either strongly attracts or attracts them to coastal locations while 16% stated this would not influence their choice of visit locations. Only 4 respondents (<1%) indicated that the presence of wildlife would either deter or strongly deter them from making a visit to the coast (Figure 3). Dog owning households were most frequently strongly deterred and deterred by 'dog restrictions with no go dog areas' (67%), 'car parking charges' (61%) and 'dog restrictions where dogs are required to be on a short lead' (47%). The presence of grazing animals would not influence the choice of visit location for 57% of dog owning household but the presence of grazing animals would either deter or strongly deter 18% of these households (Figure 3).

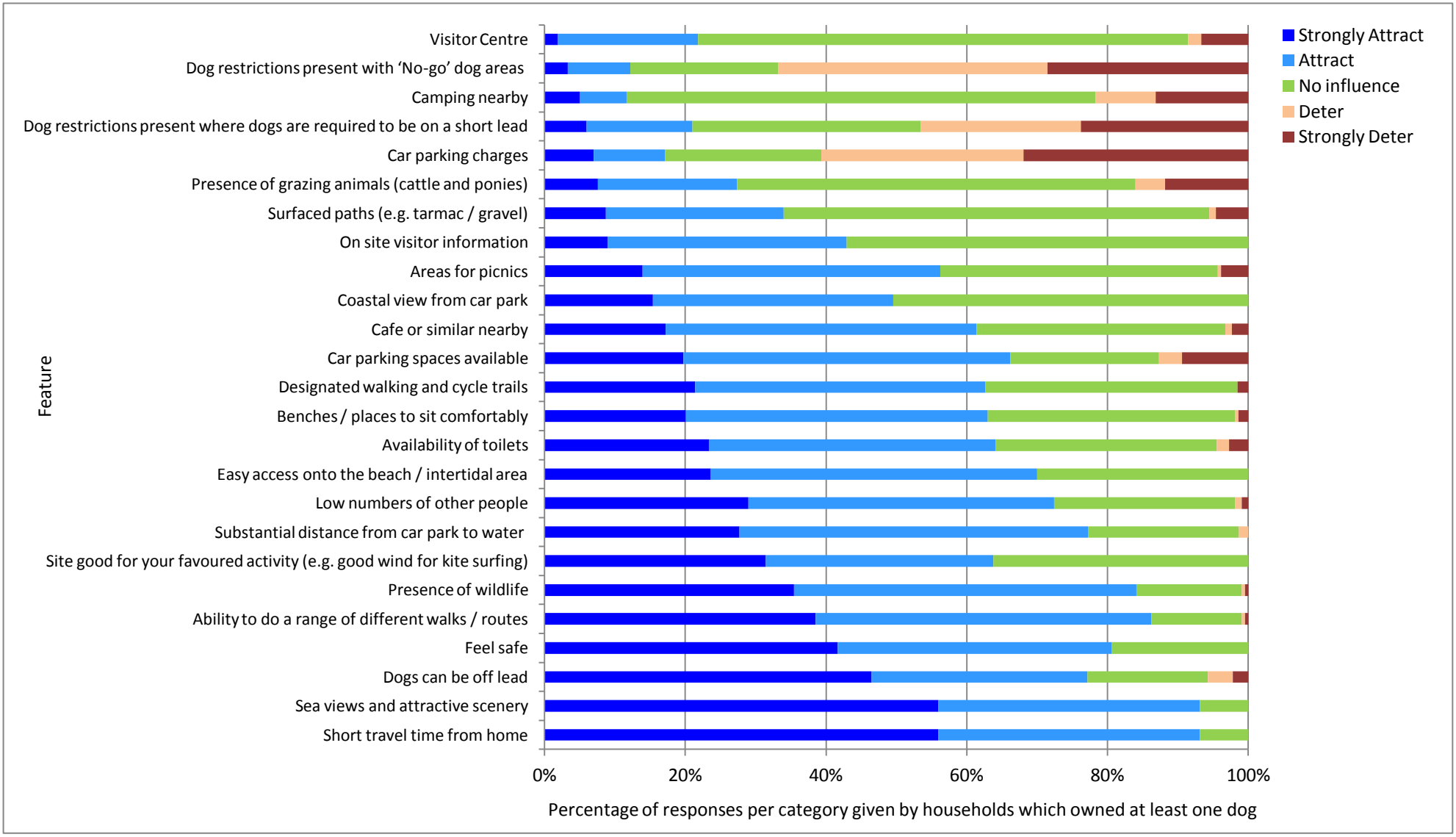


Figure 3: The percentage of responses by attract/deter category for each feature given by households with at least one dog. Those features which had a higher number of 'attractive' responses are nearer the bottom half of the graph, n=235.

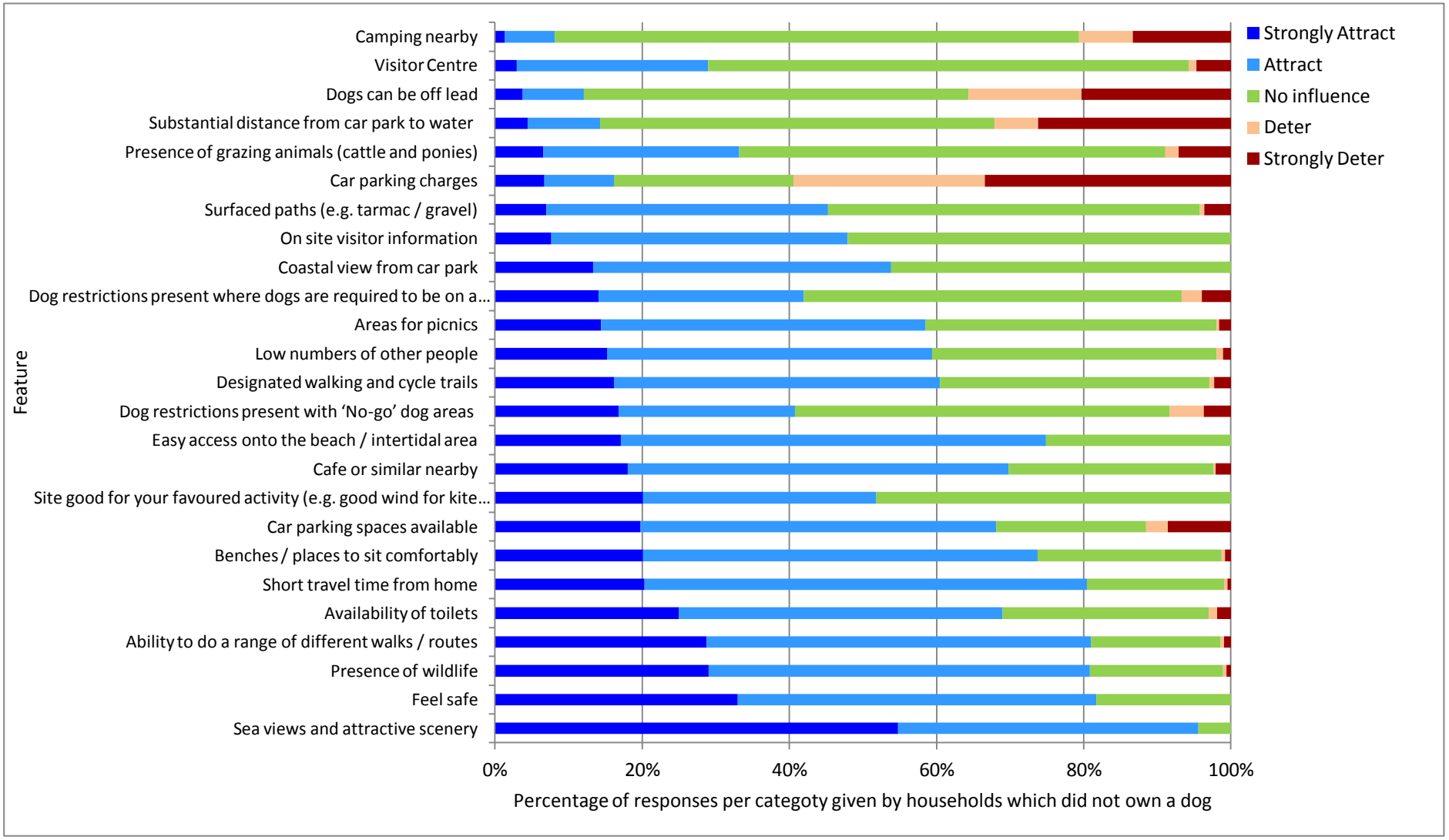


Figure 4: The percentage of responses by attract/deter category for each feature given by households without dogs. Those features which had a higher number of 'attractive' responses are nearer the bottom half of the graph. n=951.

Features that attract or deter non dog owning households to/from coastal locations

3.35 Respondents from households who did not own dogs listed 'sea views and attractive scenery' (96%) and 'feel safe' (82%) as the two most frequent features or characteristics which would attract them to a coastal location. Other features which were most frequently given that would either strongly attract or attract these households were 'presence of wildlife' (81%), 'ability to do a range of different walks/routes' (81%), 'availability of toilets' (69%) and 'short travel time from home' (80%) (Figure 4).

3.36 Non dog owning households were most frequently deterred or strongly deterred by 'car parking charges' (59%), 'dogs can be off the lead' (35%) and 'substantial distance from car park to water' (32%).

3.37 Respondents who owned dogs take into account whether the dog could be off lead and find this characteristic an attraction or strong attraction (77%) when deciding which coastal location to visit whereas 70% of respondents who did not own dogs stated this acted as a deterrent or strong deterrent. How the two groups of households view the ability for dogs to be off lead is highly statistically significantly different (χ^2_4= 416.992, p<0.001).

Features that attract or deter households who undertake water and land based activities

3.38 Households were able to tick a selection of activities that they undertook at the coast and several of the respondents ticked both land and water based activities. The responses of households were divided into two groups dependent on whether they undertook a water based activity at the coast (question A5,) or whether they only undertook land based activities. Activities classified as water based were: digging for bait/shell fish; diving; fishing (from a boat); jet skiing; kayaking; kite surfing; power boating; sailing; swimming and windsurfing. Additional water based activities listed by the respondent in the 'other' category were added to the appropriate group. The features and characteristics of sites which are attractive or considered a deterrent for each groups were then considered independently.

3.39 The three features which were most frequently listed as either 'attractive' or 'strongly attractive' by households who undertook water based activities were 'sea views and attract scenery', 'ability to do a range of different walks/routes' and the 'presence of wildlife'. There was a significant difference (χ^2_1= 58.681, p<0.001) in responses from households that undertook water and land based activities when asked to consider how 'if a site was 'good for favoured activity (i.e. good wind for kite surfing)' it influenced your choice of visit location. The majority (70%) of households which undertook water based activities stated either 'attract' or 'strongly attract' whereas over 50% of households undertaking land only based activities stated this would not influence their choice of visit location. This suggests that the majority visitors undertaking water based activities at the coast will select areas of the coast that are suitable to undertake their 'wet' activity (Figure 5 & Figure 6).

3.40 Car parking charges, a substantial distance from the car park to the water and areas where dogs can be off leads were the most frequently stated deterrents for both households undertaking water and land based activities (Figure 5 & Figure 6). There was no significant difference between the responses (either 'attract', 'no influence' or 'deter') of households undertaking either land or water based activities to these features suggesting that the response to these features is not dependent on whether a household undertakes a water or land based activity (car parking charges -(χ^2_2= 3.476, p=0.176); dogs off lead -(χ^2_2=4.249, p=0.119) and substantial distance from car park to water (χ^2_2=0.166 , p=0.920)).

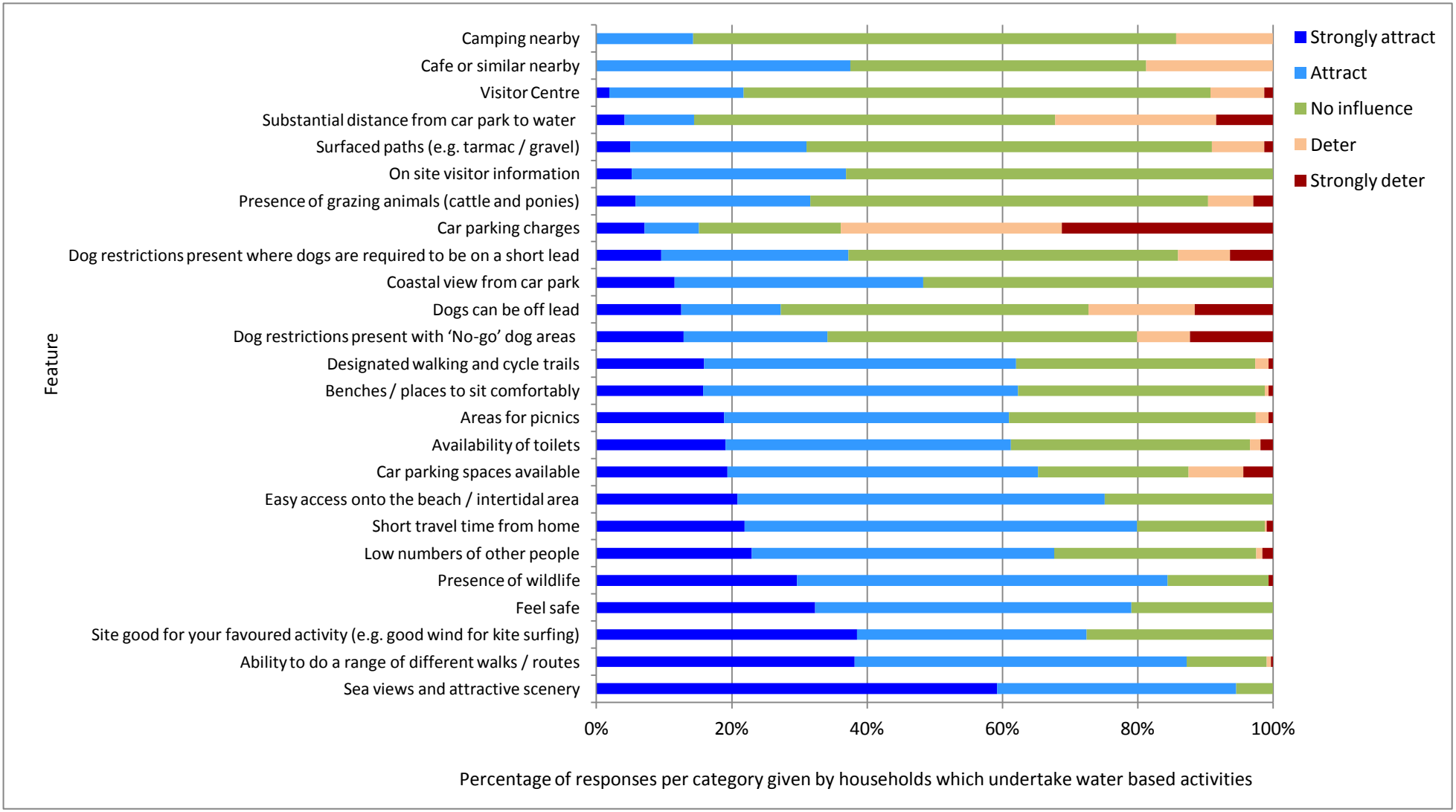


Figure 5: The percentage of responses by attract/deter category for each feature given by households which undertake water based activities at the coast (for general visits to theh coast, not specifically for water based activities). Those features which had a higher number of 'attractive' responses are nearer the bottom half of the graph, n=341.

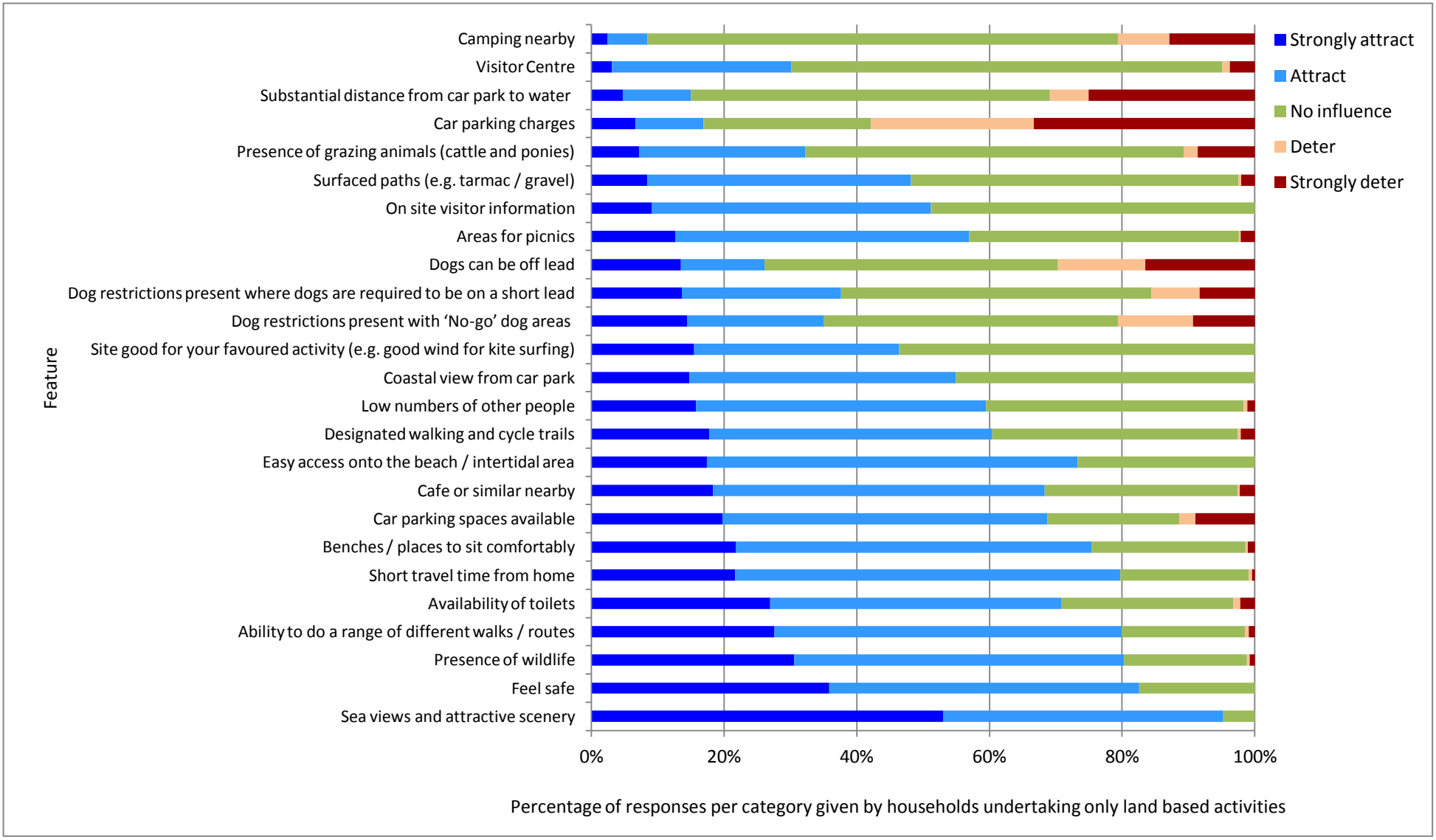


Figure 6: The percentage of responses by attract/deter category for each feature given by households who undertake only land based activities at the coast. Those features which had a higher number of 'attractive' responses are nearer the bottom half of the graph, 653<n<776 (dependent on feature as some respondents did not comprehensively complete question).

Identifying specific coastal sections visited by households (Section B)

Visit frequency to specific coastal sections

3.41 A total of 4234 responses were provided by households listing, frequency of visit, transport method and activities undertaken at specified sections.

3.42 Of these 4234 responses 53 (1%) did not indicate how often they visited each listed coastal section and these records are excluded from analyses which consider visit frequency. An additional 17 responses to section B from 15 households did not list a coastal section, these responses (representing 982 annual visits) were also excluded from any visit frequency analysis. The responses given in section B show that responding households made an estimated 153,433 annual visits to specific coastal sections. This is considerably higher than the estimate of 90,920 annual visits made by the same group of responding households in Table 10; this is to be expected because people can visit more than one section on a single visit to the coast and all visited sections are treated as separate visits in Section B of the household questionnaire.

3.43 Overall 40% of households visited specific sections of coast 'a few times a year' (equated to four visits) while 4% visit specific sections 'almost every day' (equated to 300 times a year). A total of 30% of responses involved visiting specific coastal sections at least once a month (Table 21). However in terms of total visits to sections, on average, 88% of all visits to specific coastal sections were made by households who visited the listed sections at least once a week (i.e. 50+ annual visits). The remaining 12% of all visits are made by households which visit specific sections about once a month or less (i.e. 12 or less visits annual), even though this group forms 70% of separate households visiting the sections (Table 21). This is an example of the important difference between the number of annual visits to a coastal section and the number of separate people who visit a section. Regular visitors may be relatively few in number but still contribute a large percentage of all visits.

Table 21: Summary of all responses to section B where respondents described the number of annual visits made to coastal sections.

Frequency of annual coastal visits	Number of responses per visit frequency per coastal section listed by respondents in section B	As percentage of all visit frequency responses in section B	Estimated number of annual coastal visits made by households per visit frequency category (multiplication of columns 1 and 2)	Percentage of responses per visit frequency category
1	309	7	309	0
4	1702	40	6808	4
12	979	23	11748	8
50	665	16	33250	22
150	370	9	55500	36
300	156	4	46800	30
Blank	53	1		
Total	**4234**	**100**	**153,433 (excluding blanks)**	**100**

Seasonal visitation

3.44 A total of 13,691 responses were given to the season which households visited specific coastal sections (respondents were able to tick multiple answers) and the coast was not visited equally throughout the year ($\chi^2_3 = 275.99$, $p<0.001$) with more households making visits to coastal areas in the summer months (Table 22). The data from this survey will be used to model the impact coastal visitation on the wintering bird species of the SPA. These models consider the impacts and run simulations from September to March which reflects the visiting patterns for Spring, Autumn and Winter which accounts for 76% of the visiting responses in Table 22. Amongst responding households, 2719 said they visited specific sections in winter, which is equivalent to 67% of the 4071 households who said they visited specific sections in summer, supporting the general statement in Section 3.12 that over half (55%) of households visited the coast "equally all year".

Table 22: Seasons in which households visited specific coastal sections listed in section B.

Season in which specific coastal sections were visited by households	Number and (%) of responses
Spring	3568 (26)
Summer	4071 (30)
Autumn	3333 (24)
Winter	2719 (20)
Total	**13691 (100)**

Transport to coastal sections

3.45 Households were also asked to identify a single mode of transport that was used to reach each listed coastal section. A total of 87% of responses correctly completed this question, 2% (88 responses which accounted for 1529 annual visits) failed to indicate a transport mode and 12% (483 responses which accounted for 23,828 annual visits) listed two or more transport methods. Car/van/motorcycle was the most popular transport method used to access 63% of listed sections. A total of 82% (3015) of coastal sections listed by respondents in section B, were accessed by either foot or by car/van or motorcycle. Only 1% (63) of coastal sections were accessed by boat or yacht.

3.46 Just over half (52%) of all estimated annual visits were made by car and 39% of visits were made by foot (Table 24). Although only 19% of the responses to question B listed 'foot' as a transport mode (Table 23), 39% of all annual journeys to coastal sections are made by foot. Respondents who visit their listed coastal sections by foot do so more frequently than respondents who visit their sections by car.

3.47 Of the annual coastal visits made the percentage of respondents who travel to the coast by different transports modes is in line with the findings of the SDMP- Phase II -On site visitor work (Fearnley *et al*. 2010) where 50.5%, (this survey found 52%) of visitors made their journey to the coast by car and 46% (this survey found 39%) arrived by foot. The on-site visitor work only recorded a handful of visitors who arrived by bicycle and public transport and this wider survey identified that 5% of

the annual number of coastal visits were made by public transport and a further 4% by bicycle.

Table 23: Summary of responses to the mode of transport used to travel to each coastal section listed by households in section B.

Mode of transport typically used to visit specific coastal location	Number of responses	As a percentage of the total number of response
Car/Motorbike/Van	2952	63
Foot	913	19
Bicycle	346	7
Public transport	431	9
Boat or Yacht	63	1
Total	**4,705**	**100**

Table 24: Estimated number of annual visits by transport mode where respondents correctly provided a single transport mode to their listed coastal section (section B). (The responses which provided incorrect response (either multiple or zero transport modes were given accounted for 25,153 responses which when summed with total estimated annual visits for valid transport responses = 153,433 the total number of estimated annual visits to coast in Table 21)

Mode of transport used to access specific coastal section	Annual number of coastal visits made to specific sections	As percentage of total number of coastal visits
Car	67092	52
Foot	50256	39
Bike	4497	4
Public Transport	6292	5
Boat	143	0
Total	**128,280**	**100**

Activities

3.48 Households were asked to state the activities undertaken at the coastal sections they specified in section B. The question allowed multiple combinations of activities and a total of 13,489 activity responses were ticked by all respondents to section B. The most popular activities undertaken along the coast during a visit were walking and enjoyment of the scenery collectively accounting for 40% (5470 responses) of all the activity responses (Maps 1 and 2, data table and map annex).

3.49 Maps 1 to 17 in the data table and map annex illustrate the number of visits to each coastal section per activity. These maps show how many visits are made to the different coastal sections to undertake different recreational activities.

Table 25: Summary of all the responses of activities undertaken at given coastal sections listed by households in section B.

Activity	Count	As percentage
Walking	2748	20

Activity	Count	As percentage
To enjoy the scenery	2722	20
Being on the beach	1527	11
Meet up with friends	1464	11
Wildlife watching	1359	10
Attending an event	759	6
Dog walking	721	5
Photography	633	5
Cycling	402	3
Swimming	324	2
Sailing	274	2
Fishing (from shore)	199	1
Jogging/Running	163	1
Fishing (from boat)	86	1
Other sport	68	1
Kayaking	40	0
Total	**13489**	**100**

Coastal section analysis

Estimated number of annual coastal visits made by the survey responding households

3.50 In total the survey responses indicated that a total of 153,433 coastal visits were made by 1,155 responding households across the study area with individual section receiving an average of 1,490 visits. There are statistically significant differences between the 103 sections in the estimated number of annual visits made by the responding households with some sections receiving far more visits than others (χ^2_{102}= 199530, p<0.001, n=153,433) (Table 1 Data table and map annex).

3.51 Households which did visit the coast made on average 132.8 annual coastal visits. Amongst all the households which responded to the survey (including those who stated they did not visit the coast) the average number of annual coastal visits per household was 111.

Table 26: Summary of the annual number of visits made to the Solent per visiting household, per section of coast and to each section by the responding households surveyed.

Total number of annual visits made to coastline	Total number of households who indicated visiting specific sections	Average number of annual coastal visits made by households who regularly visit the coast	Total number of households who responded to the survey	Average number of annual coastal visits per household by all responding households	Average number of annual visits per section of coast
153,433	1155	133	1382	111	1490

3.52 The number of annual visits made to each section is presented in Map 2 and Table 1 of the 'Data table and map' Annex to this report shows exactly how many times each coastal section was listed as a visit location by respondents. Sections 49, 50, 67 and 17 have a relatively high number of annual visits from a relatively small number of households suggesting that the households which visit these sites do so regularly.

3.53 The stretch of coast between the Old Portsmouth Marina near Governors Green (Penny Lane) and South Parade Pier (section 51) received the highest estimate of 9,070 annual visits and each visiting household made an average of 53 annual visits (Map 1 and Map 2) and adjacent section 52 (area between South Parade Pier and Fort Cumberland) received the second highest with 8,557 estimated annual visits with each visiting household making on average 52 annual trips.

3.54 Map 2 illustrates the annual number of visits made per section of coast by the responding households. Sections 1, 24, 25, 34, 35, 37, 46, 50, 51,52, 53, 63 and 100 received the highest estimated number of annual visits and sections 6, 8, 21, 43, 56, 57, 77, 78, 80, 81, 88, 89,91 and 92 received the lowest.

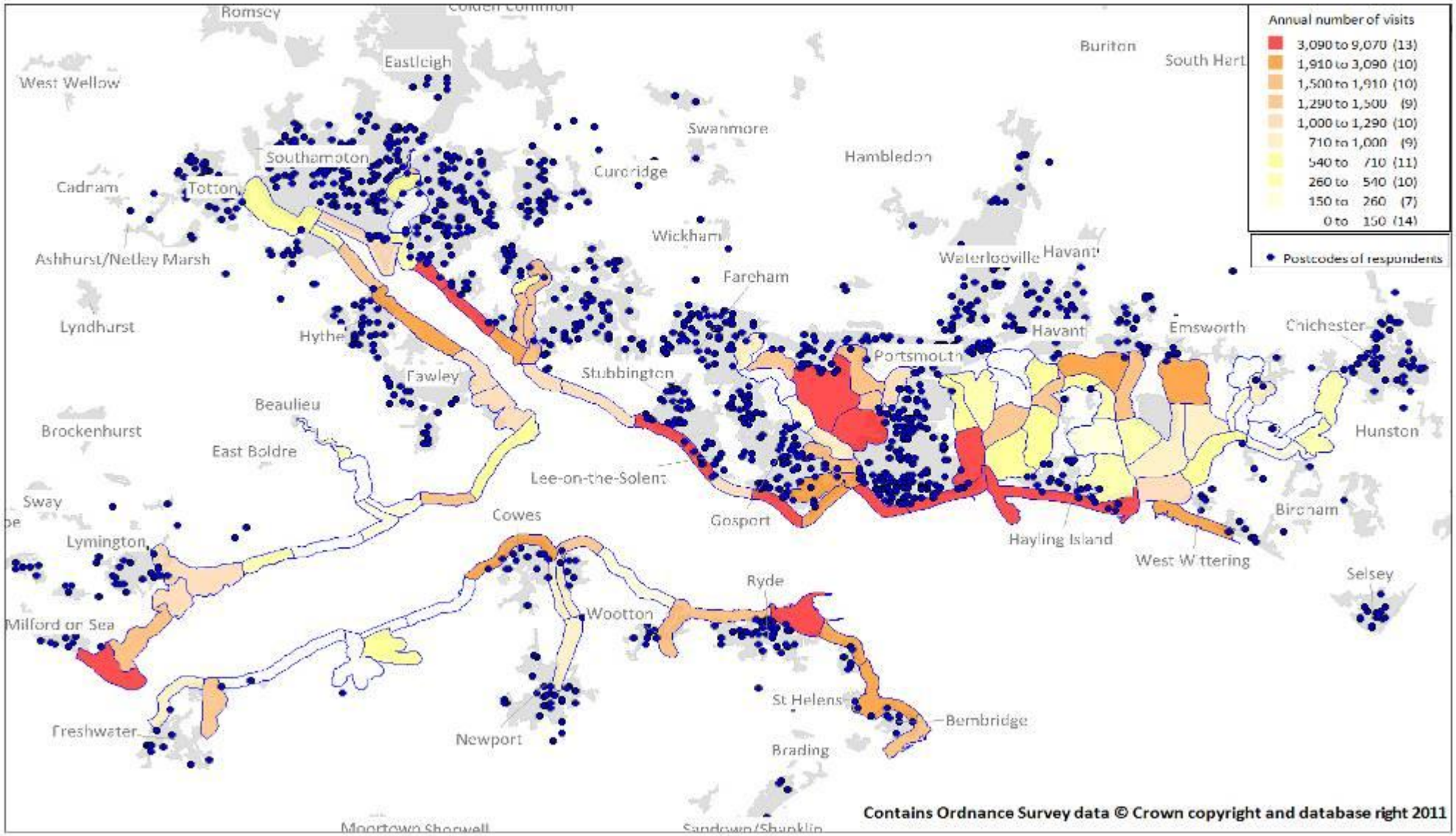
3.55 Three sections of the coastline received less than 50 estimated annual visits from the responding households, section 81 (between Longmore point and Hook farm) had 6 visits, section 6 (Whitehouse Copse to Gravelly Marsh) received 21 visits and section 77 (Easton Farm to Bosham Shipyard) received an estimated 36 annual visits.

Characteristics of coastal sections and car parking capacities

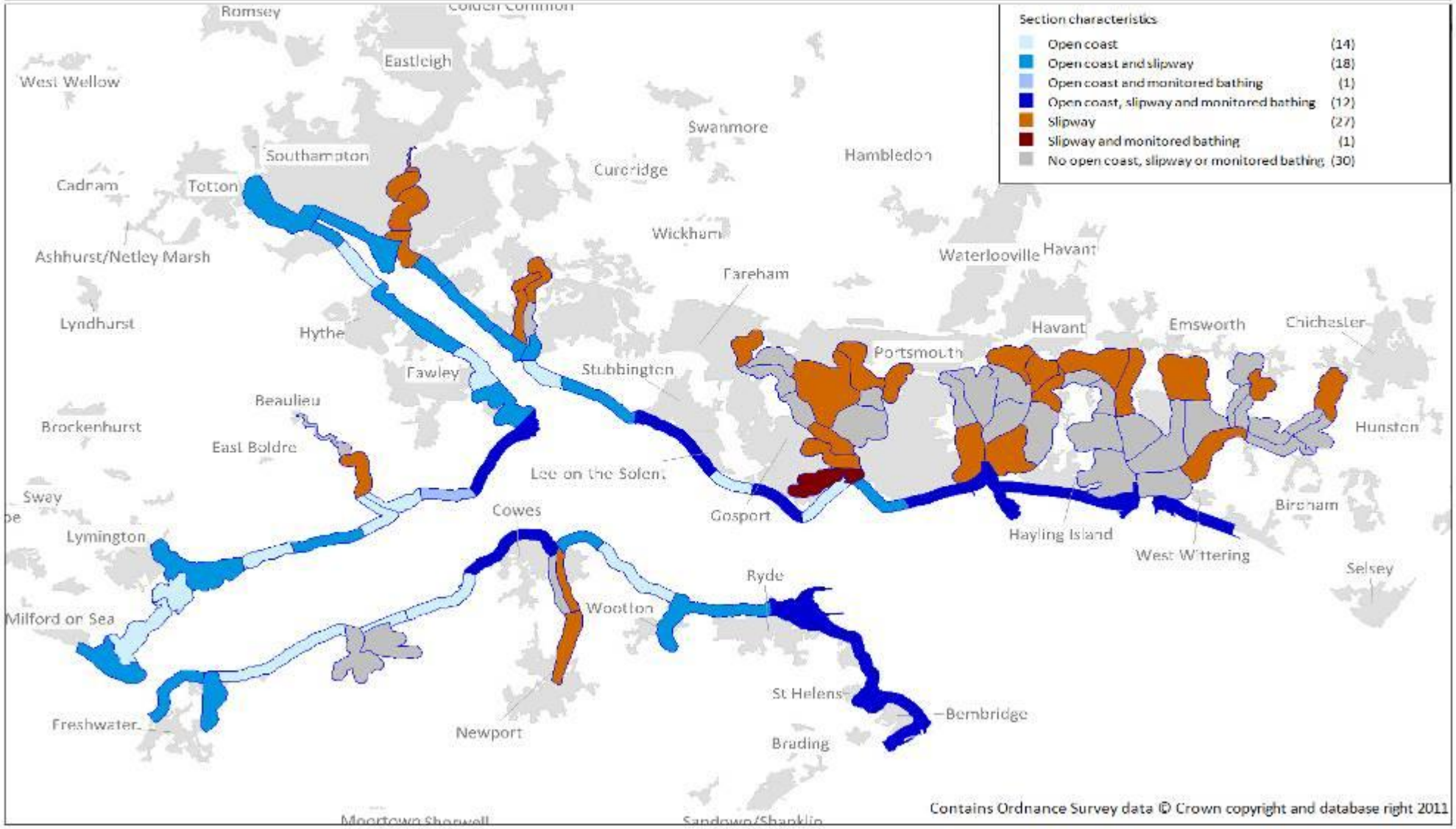
3.56 All but one section of coast which received the highest estimated number of annual visits contained a slipway (Maps 2 and 3). Section 50 did not have a slipway (Stamshaw to HM Naval Base) and was the only section to receive a high number of estimated annual visits. This section was categorised as having no open coast, slipway or monitored bathing and it could be the proximity of the section to a population centre that better explains the popularity of this area as a visit location.

3.57 There also appears to be some similarities between the estimated number of annual visits and formal car parking capacity at each section (Maps 2 and 4). Sections with a greater formal car parking capacity generally appear to receive a higher number of annual visits in comparison to sections with lower formal car parking capacity although there are some exceptions.

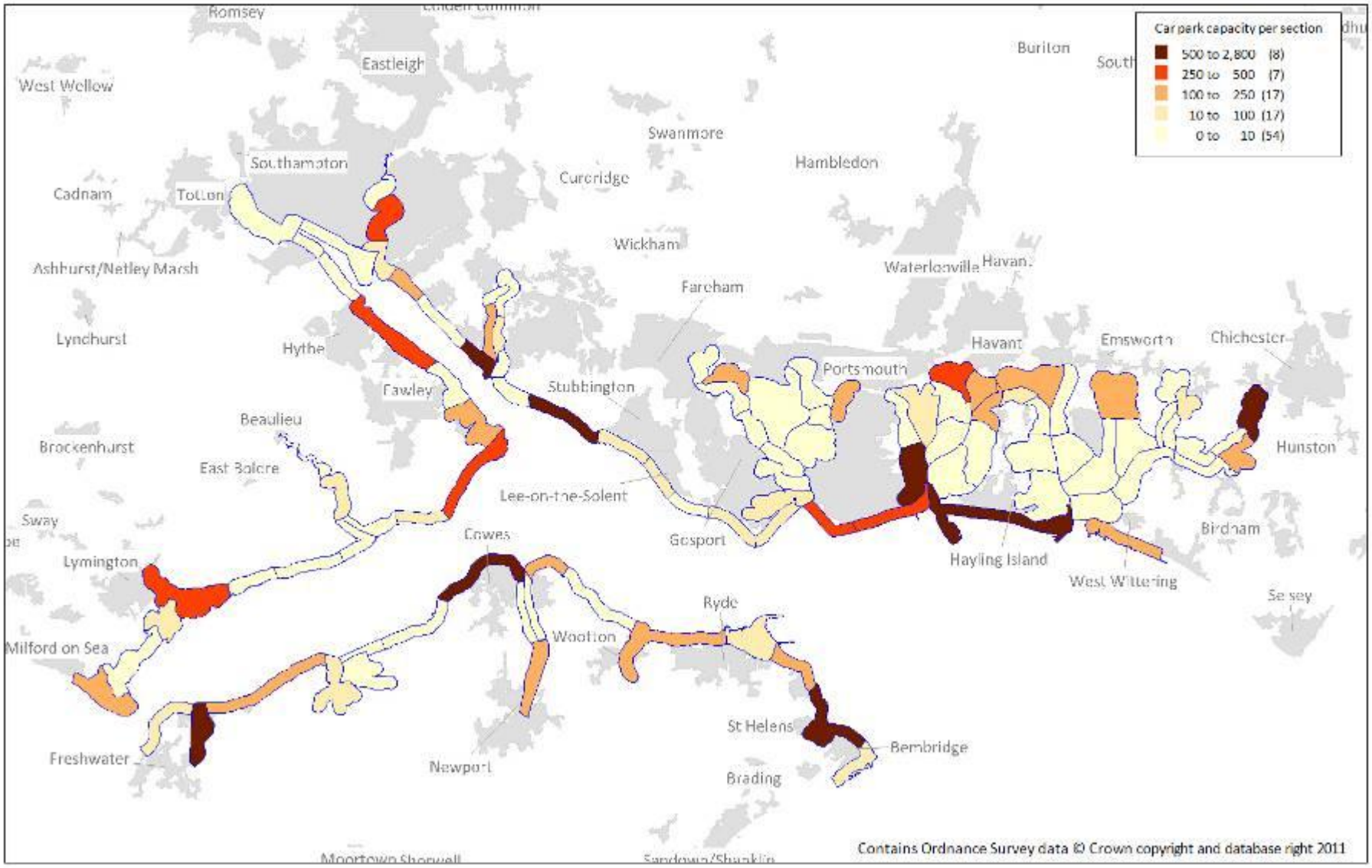
Map 2: Annual number of visits made to each coastal section by respondents



Map 3: Physical characteristics of each coastal section



Map 4: Estimated number of formal car parking spaces per section



Activities per section

3.58 A total of 575,661 annual activity visits were made to the coast during the 153,433 visits made by respondents, where each activity recorded to each section is counted as a separate activity visit. Thus, on average, each visit is listed as involving 3.75 activities. For example if a respondent lists walking, dog walking, enjoying the scenery and photography at a coastal section, then each of these activities would be associated at the section with the annual visit frequency indicated by the respondent. Activities which could not occur simultaneously and were listed during the same visit were edited see paragraph 2.27).

Where visitors go

3.59 The questionnaire requested that respondents advise exactly where they went within each coastal section to identify which activities and the number of households whose routes takes them onto or through the intertidal areas. Just under half of all responses (48% and 3137 responses) indicated that their route takes them along the sea wall/river bank and 39% (2515) of responses stated that they go onto the beach or mudflats while in 13% of visits households ventured onto the water (Table 27). Maps 18, 19 and 20 in the data table and map annex consider where visitor routes go per coastal section.

Table 27: Summary of responses as to where respondents go at coastal locations listed in section B.

Where respondents went within listed coastal section	Number of responses	Percentage of responses per category
Beach/mudflat	2515	39
Sea wall/river bank	3137	48
On the water	829	13
Total	**6481**	**100**

Distances travelled to visit the coast

3.60 The mode of transport used to reach a coastal section was divided into three categories; car; foot and other (see methods) and we considered how far the home postcode of each household was from the coastal section visited.

3.61 Overall the distances between the home postcodes of households and the visited coastal section for those visits made by foot were relatively small and half of the households with foot visitors lived within 1.0km of the coastal section they visited. A total of 78% of foot visiting households lived within 1.5km and 90% within 4km of the visited coastal section (Figure 7).

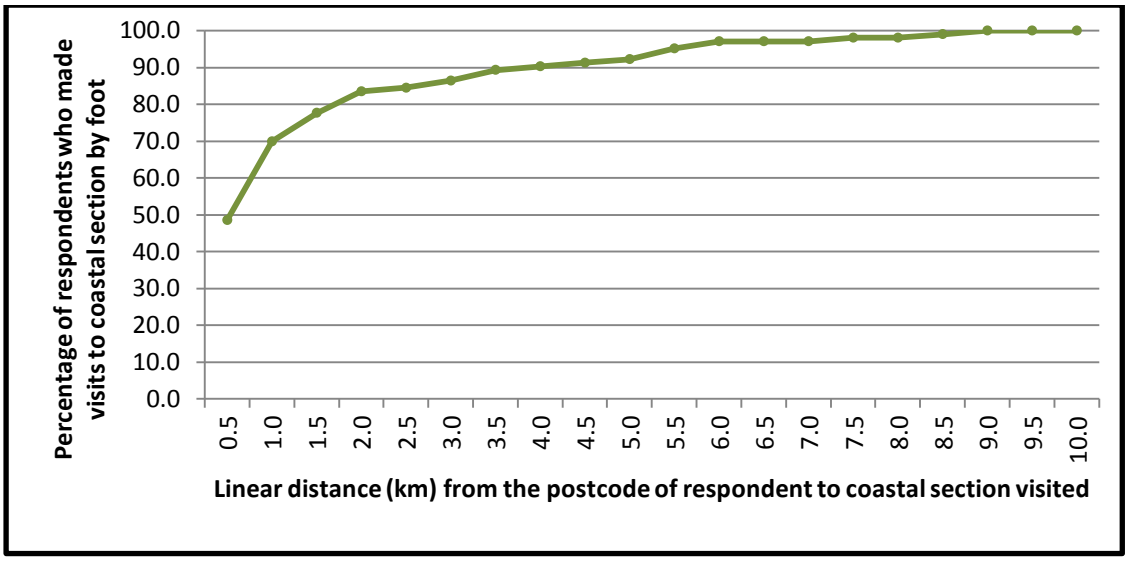


Figure 7: Cumulative frequency distribution of the distance (linear) (km) between a households' home postcode and the coastal section visited by the household. These distances can be used to illustrate how far visitors by foot walk to their visit location.

3.62 Of the households which visited a coastal section by car, 90% lived within 29.0km of their visited coastal section, 75% lived within 18.0km and 50% lived within 9.5km of their visited coastal section (Figure 8). By car these distances relate to the minimum distance by road from the visited coastal section to the households postcode.

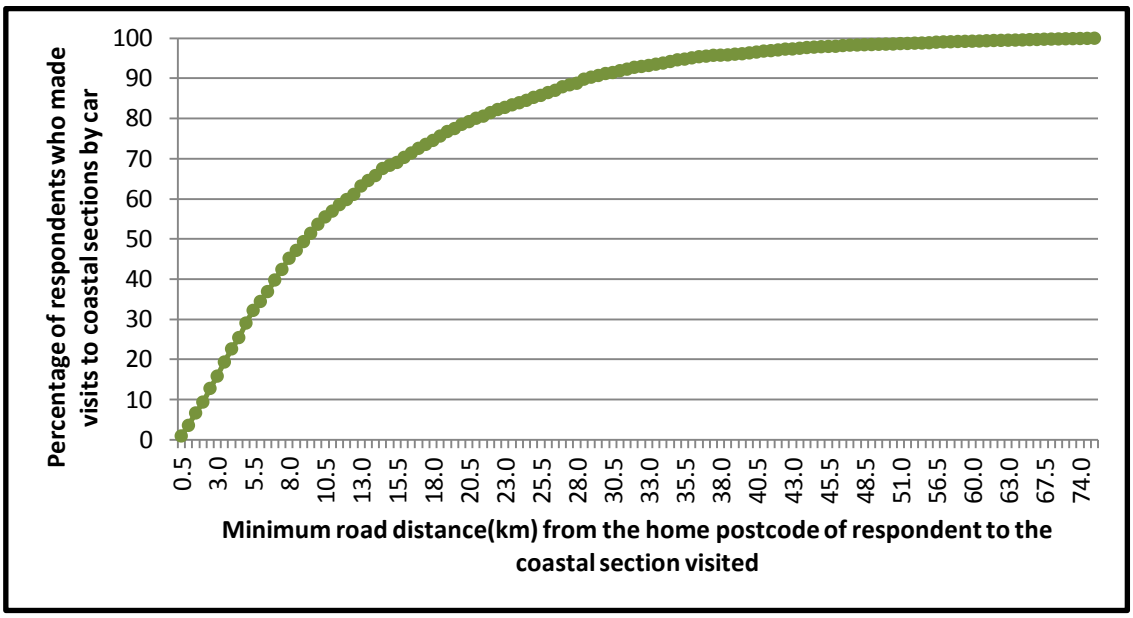


Figure 8: Cumulative frequency distribution of distance by road from a households home postcode to the coastal section visited for visits made by car. The curve shows the percentage of visitors travelling a distance or less.

3.63 Of the households who visited coastal sections by 'other' means of transport which include bicycle, public transport and unspecified 50% lived within 9.0km of road distance of the coastal section they visited, 75% within 19.0km and 90% within 29.0km (Figure 9).

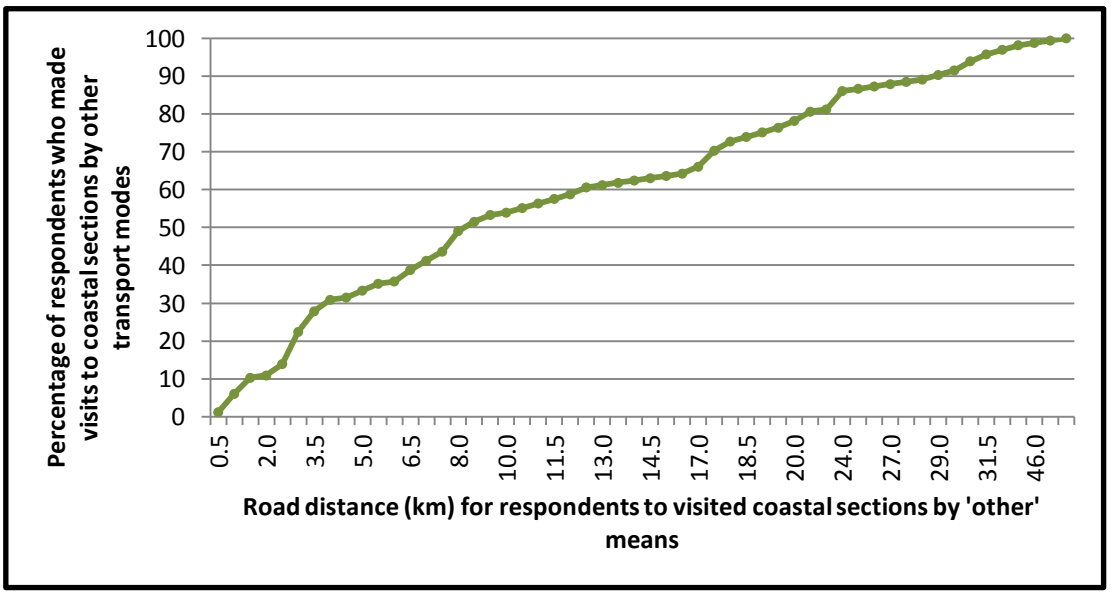


Figure 9: Cumulative frequency distribution of distance by road from a households home postcode to the coastal section visited for visits made 'by other' means. The curve shows the percentage of visitors travelling a distance or less.

Comparison of on-site visitor and household survey results

3.64 There was a highly significant positive correlation between the estimated annual number of visits to each coastal section from the household survey and the number of visitors recorded at each coastal section from the on-site visitor work (Spearman's rank correlation co-efficient r_s=0.645, p<0.01, n=20). The correlation was only conducted at coastal sections where the on-site visitor work was conducted. This significant relationship shows that our survey methods are consistent and that at sections which received high number of annual visits (from the household survey) a high number of visitors were observed entering the section from surveyed access point (from the visitor survey work) (Figure 10).

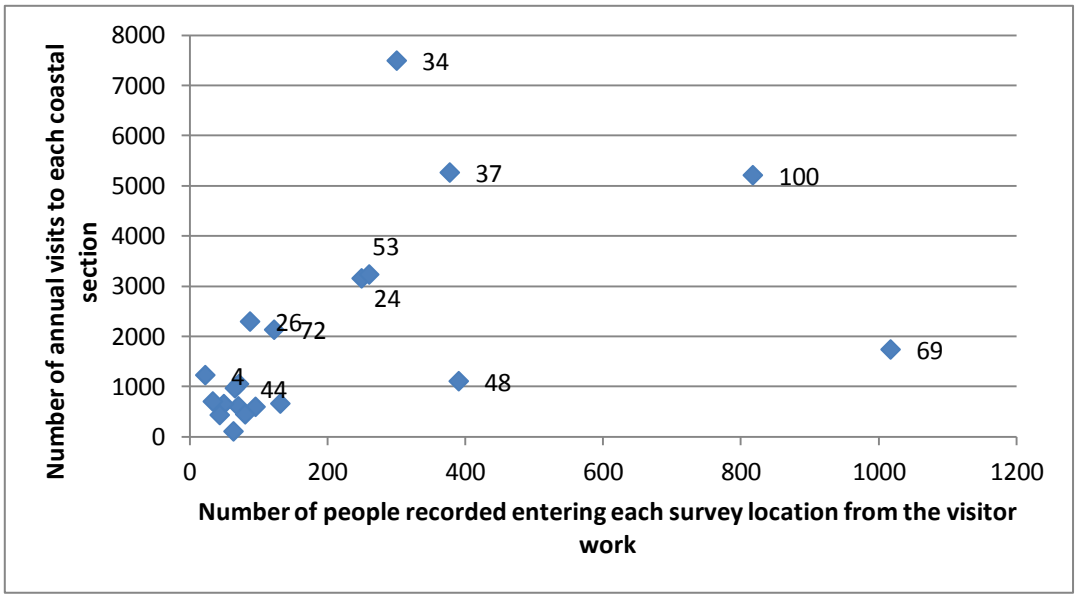


Figure 10: The number of annual visits made to each coastal section (from the household survey results) where on-site visitor survey work was conducted against the number of visitors observed entering the same coastal sections from the on-site visitor survey work. Coastal section numbers are provided for some points

Householder information of respondents (Section C)

Number of occupants per household

3.65 Those households which completed the questionnaire contained between 1 and a maximum of 9 occupants. The mean number of people present in each household was 2.18 (+/- 0.03) and twenty responses were left blank. Just under half of households (45%) who returned the questionnaire were made up of two people (Table 28).

Table 28: Responses to question C1, the number of people resident in each household as count and percentage of the number of completed questionnaires

Number of people in household	Number of responses	As percentage of households who completed questionnaire
1	397	29
2	607	45
3	167	12
4	126	9
5	45	3
6	17	1
7	2	0
9	1	0
Total	**1362**	**100**

Number of children per household

3.66 The number of children (under 16 years old) per household ranged from 0 – 4 and the mean number of children was 0.28 (+/- 0.02). The majority of households, just over 4 in 5 (83%) had no children living at the postal address (Table 29). This question was left blank by 56 households.

Table 29: Responses to question C2, the number of under 16's in each household as a count and percentage of the number of completed questionnaires.

Number of under 16's in household	Number of responses	As percentage of households who completed questionnaire
0	1103	83
1	112	8
2	82	6
3	22	2
4	7	1
Total responses	**1326**	**100**

Number of dogs per household

3.67 The number of dogs per household ranged from 0 – 6 and the majority of households (81%) did not own a dog. The mean number of dogs per household was 0.24 (+/- 0.02). There were 37 blank responses.

Table 30: Responses to question C3, the number of dogs in each household as a count and percentage of the number of completed questionnaires.

Number of dogs per household	Number of responses	As percentage of households who completed questionnaire
0	1091	81
1	203	15
2	37	3
3	11	1
4	2	0
6	1	0
Total	**1345**	**100**

Employment status of household occupants

3.68 Respondents were asked to categorise the employment status of each member of their household. Between 1302 and 1310 valid responses were provided per category and the remaining values relate to those who did not complete the question correctly or consistently and the survey responses from these households were not included in this analysis.

3.69 Just under half (49%) of all respondents lived in a household where at least one person was permanently retired and 47% of all households answered that their household contained at least one person in full time employment (Table 31). One quarter of all households contained at least one person who was in part-time employment and just over a fifth of all households (21%) contained children of a school or pre-school age.

Table 31: Responses to question C4. Categorisation of household occupants by employment status. Percentages were calculated using the valid number of responses given in the table.

	Number of households with 1 or more individuals noted per category	% of households with at least one individual noted per category	Total number of people per category	Total number of valid responses per category
Permanently retired from paid work	643	49	895	1310
Employed full time (30+ plus per week)	616	47	987	1308
Employed part-time (less than 30 hours per week)	308	24	349	1308
Looking after the home of family	275	21	333	1308
At school	164	13	271	1308
In full-time further/higher education	109	8	169	1308
Other	107	8	122	1302
Unemployed and seeking work	58	4	62	1308

Dwelling type and size

3.70 A total of 81% of the respondents lived in a house in comparison to 18% of the respondent who lived in flats (Table 32). The majority of respondents (26%) lived in a semi-detached house.

Table 32: Responses to question C5, categorisation of dwelling type by count and percentage of the total responses.

Type of dwelling	Number of responses	Percentage of households categorised by dwelling type
Semi-detached house	353	26
Detached house	302	22
Terraced house	275	20
Bungalow	183	13
Flat (non ground floor)	154	11
Flat (ground floor)	93	7
Total	**1360**	**100**

3.71 The majority of respondents (41%) lived in three bed roomed properties and 63% lived in properties with three or more bedrooms (Table 33). Just over a quarter (26%) of all households contained 2 bedrooms and only 11% of respondents live in one bedroom dwellings.

Table 33: Responses to question C6, how many bedrooms does your home have by count and percentage of the total responses.

Number of Bedrooms	Number of responses	Percentage of households
1	151	11
2	351	26
3	554	41
4	262	19
5 or more	45	3
All	1363	100

3.72 A high percentage of respondents who lived in flats had up to two bedrooms (92% and 95% respectively). Over half of the respondents who lived in flats had just one bedroom (53% and 52% respectively) (Table 34).

3.73 Of those respondents who lived in semi-detached houses 65% of these had three bedrooms and of the respondents who lived in detached houses 50% of these properties had four bedrooms. Of those respondents who lived in terraced houses 51% contained three bedrooms (Table 34).

Table 34: Combined analysis of the responses to question C5 and C6 which consider the type of dwelling and number of bedrooms per household shown as the number of responses and the percentage of bedrooms per dwelling. The percentages should be read by row.

	1	2	3	4	5 or more	Total
Bungalow	13 (7)	95 (52)	63 (34)	12 (7)	0 (0)	183
Detached House	0 (0)	10 (3)	107 (36)	150 (50)	32 (11)	299
Flat (ground floor)	48 (53)	35 (39)	7 (8)	1 (1)	0 (0)	91
Flat (non ground floor)	80 (52)	66 (43)	7 (5)	1 (1)	0 (0)	154
Semi-detached house	3 (1)	55 (16)	225 (65)	59 (17)	7 (2)	349
Terraced house	3 (1)	87 (32)	141 (51)	38 (14)	6 (2)	275
All	**147 (11)**	**348 (26)**	**550 (41)**	**261 (19)**	**45 (3)**	**1351**

Households with and without garden access

3.74 Just over 9 out of 10 respondents (91%) stated their household had access to or had a garden (Table 35).

Table 35: Responses to question C7 does your home have or have access to a garden as counts and percentage of total responses.

Whether household had a garden or access to a garden	Number of responses	Percentage of total number of responses
No	118	9
Yes	1254	91
Total	**1372**	**100**

3.75 Bungalows, detached, semi detached and terraced houses were, not surprisingly, the house types where virtually all respondents had or had access to gardens. Just over three-quarters (77%) of those living in ground floor flats and under half (44%) of those living in non-ground floor flats had or had access to a garden (Table 36).

Table 36: Combined analysis of the responses to question C5 and C7 which consider the type of dwelling and whether the household had or had access to a garden as counts and (%). The percentages should be read by row.

Dwelling categorisation and whether household had or had access to a garden	No	Yes	Number of responses
Bungalow	0 (0)	183 (100)	183
Detached House	1 (0)	301 (100)	302
Flat (ground floor)	21 (23)	72 (77)	93
Flat (non ground floor)	85 (56)	68 (44)	153
Semi-detached house	2 (1)	351 (99)	353
Terraced House	5 (2)	270 (98)	275
All	**114**	**1245 (92)**	**1359**

3.76 The majority (85% or 1156 households) had access to transportation and 19 of the questionnaires did not complete this question.

Table 37: Responses to question C8 do you have regular access to a car/motorbike/van for transport as counts and percentage of total responses.

Whether household has access to transport	Number of responses	Percentage of total number of responses
Yes	1156	85
No	207	15
Total	**1363**	**100**

4 Development of Predictive Models of Visitor Rates and Numbers

4.1 Separate models were developed for the rate of visiting sections on foot from home (termed foot visits) and the rate of visiting by car (termed car visits). Distance from household postcode to a visited section was measured for foot visits as the shortest straight-line distance and for car visits the road travel distance was used. Visits by other forms of public and private transport were factored in afterwards, all as detailed below. Initial analyses suggested that it was best to combine the data in some of the 500m distance bands into larger bands, in order to obtain more reliable and smoother estimates of the pattern of decline in visitor rates with increasing distance (between the home postcode and coast). The final predicted visitor numbers were based on foot visit rates in distance bands up to 10km from each section and on car visit rates in distance bands up to 30km from each section (details below).

Foot visitor rates (per household per year)

Foot visitor rates with distance

4.2 The overall average number of times a household visits any particular section of the Solent coast on foot declines with the straight-line distance from the household (postcode centre) to the section (Table 38). The best estimate of the overall foot rate (V/H) is obtained as a weighted-average across sections by calculating the sum (V) across all sections of the number of visits on foot by all households within the distance band of the section and dividing by the sum (H) across all sections of the number of responding households within the distance band of the section.

4.3 The overall annual rate of visiting a coastal section on foot declines with the distance of the household (postcode centre) to the section, declining from an estimated 50 visits per household per year for those living within 500m of a section, to 26.7 for those 500-1000m away and steadily declining further such that households 3.5 - 4km away from a particular coastal section typically make about one (0.942) visit on foot to the section per year (Table 38 & Figure 11). Fewer than one visit per year is made on foot per 10 households living 8km or further from a section and households beyond 8km from a coastal section can be assumed to never walk there for a visit.

Table 38: Estimates of weighted overall, mean and maximum annual foot visitor rates per household to a coastal section in relation to shortest straight-line distance from household (postcode centre) to section; overall rates are averages across all sections weighted by number of responding households in that distance band from the section

Distance band upper limit (m)	Sections with responding households	Number of Foot Visits per year (V)	Households responding (H)	Overall Foot visit rate (V/H)	Mean foot rate per section	Maximum foot rate for a section
500	66	16771	335	50.062	58.310	300.00
1000	82	15714	589	26.679	33.150	300.00

Distance band upper limit (m)	Sections with responding households	Number of Foot Visits per year (V)	Households responding (H)	Overall Foot visit rate (V/H)	Mean foot rate per section	Maximum foot rate for a section
1500	84	7434	778	9.555	14.450	150.00
2000	85	4781	1007	4.748	10.530	300.00
2500	92	3946	1293	3.052	4.560	66.67
3000	92	2162	1437	1.505	2.342	37.50
3500	94	2086	1640	1.272	1.591	42.86
4000	95	1724	1831	0.942	0.988	25.00
4500	97	509	1832	0.278	0.223	8.33
5000	98	493	1863	0.264	0.433	12.50
6000	103	505	4070	0.124	0.135	5.00
7000	103	1252	3997	0.313	0.657	42.86
8000	103	342	4263	0.080	0.153	4.50
9000	103	196	4371	0.045	0.069	3.82
10000	102	94	4385	0.021	0.020	1.10
15000	103	399	22556	0.018	0.025	0.52
20000	103	241	24517	0.010	0.013	0.74
25000	103	430	21838	0.020	0.016	1.21

4.4 The visiting rate per household will naturally vary to some extent between sections according to their features and relative attractiveness and this is investigated below. To assess variability, we calculated the foot visitor rate per household in each distance band for each individual section. The simple mean and rate across all sections and the maximum rate for any one section are given in Table 38.

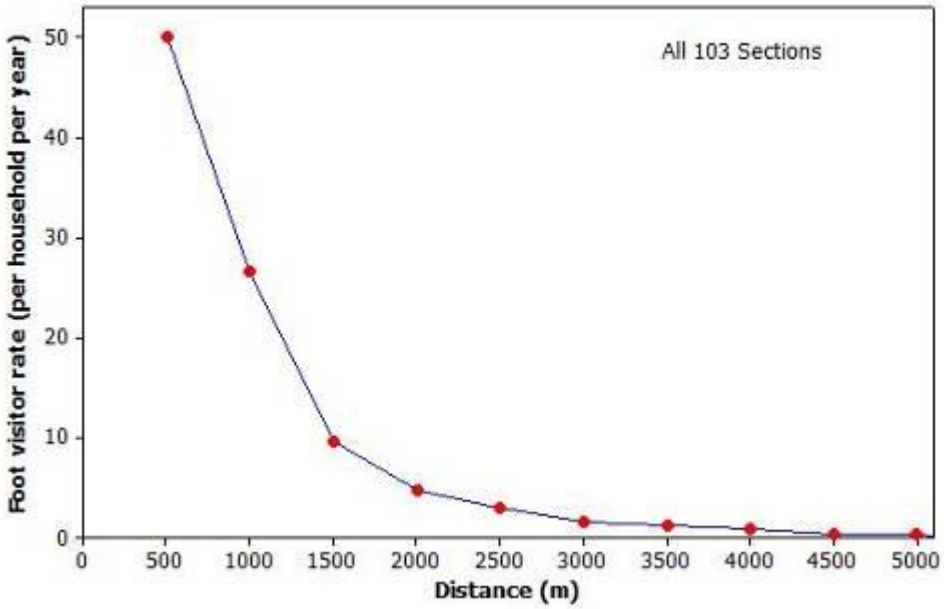


Figure 11: Weighted-average overall foot visitor rates in relation to distance from section.

4.5 For households within 500m of a section the simple average (58.3) is similar to the weighted overall average (50.1), but at most distances the simple average is slightly higher, which must be because the sections with relatively more responding households within that distance band (and those receiving greater weight in the weighted-average) tend to have slightly lower visiting rates on foot per household.

4.6 The maximum of the estimated foot visitor rates per section is 300 per year within the shorter distance bands; this is the maximum possible value and was often the result of having only one responding household within that short distance band of a particular section who said they visited the section "almost every day" (equated to 300 visits per year) (see methods section and Table 2). This highlights the problem of deriving reliable estimates of visitor rates by distance estimates for each individual section from just the household survey data for that section; namely that with so many detailed sections there are often none, one or only a few responding households in the shortest distance bands from many sections. To overcome this, we can either combine distance bands and assume the same rate applies across the whole super band, or combine sections which have broadly similar characteristics and calculate and use their (weighted) average visitor rates. In fact, we did a mixture of both approaches in our modelling to try to obtain the best possible estimates of visitor rates per distance band for each section or type of section (see below).

Comparison with the on-site visitor survey foot visitor rates

4.7 Table 12 in Fearnley *et al* (2010) on the previous on-site survey of access points at 20 of the 103 sections gave estimates of the on-site foot visit rate per resident per 16 daylight hours (denoted OFR16) from which, assuming an annual average of 12 hours light per day and the same foot visit rate all year, and using an UK average

estimate of 2.36 people per household, we can estimate the annual foot visit rate per household (OFRA) by:

OFRA = OFR16 * (12 / 16) * 2.36 * 365

4.8 For very local residents within 500m the on-site survey and household survey give similar rates (45.2 and 50.1 visits per household per year). However, at greater distances the on-site survey gives lower rates. The lower estimated on-site survey rates from all households (except those next to the coast) may be partly due to limited on-site sampling, but is more likely due to the unusually cold winter weather during the on-site visitor surveys in the period December 2009 – February 2010.

Table 39: Comparison of overall annual foot visitor rates per household to a coastal section in relation to distance from section for the household survey (travel distance) and on-site survey (straight-line distance); overall rates are averages across all sections weighted by number of households in that distance band from the section

	Household survey			On-site survey	
		Foot visit rate per section		Overall foot visit rate	
Distance band upper limit (m)	Overall Foot visit rate (V/H)	Mean	Maximum	per Resident per 16 hr (OFR16)	per household per year (OFRA)
500	50.062	58.310	300.00	0.06997	45.20
1000	26.679	33.150	300.00	0.012329	7.97
1500	9.555	14.450	150.00	0.005472	3.54
2000	4.748	10.530	300.00	0.001633	1.05
2500	3.052	4.560	66.67	0.000319	0.21
3000	1.505	2.342	37.50	0.00045	0.29
3500	1.272	1.591	42.86		
4000	0.942	0.988	25.00		
4500	0.278	0.223	8.33		
5000	0.264	0.433	12.50		
6000	0.124	0.135	5.00		
7000	0.313	0.657	42.86		
8000	0.080	0.153	4.50		
9000	0.045	0.069	3.82		
10000	0.021	0.020	1.10		
15000	0.018	0.025	0.52		
20000	0.010	0.013	0.74		
25000	0.020	0.016	1.21		

Foot visitor rate by distance in relation to section features

4.9 Foot visitor rates (per household per year) were calculated for each section based on all responding households within 1km of the section and overall (i.e. up to 25km). Statistical significance tests (non-parametric Mann-Whitney tests of ranked rates) were used to assess whether the median across sections of the foot visitor rates varied with the presence (Y) or absence (N) of each of a range of section features. This was done separately for foot visitor rates amongst all responding households within 1km road distance and over all distances within the survey. For this analysis

the quantitative features of the sections (car parking spaces, length along MHWN line (m), section area (Ha.) and percentage of the section covered by mudflats) were divided (high/low) at their median (Med) value to form equal-sized groupings of sections for the Mann-Whitney tests. The results are summarised in Table 40.

Table 40: Statistical tests for differences in the median of the section foot visitor rates (per household per year) in relation to either the presence (Y) or absence (N) of particular section features or whether the section had above or below the median value of each of a range of quantitative section features

Section feature	Proportion (Number) of sections with feature			Median Foot visit rate within <1km		Median Foot visit rate overall		Mann-Whitney test p	
				N / Low	Y / High	N / Low	Y / High	<1km	Overall
SPA	0.913 (94)			47.5	18.8	1.01	0.34	0.026	0.025
Wooded	0.553 (57)			12.5	25.2	0.39	0.29	0.200	0.503
Marina	0.194 (20)			16.7	22.3	0.34	0.53	0.478	0.458
Urban	0.252 (26)			15.1	41.5	0.24	0.72	0.150	0.003
Open Coast	0.437 (45)			5.6	47.4	0.27	0.53	0.008	0.012
Monitored Bathing	0.136 (14)			13.0	67.3	0.27	1.27	0.005	0.001
Slip-way	0.563 (58)			3.6	42.1	0.11	0.65	0.002	0.001
IoW	0.175 (18)			21.7	10.7	0.36	0.17	0.429	0.848
Quantitative feature	**Mean**	**Med**	**Max**						
Res Props Inside	368	91	3656	5.0	27.0	0.16	0.66	0.122	0.001
Res Props <500m	2121	1059	11864	3.6	29.4	0.11	0.59	0.102	0.001
Car Parking spaces	142	0	2800	10.4	24.6	0.20	0.59	0.223	0.001
Length MHWM (m)	2304	1614	20082	22.8	15.1	0.45	0.24	0.986	0.183
Area of Section (ha)	78	51	307	18.8	22.3	0.45	0.27	0.572	0.039
% Area Mudflat	2034	165	629	17.7	20.7	0.29	0.38	0.643	0.143

4.10 Those 45 sections classified as being on the 'Open coast' tended to have higher foot visitor rates (per household per year) than the other 58 sections, both from neighbouring households within 1km and overall from households within 25km. For households within 1km of a section the median foot visitor rate is 47.4 visits per household per year on open coast sections compared to only 5.6 on the other sections. The overall weighted-average annual foot visit rate per household is higher for open coast sections than other sections at all local distances (Figure 12).

4.11 Although the 9 Sections not part of an SPA tended to have higher foot visitor rates (median 47.5 visits from within 1km versus 18.8 on SPA sections), 8 of these 9 sections were open coast sections, so this may be due to being on the open coast rather than not being an SPA.

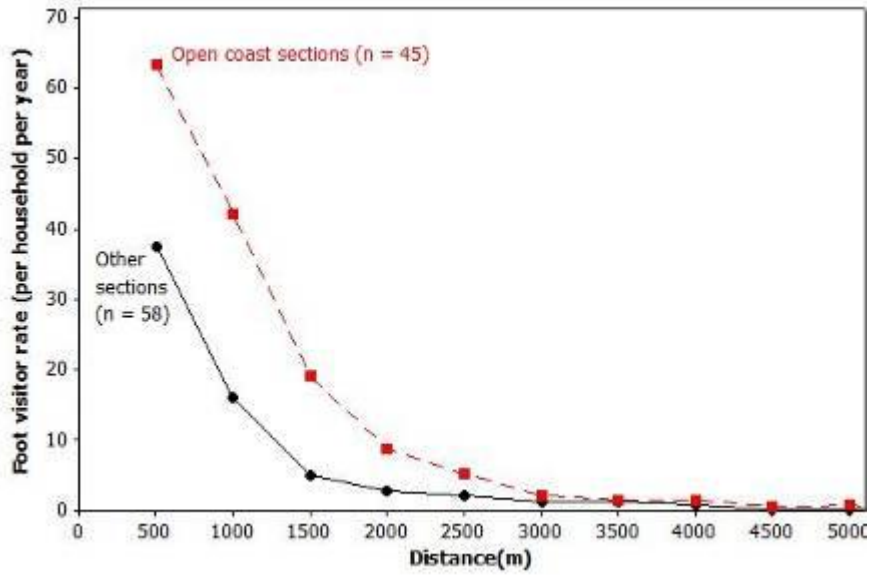


Figure 12: Overall weighted-average foot visitor rate (per household per year) in relation to shortest straight line distance from the postcode of households to a visited section for sections grouped by whether or not they are on the open coast

4.12 Similarly, the 14 sections where there is registered 'Monitored bathing' tended to have higher foot visitor rates both from local households (within 1km) and overall (within 25km), but 13 of these 14 sections were also classed as 'open coast' sections.

4.13 There was no overall statistically significant difference in foot visitor rate between the 18 Isle of Wight (IoW) sections and the 85 mainland sections for either local households within 1km or overall within 25km .

4.14 Those sections which were classified as urban because they fell within urban areas and those sections with higher numbers of residential properties within 500m of each section (denoted ResProps500) naturally tended to have higher overall visitor rates when averaged over all households within 25km, because foot visitors are mostly very local. However, once the local density of housing was allowed for by calculating foot visitor rates per household within 1km of the section, then this effect disappears. This shows the importance of calculating visitor rates per household in relation to bands of distance from the section. This is especially important when predicting the effect of new housing developments at specified distances from each section.

4.15 Foot rate by distance varies with type of section, in particular whether the section is classified as 'Open coast' and whether it has one or more Slipways (Figure 13). Open coast sections tend to have higher foot visitor rates per household at all distances. Amongst the 58 sections not on the open coast, the 28 sections with a Slipway tend to have higher foot visitor rates at all distances up to 1500m. Amongst the 45 sections classified as 'Open coast', the 15 with a Slipway have higher average foot visitor rates for households within 1500m of the section. The presence of a slipway in a section may be related to higher general levels of attractiveness (including from unmeasured features) and thus visits to such sections.

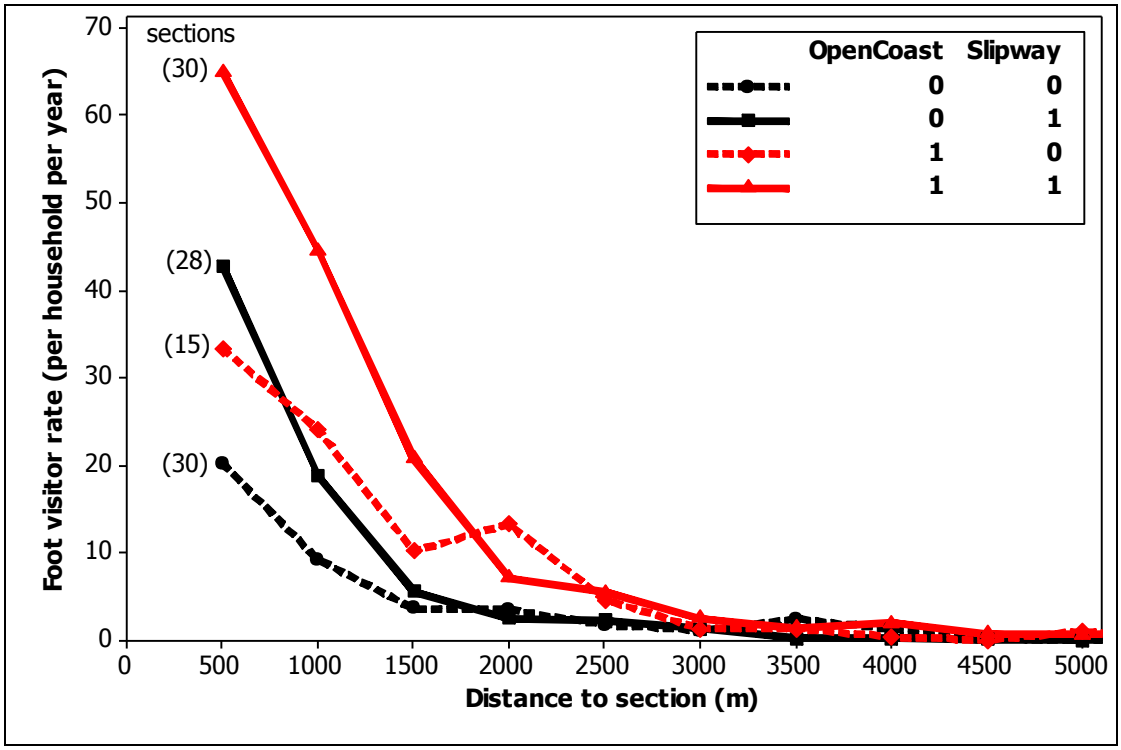


Figure 13: Foot visitor rate (per household per year) in relation to shortest straight line distance from the postcode of households to the section visited. The coastal sections have been grouped by whether (1) or not (0) they are on the open coast and/or have a slipway.

Table 41: Foot visitor rate (per household per year) in relation to shortest straight line distance from household postcode to section and whether or not the section is open coast and/or has a Slipway

Distance band maximum (m)	Non Open Coast		Open Coast	
	No Slipway	Slipway	No Slipway	Slipway
500	20.220	42.844	33.333	64.981
1000	9.210	18.836	24.071	44.596
1500	3.578	5.596	10.146	20.791
2000	3.451	2.456	13.222	7.079
3000	1.390	1.721	2.706	3.849
4000	1.808	0.201	0.781	1.690
5000	0.104	0.054	0.538	0.687
7000	0.026	0.095	0.023	0.586
10000	0.018	0.046	0.074	0.067
15000	0.018	0.012	0.048	0.007
25000	0.005	0.026	0.008	0.018

4.16 In summary, a range of section characteristics appear to influence, or at least be correlated with, the rate of visiting a section on foot. it is difficult to disentangle the influence of some individual features. One such possible model for foot visitor rate (per household per year) based on grouping sections by these features could be to use one of four curves relating foot visit rate to shortest straight-line distance from

household postcode to section, based on whether the sections are classified as 'Open coast' or not and whether or not they have a 'slipway'. The weighted average observed foot visit rates per distance band for each of these four section groupings are given in Table 41. (Group average rates are based on weighting section-specific rates by the number of responding households in that distance band of each section). These rate curves could be used to predict the total annual number of visitors arriving on foot to each of the sections.

Foot visit rate predictive generalised linear(GLM) model based on distance band and section

4.17 A range of alternative generalised linear models (GLM) were fitted to the observed foot visitor numbers (V_{SD}) to each section (S) from each distance band (D), in relation to the number of responding households (H_{SD}) at that distance from the section and variously allowing for distance band or a smoothed function of distance and either allowing for sections characteristics or the individual sections differences in overall rates.

4.18 The best selected overall GLM model involved a rate of decline in foot visit rate with distance band modified by a separate multiplicative factor for each section. This model thus incorporates both the influence of measured section characteristics and other factors influencing the relative 'attractiveness' of individual sections. The fitted model was:

$$\text{Log } V_{SD} = \text{Log } (H_{SD} + A_D + B_S)$$

where V_{SD} = observed foot visits to section S from distance band D

H_{SD} = number of responding households in distance band D from section S

A_D = coefficient representing the general rate of visiting from distance band D

B_S = coefficient representing the relative (within-band) rate of visiting section S.

The predicted foot visitor rate (R_{SD}) (per household per year) from distance band D to section S then:

$R_{SD} = \exp(A_D + B_S)$, where exp mean the exponential mathematical function.

4.19 The best fit estimated GLM model coefficients (A_D) for the distance bands are given in Table 42 and those for the section-specific coefficients (B_S) in Table 2 of the Final data tables and map annex. The fitted GLM model coefficients (B_S) for the sections vary from large negative values (-15.5 to -19.2) for the sections with no recorded foot visits from the responding surveyed households, to a median value of -1.996, to a maximum of 0.642 for section 5 which has relatively high foot visit rates from the nearest households at intermediate distances. The declines in mean and median (across all sections) of the predicted foot visitor rates in relation to distance based on this model are shown in Figure 14.

Table 42: Distance band coefficients (A_D) and their standard errors ($SE(A_D)$) for foot visitor rate GLM model

	Distance band (max m.)								
	500	**1000**	**1500**	**2000**	**3000**	**4000**	**5000**	**7000**	**10000**
A_D	5.475	5.029	4.063	3.407	2.577	1.808	0.376	0.070	-1.524
$SE(A_D)$	0.406	0.396	0.425	0.437	0.430	0.450	0.584	0.516	0.680

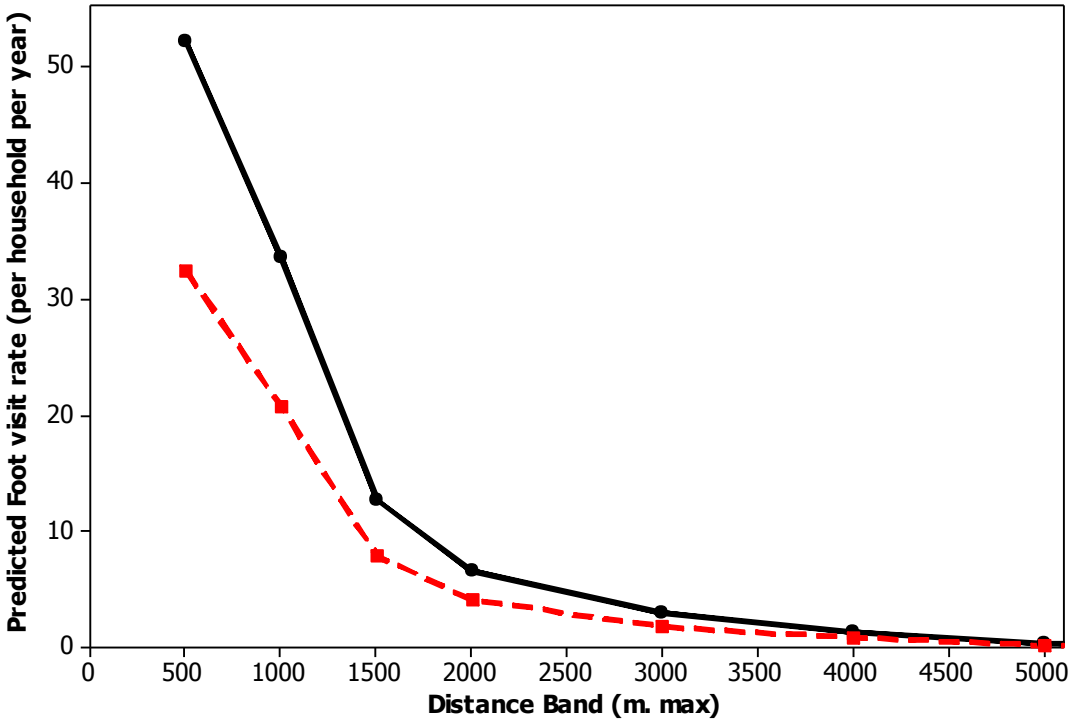


Figure 14: Pattern of decline in mean (black solid) and median (red dashed) across all sections of the GLM predicted foot visitor rates (per household per year) with distance band

4.20 This GLM model which allows for individual section differences in overall foot visitor rate also accounts for much of the observed differences in foot visitor rate attributable to whether the sections are on the on coast or not (Figure 15 – compare with Figure 12). The mean predicted rate for the 45 open coast sections is twice (1.97 times) that of the median for other 58 sections .

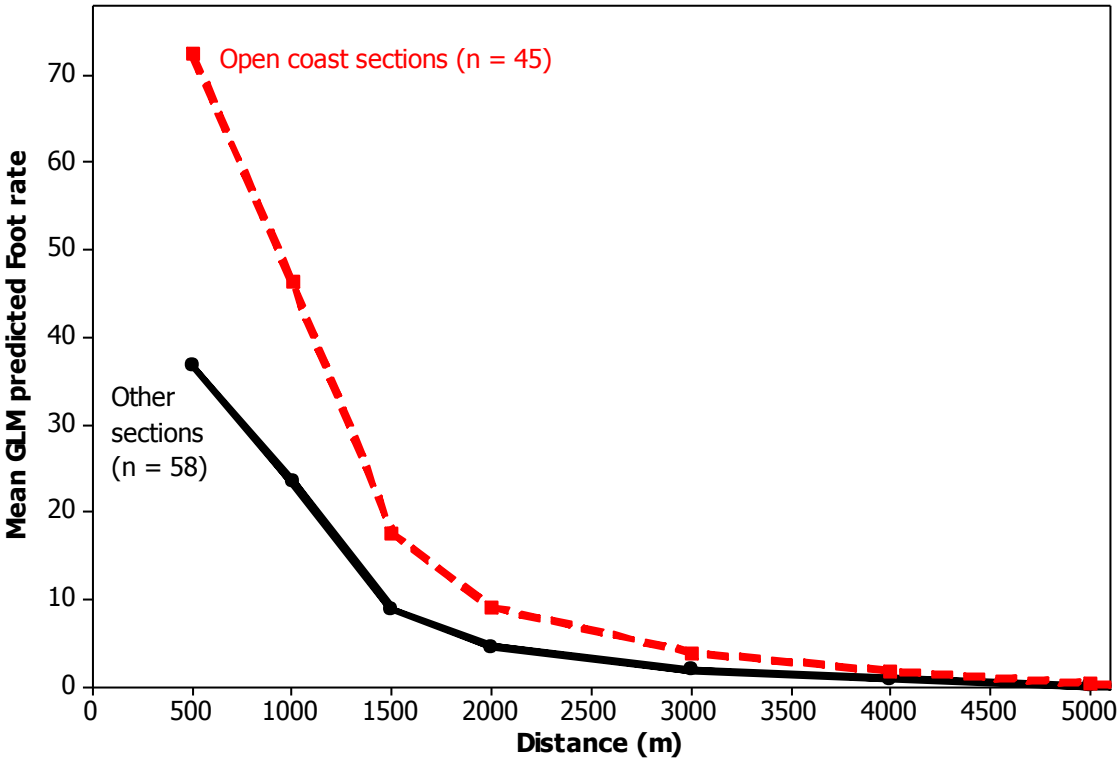


Figure 15: Mean of the section GLM predictions of the foot visitor rate (per household per year) with distance for the sections grouped by whether or not they are classified as 'open coast'

4.21 This GLM model can be used to predict total annual foot visits to each section by all current households in the region and also to predict the increase in foot visitors due to the planned spatial distribution of new housing in the Solent region.

Car visitor rates (per household per year)

Car visit rates with distance

4.22 The overall average number of times a household visits any particular section of the Solent coast by car declines with the travel distance by road (referred to as road distance) from the household (postcode centre) to the section (Table 43, Figure 16).

4.23 The best estimate of the overall car visit rate (V/H) within a distance band is obtained by calculating the sum (V) across all sections of the number of visits by car by all households within that road distance band of the section and dividing by the sum (H) across all sections of the number of responding households within that road distance band of the section).

Table 43: Estimates of weighted overall, mean and maximum annual car visitor rates per household to a coastal section in relation to shortest road travel distance from the household to the section; overall rates are averages across all sections weighted by number of responding households in that distance band from the section

Road distance band upper limit (m)	Sections with responding households	Number of Car Visits per year (V)	Households responding (H)	Overall car visit rate (V/H)	Mean car rate per section	Maximum car rate for a section
500	67	2794	202	13.832	19.500	300.0
1000	74	5854	442	13.244	12.450	150.0
2000	87	7953	1271	6.258	10.800	150.0
3000	86	7236	1504	4.811	12.930	300.0
4000	94	6503	1904	3.416	5.360	70.7
5000	96	4954	1958	2.530	4.340	75.0
7000	103	9441	4225	2.235	3.384	24.5
10000	101	9150	6911	1.324	2.147	22.0
15000	103	10028	11760	0.853	1.848	28.7
20000	102	4345	12801	0.339	0.558	7.8
30000	103	4476	25662	0.174	0.364	7.7
40000	92	1066	17474	0.061	0.085	1.5
50000	85	545	12124	0.045	0.035	0.9
75000	85	203	8839	0.023	0.013	0.3

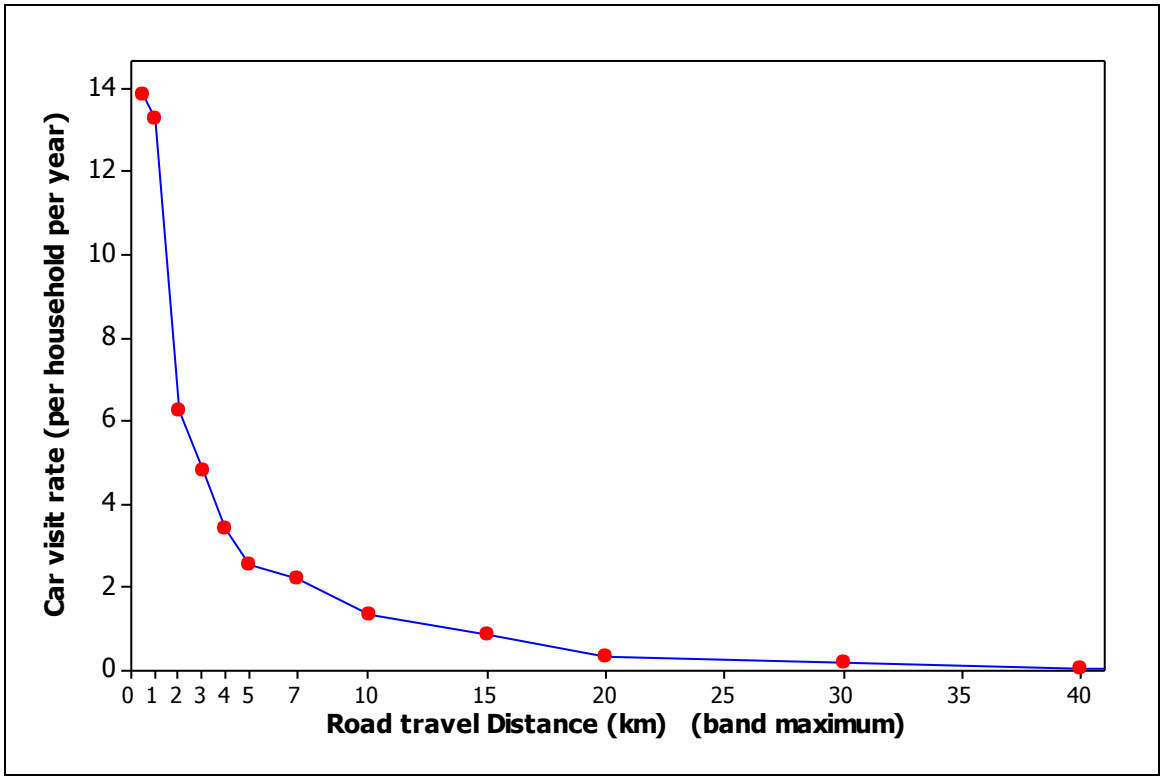


Figure 16: Overall car visit rates (per household per year) in relation to distance band (maxima) from the coast.

4.24 The best estimate of the overall average rate of visiting a coastal section by households living within 500m and 500-1000m road travel distance is about the same at 13.8 and 13.2 visits per household per year respectively and therefore these two closest distance bands for visits by car were combined in subsequent models. (This is an example of the judgements made to optimally combine distance bands for visitor predictions).

4.25 Amongst households living 1000-2000m road distance to a section the rate is halved to 6.258 visits per year. The rate of visiting a section by car amongst households 4-5km road travel distance away is around 20% that of households living within 1km road distance of the section. Households living more than 10km road distance away from a section, on average, make fewer than one visit per household per year to that section by car (and none on foot), with an annual rate of 0.853 and 0.339 for households in the 10-15km and 15-20km bands respectively (Table 43; Figure 16).

Comparison with the on-site visitor survey car visit rates

4.26 Table 12 in Fearnley *et al* (2010) (on-site survey of access points at 20 of the 103 sections) provided independent estimates (denoted OCR16) of the car visit rate per resident per 16 daylight hours. from which, assuming an average 12 hr daylight and the same visitor rate all year, we estimate the annual car visitor rate per household (OCRA) by:

$$OCRA = OCR16 * (12 / 16) * 2.36 * 365$$

The estimates of car visit rates with distance from the on-site survey were based on grouping visitors by the straight-line distance from their home postcode centre to the section access point for the on-site survey. In contrast, the car visit rates for the household survey are more appropriately based on average road travel distances from home postcode centre to points along the section, so the two independent estimates of car visit rates with distance are not completely compatible, but comparison of rates is useful (Table 44).

Table 44: Comparison of overall annual car visitor rates per household to a coastal section in relation to distance from section for the household survey (travel distance) and on-site survey (straight-line distance); overall rates are averages across all sections weighted by number of households in that distance band from the section

Travel Distance band upper limit (m)	Household survey			Straight-line Distance band upper limit (m)	On-site survey	
	Car visit rate per section				Overall car visit rate	
	Overall Car visit rate	Mean	Maximum		per Resident per 16 hr (OCR16)	per household per year (OCRA)
500	13.832	19.500	300.0	500	0.006144	3.969
1000	13.244	12.450	150.0	1000	0.002053	1.326
2000	6.258	10.800	150.0	2000	0.002147	1.387
3000	4.811	12.930	300.0	3000	0.000956	0.617
4000	3.416	5.360	70.7	4000	0.000780	0.504
5000	2.530	4.340	75.0	5000	0.000332	0.215
7000	2.235	3.384	24.5	7000	0.000375	0.242

Travel Distance band upper limit (m)	Household survey			Straight-line Distance band upper limit (m)	On-site survey	
	Car visit rate per section				Overall car visit rate	
	Overall Car visit rate	Mean	Maximum		per Resident per 16 hr (OCR16)	per household per year (OCRA)
10000	1.324	2.147	22.0	10000	0.000158	0.102
15000	0.853	1.848	28.7	15000		
20000	0.339	0.558	7.8	20000		
30000	0.174	0.364	7.7	30000		
40000	0.061	0.085	1.5	40000		
50000	0.045	0.035	0.9	50000		
75000	0.023	0.013	0.3	75000		

4.27 The estimates of the annual visitor rates per household based on extrapolating from the on-site visitor survey conducted in winter 2009/10 (Fearnley *et al.* 2010) are much lower than estimates from the household survey for all households at each distance band from the Solent coastal sections (Table 44). This is not surprising for two reasons. Based on 1194 household survey respondents, an estimated 55% of people visit coastal sites "equally all year", most of the remainder (39% of total respondents) said they visited more in summertime; this would lead to lower overall visitor rates in winter than summer. However, the major cause is potentially the very cold weather experienced during the on-site visitor survey work in December 2009 – February 2010. This would mean that as the on-site survey was conducted during weather with difficult driving conditions, including persistent snow, many of the people who normally visit the coast by car may have been reluctant to travel.

Car visitor rate by road distance in relation to section features

4.28 To assess associations between section features and car visit rates, car visitor rates (per household per year) were calculated for each individual section based on all responding households within 2km and all responding households within 10km road travel distance of the coastal section, as examples to enable comparison of sections in terms of visits from nearby and across a wider zone.

4.29 Statistical significance tests (non-parametric Mann-Whitney tests of ranked rates) were used to assess whether the median across sections of the car visitor rates varied with the presence (Y) or absence (N) of each of a range of section features. This was done separately for car visitor rates amongst all responding households within 2km road distance and within 10km road distance. For this analysis the quantitative features of the sections (car parking spaces, length along MHWN line (m), section area (Ha) and percentage of the section covered by mudflats) were divided (high/low) at their median (Med) value to form equal-sized groupings of sections for the Mann-Whitney tests. The results are summarised in Table 45.

Table 45: Statistical tests for differences in the median of the section car visitor rates (per household per year) in relation to either the presence (Y) or absence (N) of particular section features or whether the section had above or below the median value of each of a range of quantitative section features

Section feature	Proportion (Number) of sections with feature			Median Car visit rate within <2km		Median Car visit rate within <10km		Mann-Whitney test p	
				N / Low	Y / High	N / Low	Y / High	<2km	<10km
SPA	0.913 (94)			5.40	1.96	3.44	1.84	0.567	0.424
Wooded	0.553 (57)			2.27	2.45	1.61	2.28	0.957	0.216
Marina	0.194 (20)			1.63	4.13	1.93	1.83	0.322	0.397
Urban	0.252 (26)			0.83	4.25	2.02	1.52	0.202	0.888
Open Coast	0.437 (45)			0.10	8.42	1.22	5.82	0.001	0.001
Monitored Bathing	0.136 (14)			0.83	14.85	1.51	14.27	0.001	0.001
Slip-way	0.563 (58)			0.00	7.27	1.56	2.61	0.001	0.019
IoW	0.175 (18)			2.07	8.29	1.76	5.31	0.379	0.069
Quantitative feature	**Mean**	**Med**	**Max**						
Res Props Inside	368	91	3656	0.00	7.55	1.54	2.79	0.001	0.040
Res Props <500m	2121	1059	11864	0.74	3.11	1.87	1.93	0.287	0.618
Car Parking spaces	142	0	2800	0.00	7.77	1.18	4.38	0.001	0.001
Length MHWM (m)	2304	1614	20082	4.55	0.14	2.31	1.24	0.046	0.014
Area of Section (ha)	78	51	307	0.10	3.82	1.54	2.28	0.068	0.071
% Area Mudflat	2034	165	629	2.70	2.27	1.98	1.87	0.947	0.734

4.30 There were no statistically significant differences in car visit rates to sections from households within either 2km or 10km according to whether or not the sections were part of an SPA, were wooded, had a marina, were classified as urban, were larger, or were on the Isle of Wight (Table 45).

4.31 As was the case for foot visitation we found that the 45 sections of coast which were classified as open coast had statistically significant (test $p < 0.001$) higher car visitor rates (per household per year) than the other 58 sections, both from nearby households within 2km and from households within 10km road travel distance of the section. Amongst the 45 open coast sections, the median car visits per household per year for households within 2km of the section was 8.42 compared to a median of only 0.10 on the sections classified as not being open coast. Averaged over all households within 10km road distance of a section, rates of visiting by car are also much higher to sections on the open coast (median section rate is 5.82 visits per year per household) than on the other sections (median is 1.22) (Table 45).

4.32 The 14 sections where there is registered 'Monitored bathing' tended to have much higher rates of visiting by car, on average compared to the other sections. For sections with monitored bathing, median car visitor rates are around 14 visits per household per year amongst all households either within 2km or within 10km compared to equivalent median rates of less than two visits per household per year

amongst the sections without 'monitored bathing'. However, 13 of these 14 monitored bathing sections were also classed as 'open coast' sections.

4.33 Therefore, we repeated the tests within just the 45 open coast sections and found that the monitored bathing sections typically had four times the visit rate by car per household than on other open coast sections (Table 46). This is a statistically significant difference (p<0.009).

Table 46: Statistical tests whether the median car visitor rates (per household per year) of the open coast sections is higher for 'monitored bathing' sections for households within 2km and within 10km road distance of the section.

	Median Car visit rate within <2km		Median Car visit rate within <10km		Mann-Whitney test p	
Monitored bathing	N	Y	N	Y	<2km	<10km
Car visitor rate	4.37	17.13	3.87	14.68	0.009	0.001
Sections with estimable rates	29	11	32	13		

4.34 Car visitor rate was on average higher on those 58 sections which were classed as having a slipway (Figure 17), with the median section car visiting rates for household within 2km being 7.27 amongst sections with a slipway but effectively zero amongst the other 45 sections. The median section rates for households up to 10km road distance away are also statistically significantly higher (p=0.019) amongst sections with a slipway (Table 45). Only 30 of the 58 sections with slipways were on the open coast, so being on the open coast is not the explanation for the apparent attractiveness of sections with slipways. The presence of a slipway in a section suggests access, the facility to easily get onto the water (or inter-tidal) with a boat or otherwise, but the association of slipways with higher visit rates may be related to such sections having higher general levels of attractiveness to visitors, including unmeasured features.

4.35 Because 12 of the 13 open coast sections with monitored bathing also had a slip way, we repeated the tests for monitored bathing impacts using just the 30 sections on the open coast with a slipway; median car visiting rate was higher for those sections with monitored bathing, but the difference was only statistically significant when based on all households within 10km, for which median car visitor rate on open coast sections with a slipway was 14.27 if there was monitored bathing, but only 5.31 otherwise (Table 47, Figure 17).

Table 47: Statistical tests whether the median of the car visitor rates (per household per year) of the open coast sections with slipways is higher for 'monitored bathing' sections for households within 2km and within 10km road distance of the section.

	Median Car visit rate within <2km		Median Car visit rate within <10km		Mann-Whitney test p	
Monitored bathing	N	Y	N	Y	<2km	<10km
Car visitor rate	8.92	17.13	5.31	14.27	0.101	0.010
Sections with estimable rates	18	11	18	12		

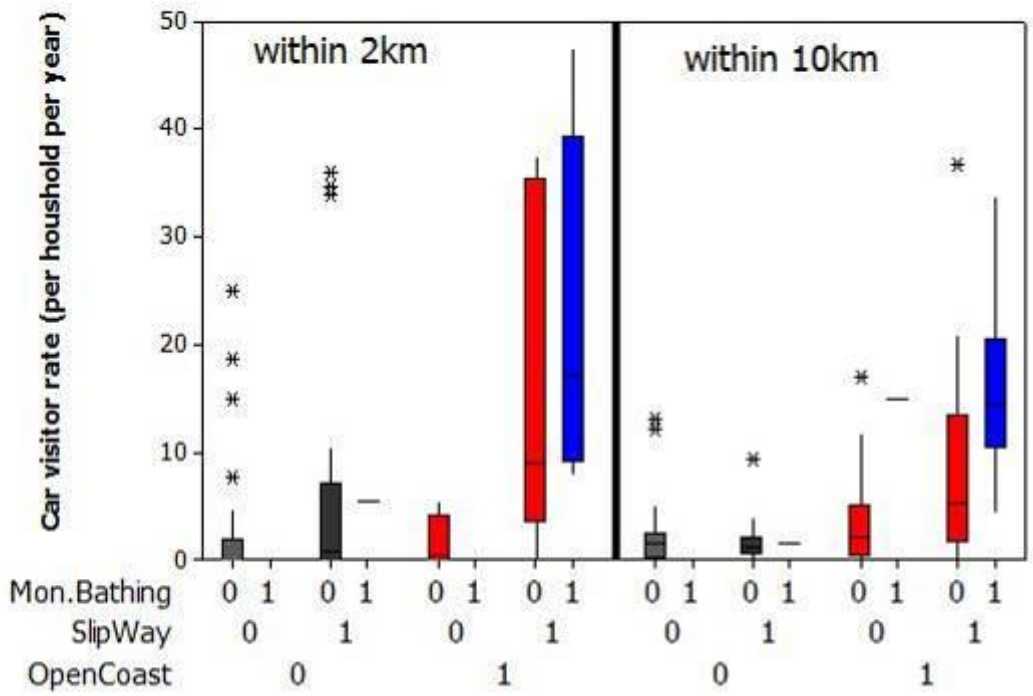


Figure 17: Car visitor rates at 2 and 10km (travel distance) for sections with different combinations of characteristics

4.36 Perhaps not unexpectedly, the rate of visiting a section by car by households within a given road travel distance band from the section is higher for the 49 sections with some detectable car parking spaces. For example, median car visitor rate for households within 2km road distance is 7.77 visits per household per year to sections with parking, but effectively zero or at least half of the other 54 sections, while median car visiting rates within 10km are 4.38 and 1.18 for sections with and without detectable parking spaces (Table 45). The Spearman rank correlation between car visitor rates and the number of car parking spaces at a section is 0.40 and 0.43 for households within 2km and 10km road distance respectively of the section.

4.37 However, the overall relationship with car parking spaces depends on whether the section is on the open coast and/or has monitored bathing (Figure 18). For non open coast sections, the availability of large numbers of car parking spaces does not lead to higher visit rates per household by car. For the open coast sites, with or without monitored bathing, the relationship between car visit rate and the estimates number

of coastal car parking spaces within the section is positive but weak as seen in Figure 18.

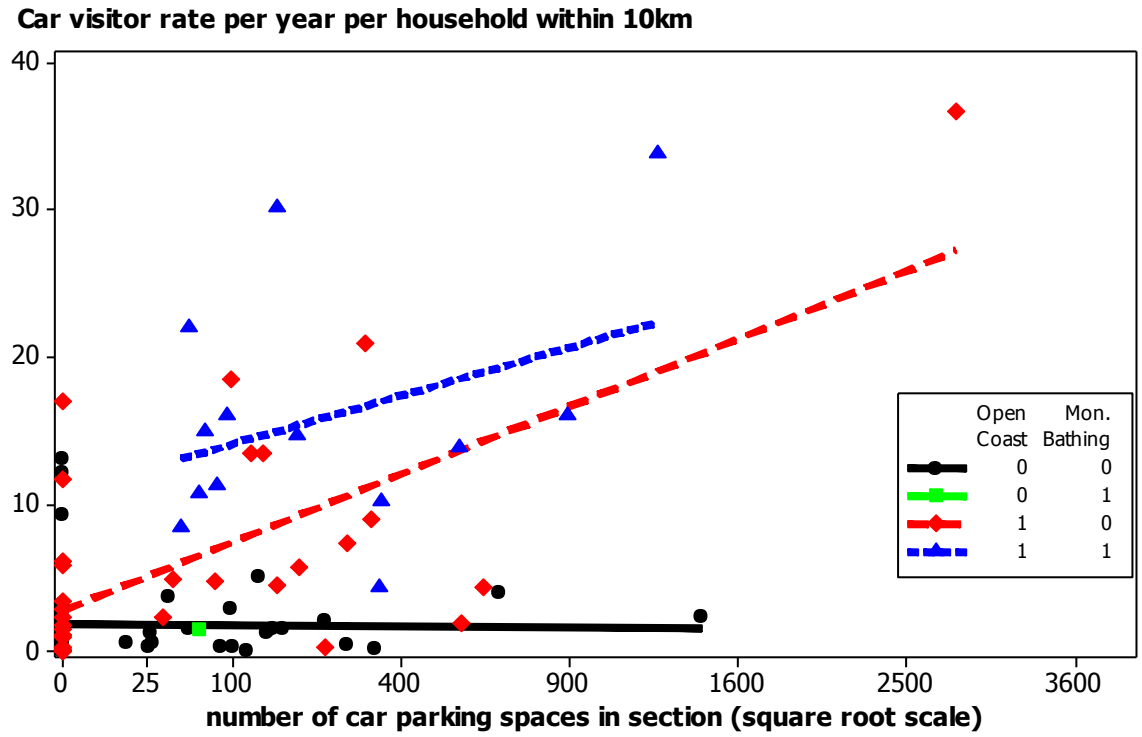


Figure 18: Regression relationship between car visitor rate per year per household within 10km road distance of the section and the estimated number of car parking spaces the section, separately for sections grouped by whether they are 'open coast' and/or have monitored bathing (54 sections had no obvious car parking)

4.38 In summary, a range of section characteristics appear to influence, or at least be correlated with, the rate of visiting a section by car, namely the presence of open coast, a slipway, monitored bathing and car parking spaces. It is difficult to disentangle the influence of some individual features. One such possible model for car visitor rate based on grouping sections by these section features could use the following three groupings:

(i) non- open coast sections (n=58),
(ii) open coast sections with no monitored bathing (n=32)
(iii) open coast sections with monitored bathing (n=13 sections)

4.39 Group average rates are based on weighting sections-specific rates by the number of responding households in that distance band of each section. The weighted average observed foot visit rates per distance band for each of these three section groupings are given in Table 48.These rate curves could be used to predict the total annual number of visitors arriving by car to each of the sections.

Table 48: Observed average annual car visit rate per household in relation to road distance and Section type (*italics denote smoothed rates*)

Distance (max m)	Non Open Coast section	Open & Not Monitored Bathing sections	Open & Monitored Bathing sections
1000	4.78344	17.005	28.370
2000	4.43788	8.836	*19.100*
3000	2.33076	*6.300*	*16.200*
4000	1.39125	*5.580*	15.010
5000	1.10414	3.878	13.048
7000	0.89102	3.920	12.042
10000	0.55298	1.882	7.907
15000	0.39812	1.053	4.616
20000	0.07183	0.563	1.306
30000	0.05582	0.302	0.536
40000	0.02534	0.119	0.112
50000	0.05501	0.021	0.082
75000	0.00657	0.034	0.039

Car visit rate predictive GLM model based on distance band and section

4.40 In a similar approach as used for modelling foot visit rate, a range of alternative generalised linear models (GLM) were fitted to the observed car visitor numbers (V_{SD}) to each section (S) from each distance band (D) in relation to the number of responding households (H_{SD}) at that distance from the section and variously allowing for distance band or a smoothed function of distance and either allowing for sections characteristics or the individual sections differences in overall rates.

4.41 The final selected overall GLM model involved a rate of decline in car visit rate with distance band modified by a separate multiplicative factor for each section, which is of the same form as adopted for modelling of foot visit rates. This model thus incorporates both the influence of measured section characteristics and other factors influencing the relative 'attractiveness' of individual sections. The fitted model was:

$$\text{Log } V_{SD} = \text{Log } (H_{SD} + A_D + B_S)$$

where V_{SD} = observed car visits to section S from distance band D

H_{SD} = number of responding households in distance band D from section S

A_D = coefficient representing the general rate of visiting from distance band D

B_S = coefficient representing the relative (within-band) rate of visiting section S.

The predicted car visitor rate (R_{SD}) (per household per year) from distance band D to section S then:

$R_{SD} = \exp(A_D + B_S)$, where exp mean the exponential mathematical function.

4.42 The best fit estimates of the GLM model coefficients (A_D) for the distance bands are given in Table 49 and those for the section specific coefficients (B_S) are given in Table 2 of the data tables and maps annex. The declines in mean and median (across all sections) of the GLM predicted car visitor rates in relation to distance based on this model are shown in Figure 19.

Table 49: Distance band coefficients (A_D) and their standard errors ($SE(A_D)$) for car visitor rate GLM model

		Distance band (max m.)								
	1000	**2000**	**3000**	**4000**	**5000**	**7000**	**10000**	**15000**	**20000**	**30000**
A_D	4.2801	3.9776	3.8771	3.6361	3.3867	3.2066	2.6266	2.1212	0.9714	0.2982
$SE(A_D)$	0.239	0.245	0.251	0.249	0.258	0.231	0.243	0.244	0.266	0.259

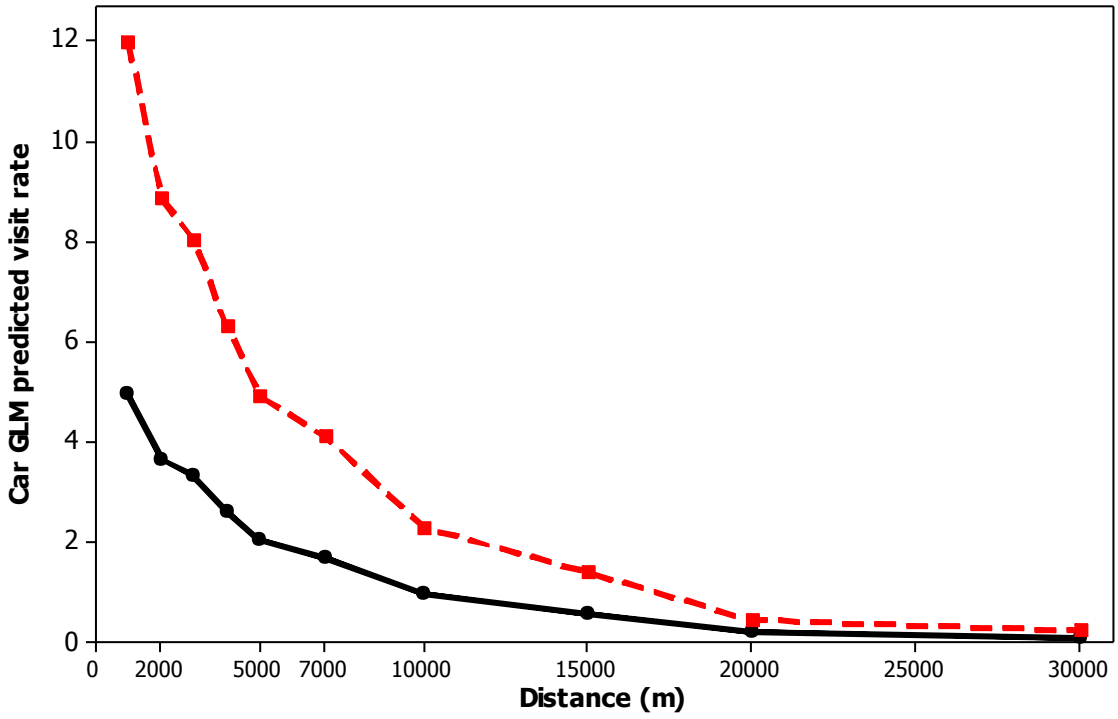


Figure 19: Pattern of decline in mean (black solid) and median (red dashed) across all sections of the GLM predicted car visitor rates (per household per year) with distance band

4.43 This GLM model which allows for individual section differences in overall car visitor rate also accounts for much of the observed differences in car visitor rate attributable to whether the sections are on the on coast or not (Figure 20). The mean predicted rate for the 45 open coast sections is 4.5 times that of the mean for other 58 sections, while amongst the open coast sections, the mean predicted rate is 2.5 times for those sections with monitored bathing. Thus the GLM model which allows for individual section differences in car visit rates broadly supports our previous findings of the positive impact (or associated) of section attraction features (i.e. open coast, monitored bathing and also slipway) on car visitor rates.

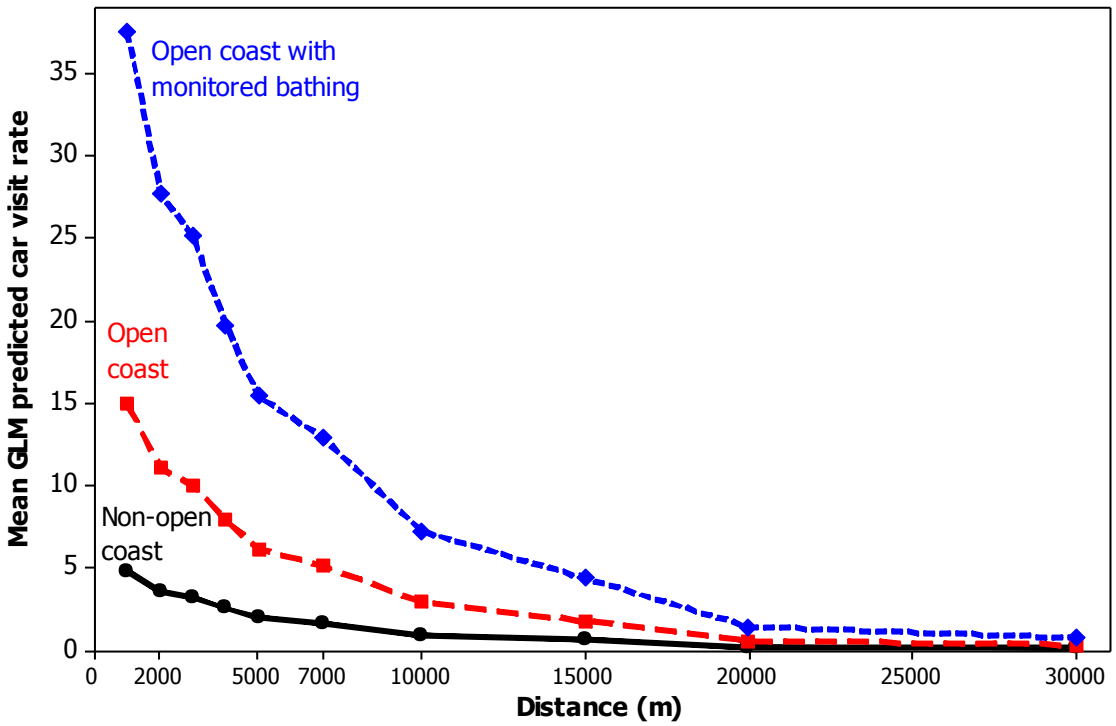


Figure 20 Mean of the section GLM predictions of the car visitor rate (per household per year) with distance for the sections grouped by whether or not they are classified as non-open coast (black), or open coast without (red) or with (blue) monitored bathing

4.44 This GLM model can be used to predict total annual car visits to each section by all current households in the region and also to predict the increase in car visitors due to the planned spatial distribution of new housing in the Solent region.

4.45 Obviously, alternative models are possible, but this GLM approach and our choice of final models for both car and foot visits (i) correctly takes account of the number of responding households in each distance band to each section (ii) allows for a general decline in rate with distance separately for foot and car visits (iii) allows for observed individual section differences in visit rates per household, which implicitly allows for aspects of section attractiveness features.

Predicted current annual foot and car visits to each Solent coast section

4.46 The two fitted GLM models based on distance band and section (described in paragraphs 4.18, 4.19, 4.41 and 4.42) provide estimates of the predicted annual visit rates on foot and by car per household in each of the model distance bands (based on straight-line distance for foot visits and road travel distance for car visits).

4.47 These data-based GLM models of visitor rates can then be applied to the current total number of households (not just those surveyed) living with each of the above straight-line and road travel distance bands of each section to obtain predictions of the current number of foot visits and car visits made to each section from the households currently living in each distance band.

4.48 The prediction of total annual foot visits to a section are obtained by summing the predicted current number of foots visits to the section per distance band across all distance bands up to 10km (foot visits beyond this distance are negligible).

4.49 The prediction of total annual visits by car to a section are obtained by summing the predicted number of car visits per car distance band across all distance bands up to 30km. The number car visits per year to sections (as opposed to the number of different visitors) beyond this distance are relatively small and also not accurately estimated within our household survey).

4.50 The predicted current total annual number of visits on foot and by car to each of the 103 Solent coast sections is given in Table 50.

4.51 The predicted total annual number of visits to the Solent coast on foot is 19 million, giving an average per section of 189,000 visits per year. However, the predicted annual number of visits on foot varies enormously between sections from effectively zero at 12 sections, to a median of 98,000 and up to over one million at two sections (1.07 million at section 51 (Old Portsmouth Marina to South Parade Pier) and 1.6 million at section 52 (South Parade Pier to Fort Cumberland) (Table 50).

4.52 The predicted total annual number of visits to the Solent coast by car is 28 million, giving an average per section of 273,000 visits per year. However, the predicted visits varies enormously between sections, from effectively zero at section 81 (Longmore Point to Hook Farm), to a median of 189,000 up to over one million visits to six sections with a maximum of 1.7 million at section 51 (Table 50).

Predicted current total annual visits to each section (all forms of transport)

4.53 From the household survey respondents, it is estimated that 8.5% of all visits to the coast are made by other means than on foot or by car, namely by a mixture of bike, public transport and boat (Table 24). Therefore estimates of total visits to each section were obtained by increasing the visits numbers made on foot or by car by a multiple of 1/(1-0.085) = 1.093.

4.54 The predicted estimate of the total of current annual visits made to each of the 103 Solent sections by all forms of transport are summarised in Table 50 and Map 5. In total, per annum, we predict 19.4 million household visits are made on foot, and 28.2 million made by car to the entire 250km stretch of shoreline. After adjusting for other forms of transport this gives a total estimated number of household visits per annum of 52 million, Table 50). Thus we estimate 37% of all visits to the coast from home are made on foot, 54% bar car and 9% by other means of private or public transport.

4.55 The correlation between the predicted total annual number of visits to a section and the observed number from the household survey respondents is 0.98, but this high correlation is at least partly due to the GLM models including estimated section-specific factors which are related to the observed total visits from the household survey respondents. However, the strong agreement between observed and predicted is re-assuring.

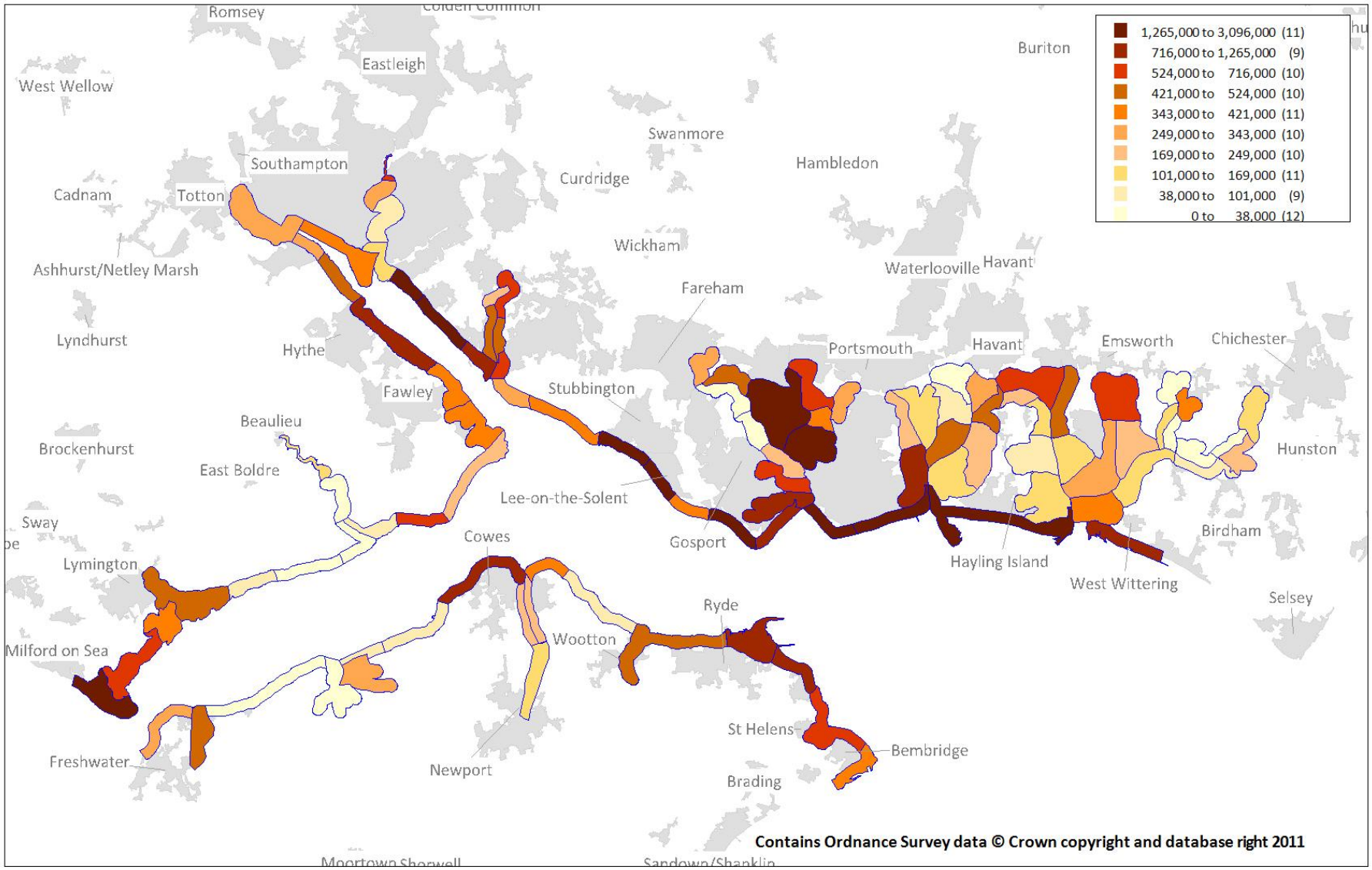
Table 50: Predicted Total Annual visits to each section from all households on foot (up to 10km), by car (up to 30km) and in total (including those using other forms of transport).

Section	Section description	Foot	Car	Total
1	Milford on sea to Hurst Castle	332592	1131562	1600321
2	Hurst Castle to Pennington	182137	442074	682263
3	Pennington to Salterns Marina	68970	264397	364370
4	Waterford to Pylewell Point	110033	319125	469070
5	Pylewell Point to Whitehouse Copse	59961	7575	73817
6	Whitehouse Copse to Gravelly	1841	4430	6854
7	Gravelly Marsh to Royal Soton Yacht	2209	7879	11026
8	Royal Soton Yacht Club - Bucklers	2395	23118	27886
9	Bucklers Hard to Bealieu	24418	127879	166460
10	Lower Exbury to Inchmery	3708	71614	82327
11	Inchmery to Stansore Point	0	527620	576689
12	Stansore Point to Calshot Castle	20309	157803	194676
13	Calshot Castle to Fawley	1896	373336	410128
14	Fawley to Cadland Creek	1794	370233	406626
15	Cadland Creek to Hythe	62236	726861	862482
16	Hythe Pier to Marchwood	81351	373127	496744
17	Marchwood to Marchwood	204461	24717	250491
18	Marchwood Industrial Park to	39150	188870	249226
19	Freemantle to Ocean Village	127324	198365	355978
20	Ocean Village Marina to Itchen	23435	95807	130331
21	Itchen Bridge to Northam Bridge	1092	66195	73544
22	Northam Bridge to St. Denys -	17217	233931	274504
23	St. Denys - Cobden Bridge to	443930	106584	601712
24	Weston to Netley	529626	663873	1304494
25	Netley to Hamble-le -Rice	553548	903482	1592533
26	Hamble-le-Rice to Hamble Rice	470624	373758	922910
27	Hamble Rice to Hound - Mercury	278497	200702	523765
28	Mercury Yacht Marina to Bursledon	105669	61307	182504
29	Burlesdon to Hollyhill Woodland	309909	238812	599752
30	Hollyhill Woodland Park to Warsash	250458	215174	508935
31	Warsash to Newton Farm	288318	232655	569423
32	Newton Farm to Solent Breezer	176921	94704	296886
33	Solent Breezes Caravan Site to Hill	85495	279832	399302
34	Hill Head to Lee-on-the-Solent	536193	1548866	2278969
35	Lee-on-the-Solent to Car Park near	578752	1114794	1851047
36	Car Park near Angling Club to	84338	289005	408064
37	Browndown Point to Glickicker	624937	984301	1758898
38	Gilkicker Point to South coastal side	445578	267842	779768
39	Alverstoke - Newtown to Old	539432	334554	955268
40	Forton Lake-Priddys Hard-	438834	182280	678878
41	North of Priddys Hard -Hardway -	15237	200778	236104
42	Hardway to Fort Elson	21873	11594	36579
43	Fort Elson to Fleetlands	0	1434	1568
44	Fleetlands to s. side of Golf Course	274793	27344	330236
45	Golf Course to Boat Yard	238045	203649	482772

Section	Section description	Foot	Car	Total
46	Boat Yard to Porchester East	739952	523628	1381092
47	Porchester East to M275	325488	247744	626542
48	M275 to Hilsea to Tipner	202176	36049	260379
49	Tipner to Stamshaw	89800	288610	413602
50	Stamshaw to HM Naval Base	617180	540633	1265489
51	Old Portsmouth Marina to South	1068090	1731137	3059555
52	South Parade Pier to Fort	1591644	1240797	3095859
53	Fort Cumberland w.Lanstone	324068	689352	1107668
54	Portsea Island to Highbury Coll	158186	43726	220690
55	Hibury Coll to North Binness Island	52748	73529	138020
56	Langstone Harbour Islands	16912	23967	44680
57	North Binness Island to	15971	18281	37438
58	Brockhampton to Langstone Bridge	118311	128747	270034
59	Langstone Bridge to Stoke	315296	153588	512490
60	Langstone Harbour	162001	303785	509104
61	Stoke to Newton	50254	104375	169010
62	Newton to Fort Cumberland	100569	14565	125841
63	S. Hayling	377112	1018354	1525245
64	Black Pnt to Mill Rythe Holiday	14403	120491	147440
65	Mill Rythe Holiday Village to Tye	43737	2984	51066
66	Tye to Northney	0	118707	129747
67	Northney to Langstone Bridge	97828	103437	219982
68	Langstone Bridge to East side of	289908	364876	715680
69	East side of Quay Mill to Marker	222318	203158	465045
70	Marker Point to Longmere Point	96899	30016	138718
71	Longmere Point to Stanbury Point	189095	122757	340853
72	Stanbury Point to Chidham	406876	212201	676651
73	Chidham to Cobnor Point	91028	95458	203828
74	Roockwood to Black Point	57057	257085	343357
75	West Itchenor to Rookwood	35198	97995	145580
76	Cobnor Point to Easton Farm	0	97560	106634
77	Easton Farm to Bosham Shipyard	0	11813	12912
78	Bosham Shipard to Southwood	147772	197287	377150
79	Southwood Farm to Itchenor Ferry	0	3321	3630
80	Itchenor Ferry to Longmore Point	1007	24915	28332
81	Longmore Point to Hook Farm	0	0	0
82	North Fishbourne Harbour to Dell	4154	107315	121835
83	New Barn to Birdham Pool	2244	176762	195654
84	Birdham Pool to West Itchenor	24076	26532	55315
85	East Stoke Point to East Wittering	466673	512857	1070626
86	Isle of Wight: Warden Point to	184379	75196	283716
87	Isle of Wight: Norton to Freshwater	100740	347579	490013
88	Isle of Wight: Yarmouth to	0	18594	20323
89	Isle of Wight: Hamstead to Newton	0	9211	10067
90	Isle of Wight: Newton to Clamerkin	0	271213	296436
91	Isle of Wight: Fish House point to	0	36379	39762
92	Isle of Wight: Saltmead Ledge to	0	34864	38106
93	Isle of Wight: Gunard Ledge to	403585	462895	947063

Section	Section description	Foot	Car	Total
94	Isle of Wight: Cowes - Medina Road	61477	118633	196860
95	Isle of Wight: Werrar Farm to	32396	60424	101453
96	Isle of Wight: Whippingham to East	51552	121176	188793
97	Isle of Wight: East Cowes Ferry	109884	271229	416556
98	Isle of Wight: Norris Wood to	18365	58571	84091
99	Isle of Wight: Woodside to Ryde	237004	204218	482256
100	Isle of Wight: Ryde pier to Puckpool	468803	617583	1187420
101	Isle of Wight: Puckpool Park to	315274	415574	798817
102	Isle of Wight: Horestone Point to	132460	440603	626358
103	Isle of Wight: Bembridge to	131711	253067	420563
Total	**Whole Solent coast (all 103 Sections)**	19,423,195	28,159,238	52,007,600

Map 5: Predicted annual number of visits to each coastal section



5 Key Points and Discussion

Overview

5.1 The report presents and summarises access data for a 250km stretch of coast. Such a portrayal of access to a long stretch of coastline is, to our knowledge, unique and there are few precedents or other work within the UK with which to draw parallels. The results provide a strategic overview of visitor levels, types and patterns of access and cover a whole range of coastal sites and habitats, including sandy beaches, urban seafronts, estuaries and saltmarsh.

Key results are:

- A high proportion of questionnaires were returned (1382). There were no significant differences in return rates according to distance from coast, but there was a significant difference in return rates between local authorities. A fifth (20%) of the respondents owned at least one dog.
- There were high visitor rates to the coast, for example 68% of households had visited the coast within the previous month. Only 12% of households had not visited the coast within the past year or had never visited the coast
- A significantly higher proportion of households that had not visited the coast within the past year did not have access to their own private transport. Non-coastal visiting households also had fewer children and fewer dogs.
- 1194 respondents completed the general question relating to frequency of visit to the coast, indicating that in total they made an estimated 90,920 annual coastal visits.
- Over half of all households (55%) stated they tend visit the coast equally all year and an additional 39% of households tend to visit the coast more in the summer time. Access rates are therefore higher in the summer but high levels of access still occur in the winter.
- Visitor levels tended to be highest in the afternoon. One in ten (10%) of respondents indicated that their visit was tide or weather dependent.
- In general, the main activity undertaken was walking, with 74% of households indicating this as an activity they undertook at the coast
- In general, the majority of visitors make trips to the coast to specifically to see the sea and coastline and enjoy the attractive scenery. Most (88%) of respondents were attracted to sites for sea views and attractive scenery.
- Safety, cleanliness, the ability to do a range of different walks and routes, the presence of wildlife and a short travel distance from home were other factors that respondents cited as important in attracting them to particular locations.

- In general, respondents were deterred from particular locations by parking charges, if the car park was a substantial distance to the water and where dogs were off leads.

- For dog owners only, features and characteristics which were either attractive or strongly attractive were 'short travel time from home', 'sea views and attractive scenery', 'dogs can be off the lead', 'feel safe', 'the ability to do a range of different walks / routes', 'presence of wildlife' and 'substantial distance from car park to water'. Dog-owners were deterred from sites by 'dog restrictions with no go dog areas', 'car parking charges' and 'dog restrictions where dogs are required to be on a short lead'. By contrast non dog owners tended to be attracted to sites with 'available toilets' and deterred by 'dogs can be off the lead' and 'substantial distance from car park to water'.

- The three features which were most frequently listed as either 'attractive' or 'strongly attractive' by households who undertook water based activities were 'sea views and attractive scenery', 'ability to do a range of different walks/routes' and the 'presence of wildlife'. Water-based users were more likely to be influenced 'if a site was 'good for favoured activity (i.e. good wind for kite surfing)'.

- From the data on visits to specific coastal sections, just over half (52%) of all estimated annual visits made by the respondents were made by car and 39% of visits were made by foot.

- Using the data on visits to specific coastal sections the average number of visits made each year to the coast, per household is 132.8. The stretch of coast between the Old Portsmouth Marina and South Parade Pier (section 51) was the section with the most visits (by respondents).

- Using the data on visits to specific coastal sections and the activities undertaken there, enjoying the scenery was the only activity given which took place at every coastal section and accounted for 17% of all activity responses (Map 2, data table and map annex). Walking took place at all but 1 coastal section and was the most frequently listed activity (Map 1, data table and map annex).

- The more extreme water sports only occurred across a limited number of coastal sections which is likely to be reflective of the specific water and wind conditions and coastal topography required to safely undertake each activity (Maps 14 – 17 in data table and map annex)

- Over a third (39%) of respondents stated that their routes took them onto the beach or the mudflats, as opposed to the seawall or on the water.

- We use the data from the survey to build predictive models of visitor rates in relation to individual sections and their characteristics and the number of houses in a range of distance bands from each section. Applying the best predictive models to all housing within 30km from the shoreline sections we estimate that currently around 52 million household visits are made each year to the entire 250km stretch of coast considered in the survey, with 19.4 million (37%) made on foot from home, 28.2 million (54%) by car and a further 4.4 million (9%) by means of other private or public transport.

Design, approach and limitations

5.2 A concern with any off-site survey of this scale is the response rate and the potential biases that may result through the types of households that respond. It is of course possible that people who visit the coast or who have leisure time (i.e. time to respond to the survey) are more likely to return the questionnaire, and therefore the results will indicate higher levels of use than would be expected from a random sample of responses.

5.3 It is encouraging that there was no significant difference in the return rate with distance from the coast – in other words there was no evidence that people who lived close to the coast were more likely to complete the questionnaire. The high return rate (27%) is also encouraging, as is the figures on dog ownership (19% of respondents owned at least one dog which compares favourably with national estimates of around 20% (e.g. Mintel International Group Ltd. 2006)). The results do show a different return rate between residents of different local authority areas, and why this may be is unclear. However, overall return rates were the same on the Isle of Wight as on the mainland.

5.4 Comparison of the on-site and off-site visitor surveys reveals a strong correlation in the number of people recorded visiting at each section. Given that on-site survey was conducted on just two dates while the household survey was a generic survey about general patterns this correlation provides confidence in the results and the approach. In the plot comparing the two approaches (Figure 10) three sections appear to differ markedly: at sections 48 (M275 to Hilsea to Tipner) and 69 (East side of Quay Mill to Marker Point) more people were counted in the on-site visitor work than would be expected from the household survey responses . At site 34 (Hill Head to Lee-on-the-Solent), the converse, there were relatively high responses from the household survey than would be expected given the on-site counts. The on-site field surveyor at site 34 noted that this access location was exceptionally busy and it was difficult to maintain an accurate tally of visitor using the site, so the surveyor focussed their time on conducting visitor interviews to maximise the number of responses. The on-site survey may therefore have underestimated use here.

5.5 While the results of the two surveys correlate, the numbers of annual visits given by household respondents is consistently higher than would by estimated by scaling up the on-site survey numbers. The weather during the on-site fieldwork is a likely

factor. The on-site work was conducted during a particularly cold winter when the weather was consistently very cold and there was an extended period of lying snow. Such weather conditions may have kept people indoors during the on-site work, and the household survey is therefore a better reflection of people's general patterns of use.

5.6 The scale of the survey led to particular consequences for the survey design and approach used. The survey questionnaire included a map with the sections highlighted. These sections, by necessity, are on average over 2km long and therefore potentially encompass multiple access points etc. We attempted to derive these sections so that each section was discrete in terms of access, habitats, features, etc. It is clear from the responses that many people would visit multiple sections during one visit or visit single sections for multiple activities, causing particular problems in how the data were collated and grouped.

5.7 It was also necessary, especially for the predictive modelling, to estimate a total number of visits per annum based on the frequency of visit categories – such that "almost every day" was estimated as 300 visits per year, etc. While it would have been ideal to know exactly how many visits are made by each respondent, this is clearly impossible over a year. The choice of time of mailing the survey was deliberate in that it was targeted towards the winter period, but hopefully would have allowed respondents to consider their patterns of use over the autumn and summer.

5.8 The household survey is intended to provide a strategic overview of recreation. For some activities with small numbers of users the sample will be small and we urge caution in breaking down the survey results too much for individual activities. In the predictions we have therefore solely estimated total visitor numbers to each section, rather than different types of activity. With hindsight it would have been useful to quantify which activities are undertaken throughout the year on the coast and which activities are seasonal.

5.9 The approach to assessing the characteristics of each section has been to use existing GIS data sets. Ideally each section would have been scored independently for attractiveness and a suite of other features. Generating such scores for 103 sections would be potentially difficult to achieve and beyond the scope of this work. Our approach, in using the presence of slipways, monitored bathing sites, open coast etc. is simple and appears to work. The results do not indicate that building slipways or monitoring bathing means more visitors, it is simply that these are surrogate measures for the general character of the section. Monitored bathing sites are likely to be attractive sandy beaches, and hence it is not surprising there are more visitors to such sites. Sections with slipways are potentially those with good access, more going on, direct access to the water etc., and again it is perhaps not surprising that such sections are busier.

5.10 The modelling of visit rates to each section did not consider access infrastructure etc. along the coastline. Recording the extent of access, presence of footpaths, de

facto access etc within each section was beyond the scope of the project. As such, we do predict quite high numbers of annual visits to a few sections of coast with either no, limited or restricted public access to the 'shore' (notably section 50). However, on referring to the raw data respondents have clearly cited regular visits to these sections and only one coastal section (81, Longmore Point to Hook Farm) had no recorded visits on foot or by car from any of the responding households. This suggests that either households do visit areas of the coast where there is limited, restricted or no public access or that the interpretation of a 'coastal visit' may differ slightly between households, in that some households may consider a walk along a road parallel to the coastline with a view of the sea as a coastal visit.

5.11 Recent work for Natural England looking at national patterns of access and engagement with the natural environment (TNS Research International 2011) identifies a demographic difference in the visiting patterns of households to the natural environment. Demographic variables are of course potential factors that will influence visit rates as the amount of leisure time, affluence etc. will influence what people do and where they go. It was deemed too complex to explore how demographic variables could further influence the visit rates to each section within this work. In particular demographic data is difficult to include in any model as it is potentially tricky to determine how demographics may change in the future. While it is possible to predict the spatial distribution of new housing, the demographic profile of residents of that housing – in 20 years time – is harder to predict. We are aware that this is a limitation of this work.

5.12 This project was concerned with generating the current number of annual visits to areas of the Solent shoreline by local and regional visitors. Our estimates of the annual number of visits to coastal sections do not take into account any additional visits which may be as a result of large scale annual or one off events such as the Great South Run or Cowes week.

5.13 The predictions of total visitor numbers, generated using current levels of housing, suggests that the coastline receives some 52 million household visits per year. While this figure initially would appear quite high, it is not unfeasible. The area in question is some 250km of shoreline – i.e. a million visits per 5km of shoreline. Given that the 250km includes a National Park and such a wide range of attractive and promoted visitor destinations, plus the urban shorelines with very high local populations the figures seem plausible. Existing visitor data for individual sites provides some useful comparisons, for example the New Forest has the highest visitor density of any National Park in the UK, with visitor days per annum estimated at 13.5 million[3], Lepe Country Park is estimated to receive around a third of a million visits per annum[4] and annual visitor numbers to West Wittering are estimated at over 1.5 million[5].

[3] http://www.newforestnpa.gov.uk/tourism-1-factsandfiguresweb.pdf
[4] http://www.hants.gov.uk/rh/ccatch/lepe-cp-report.pdf
[5] http://www.ue-a.co.uk/Valuing%20Chichester%20Harbour%20report%20Low%20Res%20220509HG.pdf

Next steps

5.14 The models presented here provide a means of predicting total visitor numbers to sections of the coast, based on the number of houses in distances bands from the section and the features and relative attractiveness of the individual sections. Next steps in the modelling will be to generate predictions of changes in visitor numbers as a result of new housing, using data provided by local authorities to show potential development scenarios.

5.15 The models will give predictions for total visitor numbers to each section. Using the data from the household survey we can break these totals down according to the major types of activities recorded at each section within the household survey. For each major type of access and activity we can estimate the average route length from the on-site visitor work, we can estimate the distances at which birds are disturbed from feeding (from data from the on-site bird fieldwork) and combine these to estimate the effective 'disturbed area'. These estimates will allow us to essentially equate bird disturbance from visitors to bird habitat loss within each section, and this can be tested using the individual based bird population feeding models. These predictions will be generated in the follow up bird modelling report.

Implications for management of access and possible mitigation measures

5.16 The results highlight the importance of the coast as a regular annual resource for visitor recreation. As might be expected, the majority of visitors make trips to the coast specifically to see the sea and coastline and enjoy the attractive scenery, and the coastline therefore has a particular draw for local residents. People living very near the coast visit more frequently, and in general it would seem that an increase in housing will result in an increase in visitor rates. The further modelling work described above will explore the impacts of increases in recreational visitors on the bird interest of the SPA and highlight where access management measures may be needed. In this part of the discussion we consider the implications of the results of the household survey in terms of mitigation measures that may be effective.

5.17 Map 5 provides an insight into where visitor use is currently concentrated and where the levels of recreational use are highest. It is clear that there are areas where recreational use of the coastline is generally low, for example the eastern side of Chichester Harbour, the western side of the north shore of the Isle of Wight and parts of the New Forest coast. In general, where access levels are already very high, increased recreational use is perhaps to be expected to result in less impact as the birds are already highly disturbed (and therefore potentially not even present). By contrast, increasing recreational use in areas that are currently undisturbed is likely to have the biggest impact (e.g. Mallord *et al.* 2007).

5.18 It is clear that many of the features that attract some people also act as deterrents to others, reflecting the wide range of types of activity, reasons for visiting and personal preferences. Plots such as Figure 2 highlight the complexities and would

indicate that potential management measures (such as setting back access from the coast) have the potential to deter some users and also attract others.

5.19 One commonly proposed method for mitigating disturbance impacts is the provision of alternative sites or new green infrastructure in locations that are less sensitive for nature conservation. The strong draw of the coast and the importance of attractive scenery etc. would suggest that provision of alternative sites may be difficult, unless such sites can provide a comparable experience or views.

5.20 There are some on-site access management measures which the results indicate may be effective, at least with some users. There were clear differences between dog walkers and non-dog walkers in the features that attracted them to particular sites. The ability to let dogs off the leads and car parking set back a substantial distance from the water were both features that deterred non dog owners but attracted dog owners, thereby suggesting that these features could be modified to focus different kinds of users.

5.21 Car-parking charges are a clear deterrent for many respondents, and therefore the results would suggest that increasing or lowering car-parking charges could also be a means of redistributing visitor numbers.

5.22 A high degree of visitor use is from foot visitors, who also tend to visit more frequently than car-borne visitors. Any attempts at redistributing visitors is likely to be most effective with car-borne visitors, as the mode of transport and travel distances involved mean they have more choice in terms of where they go. Foot visitors will of course be very local. Because foot visitors tend to visit more frequently, any measures that result in a single individual changing their behaviour or access pattern are likely to be more effective. It may therefore be that education and awareness raising at a very local level around key sites may have particular benefits.

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A6 Features that attract you or your household to coastal locations

We are keen to identify what features and characteristics of coastal area are important to you and or your household when deciding which locations to visit. We are interested in whether each feature / characteristic either attracts or deters you from visiting a coastal location or whether it has no influence on your choice.

Please use the 'Other' category to detail any other important features or characteristics which influence the coastal locations you and your household choose to visit.

	Strongly Deter	Deter	No influence	Attract	Strongly Attract
Ability to do a range of different walks / routes	☐	☐	☐	☐	☐
Areas for picnics	☐	☐	☐	☐	☐
Availability of toilets	☐	☐	☐	☐	☐
Benches / places to sit comfortably	☐	☐	☐	☐	☐
Cafe or similar nearby	☐	☐	☐	☐	☐
Camping nearby	☐	☐	☐	☐	☐
Car parking spaces available	☐	☐	☐	☐	☐
Car parking charges	☐	☐	☐		
Coastal view from car park			☐	☐	☐
Designated walking and cycle trails	☐	☐	☐	☐	☐
Dog restrictions present with 'No-go' dog areas	☐	☐	☐	☐	☐
Dogs can be off lead	☐	☐	☐	☐	☐
Easy access onto the beach / intertidal area			☐	☐	☐
Feel safe			☐	☐	☐
Low numbers of other people	☐	☐	☐	☐	☐
On site visitor information			☐	☐	☐
Presence of grazing animals (cattle and ponies)	☐	☐	☐	☐	☐
Presence of wildlife	☐	☐	☐	☐	☐
Restrictions where dogs are required to be on a short lead	☐	☐	☐	☐	☐
Sea views and attractive scenery			☐	☐	☐
Short travel time from home	☐	☐	☐	☐	☐
Site good for your favoured activity (e.g. good wind for kite surfing)			☐	☐	☐
Substantial distance from car park to water	☐	☐	☐	☐	☐
Surfaced paths (e.g. tarmac / gravel)	☐	☐	☐	☐	☐
Visitor Centre	☐	☐	☐	☐	☐

Please list other important features which attract you to coastal locations.

Please list other important features which deter you from coastal locations.

Section B. Identifying specific coastal locations that you visit

Please describe visits to up to 4 coastal locations on the supplied map that you or your household have visited most in the past 12 months. The coast has been divided into sections, numbered 1-103 on the map. To help you identify the numbered section of your visit(s) the map key details the start, a brief description of features within and the end location of each section. For each location visited please enter the coastal section number, its name (as known to you), then how often you visit, your means of transport and reason for visiting. You may include more than one location for any coastal section.

B1.1 Coast section number (see map)

B1.2 Location name (as known to you)

B1.3 Which of the following most closely describes how frequently you visit: (TICK ONE ONLY)

- Almost every day ☐
- 2-4 visits per week ☐
- About once a week ☐
- About once a month ☐
- A few times a year ☐
- Once a year or less ☐

B1.4 Seasons you visit: (TICK ALL THAT APPLY)

- Spring ☐
- Summer ☐
- Autumn ☐
- Winter ☐

B1.5 Mode of transport typically used to travel to the location: (TICK ONE ONLY)

- Car/Motorbike/Van ☐
- Foot ☐
- Bicycle ☐
- Public Transport ☐

B1.6 Reason for visit to location: (TICK ALL THAT APPLY)

- Attending an event ☐
- Being on the beach ☐
- Cycling ☐
- Dog walking ☐
- Fishing (from boat) ☐
- Fishing (from shore) ☐
- Jogging /Running ☐
- Kayaking ☐
- Meet up with friends ☐
- Photography ☐
- Sailing ☐
- Swimming ☐
- To enjoy the scenery ☐
- Walking ☐
- Wildlife Watching ☐
- Other (specify details below) ☐

B1.7 Please indicate where you go within each site: (TICK ALL THAT APPLY

- Beach / mudflat ☐
- Sea wall / river bank ☐
- On the water ☐

B2.1 Coast section number (see map)

B2.2 Location name (as known to you)

B2.3 Which of the following most closely describes how frequently you visit: (TICK ONE ONLY)

- Almost every day ☐
- 2-4 visits per week ☐
- About once a week ☐
- About once a month ☐
- A few times per year ☐
- Once a year or less ☐

B2.4 Seasons you visit: (TICK ALL THAT APPLY)

- Spring ☐
- Summer ☐
- Autumn ☐
- Winter ☐

B2.5 Mode of transport typically used to travel to the location: (TICK ONE ONLY)

- Car/Motorbike/Van ☐
- Foot ☐
- Bicycle ☐
- Public Transport ☐

B2.6 Reason for visit to location: (TICK ALL THAT APPLY)

- Attending an event ☐
- Being on the beach ☐
- Cycling ☐
- Dog walking ☐
- Fishing (from boat) ☐
- Fishing (from shore) ☐
- Jogging /Running ☐
- Kayaking ☐
- Meet up with friends ☐
- Photography ☐
- Sailing ☐
- Swimming ☐
- To enjoy the scenery ☐
- Walking ☐
- Wildlife Watching ☐
- Other (please give details below) ☐

B2.7 Please indicate where you go within each site: (TICK ALL THAT APPLY)

- Beach / mudflat ☐
- Sea wall / river bank ☐
- On the water ☐

B3.1 Coast section number (see map)

B3.2 Location name (as known to you)

B3.3 Which of the following most closely describes how frequently you visit: (TICK ONE ONLY)

- Almost every day ☐
- 2-4 visits per week ☐
- About once a week ☐
- About once a month ☐
- A few times per year ☐
- Once a year or less ☐

B3.4 Seasons you visit: (TICK ALL THAT APPLY)

- Spring ☐
- Summer ☐
- Autumn ☐
- Winter ☐

B3.5 Mode of transport typically used to travel to the location: (TICK ONE ONLY)

- Car/Motorbike/Van ☐
- Foot ☐
- Bicycle ☐
- Public Transport ☐

B3.6 Reason for visit to location: (TICK ALL THAT APPLY)

- Attending an event ☐
- Being on the beach ☐
- Cycling ☐
- Dog walking ☐
- Fishing (from boat) ☐
- Fishing (from shore) ☐
- Jogging /Running ☐
- Kayaking ☐
- Meet up with friends ☐
- Photography ☐
- Sailing ☐
- Swimming ☐
- To enjoy the scenery ☐
- Walking ☐
- Wildlife Watching ☐
- Other (please give details below) ☐

B3.7 Please indicate where you go within each site: (TICK ALL THAT APPLY)

- Beach / mudflat ☐
- Sea wall / river bank ☐
- On the water ☐

B4.1 Coast section number (see map)

B4.2 Location name (as known to you)

B4.3 Which of the following most closely describes how frequently you visit: (TICK ONE ONLY)

- Almost every day ☐
- 2-4 visits per week ☐
- About once a week ☐
- About once a month ☐
- A few times per year ☐
- Once a year or less ☐

B4.4 Seasons you visit: (TICK ALL THAT APPLY)

- Spring ☐
- Summer ☐
- Autumn ☐
- Winter ☐

B4.5 Mode of transport typically used to travel to the location: (TICK ONE ONLY)

- Car/Motorbike/Van ☐
- Foot ☐
- Bicycle ☐
- Public Transport ☐

B4.6 Reason for visit to location: (TICK ALL THAT APPLY)

- Attending an event ☐
- Being on the beach ☐
- Cycling ☐
- Dog walking ☐
- Fishing (from boat) ☐
- Fishing (from shore) ☐
- Jogging /Running ☐
- Kayaking ☐
- Meet up with friends ☐
- Photography ☐
- Sailing ☐
- Swimming ☐
- To enjoy the scenery ☐
- Walking ☐
- Wildlife Watching ☐
- Other (please give details below) ☐

B4.7 Please indicate where you go within each site: (TICK ALL THAT APPLY)

- Beach / mudflat ☐
- Sea wall / river bank ☐
- On the water ☐

Section C. About you and your household

C1 **How many people in total live in your household? WRITE NUMBER IN BOX** ☐

C2 **How many of these are under 16? WRITE NUMBER IN BOX - PLEASE ENTER "0" IF NONE IN HOUSEHOLD** ☐

C3 **How many dogs do you own? WRITE NUMBER IN BOX - PLEASE ENTER "0" IF NONE IN HOUSEHOLD** ☐

C4 **Please indicate how many of your household fall into the following categories. WRITE NUMBER IN BOX - PLEASE ENTER "0" IF NONE IN HOUSEHOLD**

Employed full-time (30+ hours per week) ☐

Employed part-time (less than 30 hours per week) ☐

Looking after the home or family ☐

Permanently retired from paid work ☐

Unemployed and seeking work ☐

At school ☐

In full-time further/ higher education ☐

Other ☐

C5 **What type of dwelling do you live in (TICK ONE ONLY)**

Flat (Ground floor) ☐ Bungalow ☐ Semi-Detached House ☐

Flat (Non - ground floor) ☐ Terraced House ☐ Detached House ☐

C6 **How many bedrooms does your home have? (TICK ONE ONLY)**

1 ☐ 3 ☐ 5 or more ☐

2 ☐ 4 ☐

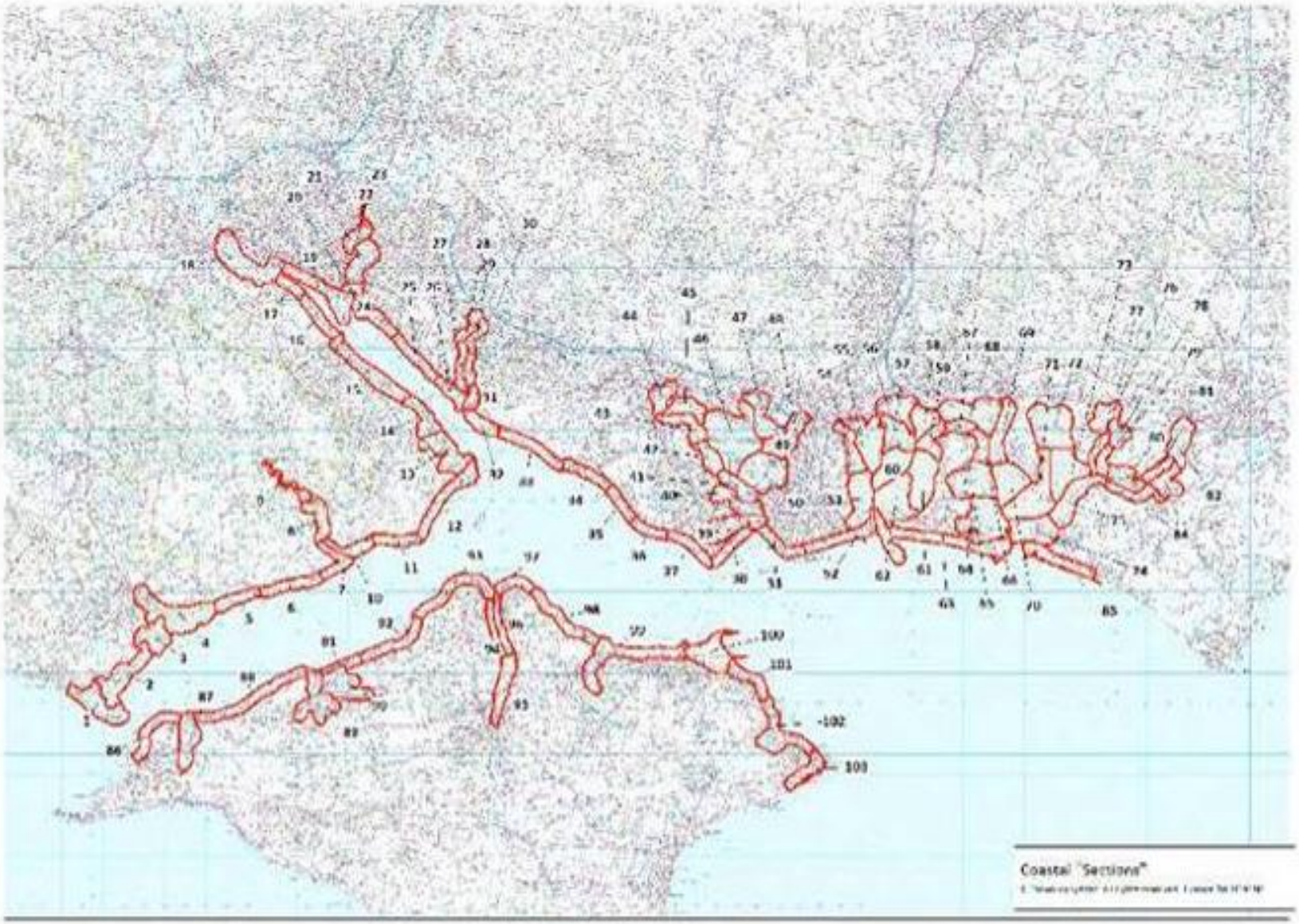
C7 **Does your home have a garden or access to a garden? (TICK ONE ONLY)**

Yes ☐ No ☐

C8 **Do you have regular access to a car / motorbike / van for transport? (TICK ONE ONLY)**

Yes ☐ No ☐

Thank you for completing this questionnaire.
Please return it as requested in the envelope provided.
Freepost RRBA-LLRZ-RGXH
Snap Surveys Ltd, 5 Mead Court, Cooper Road, Thornbury, BRISTOL BS35 3UW



KEY

From Location - To Location

1 Milford on sea to Hurst Castle
2 Hurst Castle to Pennington
3 Pennington to Salterns Marina
4 Waterford to Pylewell Point
5 Pylewell Point to Whitehouse Copse
6 Whitehouse Copse to Gravelly Marsh
7 Gravelly Marsh to Royal Southampton Yacht Club
8 Royal Southampton Yacht Club - Lower Exbury to Bucklers Hard
9 Bucklers Hard to Bealieu
10 Lower Exbury to Inchmery
11 Inchmery to Stansore Point
12 Stansore Point to Calshot Castle
13 Calshot Castle to Fawley
14 Fawley to Cadland Creek
15 Cadland Creek to Hythe
16 Hythe Pier to Marchwood
17 Marchwood to Marchwood Industrial Park
18 Marchwood Industrial Park to Freemantle
19 Freemantle to Ocean Village
20 Ocean Village Marina to Itchen Bridge
21 Itchen Bridge to Northam Bridge
22 Northam Bridge to St. Denys - Cobden bridge
23 St. Denys - Cobden Bridge to Swaything
24 Weston to Netley
25 Netley to Hamble-le -Rice
26 Hamble-le-Rice to Hamble Rice
27 Hamble Rice to Hound - Mercury Yacht Marina
28 Mercury Yacht Marina to Bursledon
29 Burlesdon to Hollyhill Woodland Park
30 Hollyhill Woodland Park to Warsash
31 Warsash to Newton Farm
32 Newton Farm to Solent Breezer Caravan Site
33 Solent Breezes Caravan Site to Hill Head
34 Hill Head to Lee-on-the-Solent
35 Lee-on-the-Solent to Car Park near Angling Club
36 Car Park near Angling Club to Browndown
37 Browndown Point to Glickicker Point
38 Gilkicker Point to South coastal side of Gosport
39 Alverstoke - Newtown to The old portsmoth area where it meets the harbour
40 Forton Lake-Priddys Hard- Gunwharf Quays to
41 North of Priddys Hard -Hardway -Naval Base to
42 Hardway to Fort Elson
43 Fort Elson to Fleetlands
44 Fleetlands to South side of Golf Course
45 Golf Course to Boat Yard
46 Boat Yard to Porchester East
47 Porchester East to M275
48 M275 to Hilsea to Tipner
49 Tipner to Stamshore
50 Stamshore to HM Naval Base
51 Old Portsmouth Marina to South Parade Pier
52 South Parade Pier to Fort Cumberland
53 Fort Cumberland West side of Lanstone Harbour to Portsea Island
54 Portsea Island to Highbury Coll
55 Hilbury Coll to North Binness Island
56 Langstone Harbour Islands to Langstone Harbour Islands
57 North Binness Island to Brockhampton
58 Brockhampton to Langstone Bridge
59 Langstone Bridge to Stoke
60 Langstone Harbour
61 Stoke to Newton
62 Newton to Fort Cumberland
63 Fort Cumberland to Black Point
64 Black Point to Mill Rythe Holiday village
65 Mill Rythe Holiday Village to Tye
66 Tye to Northney
67 Northney to Langstone Bridge
68 Langstone Bridge to East side of Quay Mill
69 East side of Quay Mill to Marker Point
70 Marker Point to Longmere Point
71 Longmere Point to Stanbury Point
72 Stanbury Point to Chidham
73 Chidham to Cobnor Point
74 Roockwood to Black Point
75 West Itchenor to Rookwood
76 Cobnor Point to Easton Farm
77 Easton Farm to Bosham Shipyard
78 Bosham Shipard to Southwood Farm
79 Southwood Farm to Itchenor Ferry
80 Itchenor Ferry to Longmore Point
81 Longmore Point to Hook Farm
82 North Parth of Fishbourne Harbour to
83 New Barn to Birdham Pool
84 Birdham Pool to West Itchenor
85 East Stoke Point to East Wittering
86 Warden Point to Norton
87 Norton to Freshwater to Yarmouth
88 Yarmouth to Hamstead
89 Hamstead to Newton
90 Newton to Clamerkin Lake
91 Fish House point to Saltmead Ledge
92 Saltmead Ledge to Gurnard Ledge
93 Gurnard Ledge to Cowes - Medina Road
94 Cowes - Medina Road to Werrar Farm
95 Werrar Farm to Whippingham
96 Whippingham to East Cowes Ferry Terminal
97 East Cowes fery Terminal to Norris Wood
98 Norris Wood to Woodside
99 Woodside to Ryde Pier
100 Ryde pier to Puckpool Park
101 Puckpool Park to Horestone Point
102 Horestone Point to Bembridge
103 Bembridge to Whitecliff Bay

8 APPENDIX 2: 'Other' Reasons for visiting the coast, given as free text

Table 51: Other activities listed by respondents in response to QA5, have you or your household visited the coast to undertake any activities. Each row represents the response of a household

Detail of 'other' activities undertaken when visiting the coast.
Taking my son.
Watching sailing on the Isle of Wight.
Rowing on the River Itchen on a daily basis.
Going for an ice cream in good weather (Lee-on-the-Solent). Visit the cycle shop at Lee-on-the-Solent.
Meeting family.
Warners - Norton Grange.
Shopping at Gunwharf Quays.
I work a car ferry, so I had to attend harbours.
Picnicking.
On disable buggy.
Operating and maintaining Steam Pinnace owned by Royal Naval Museum, volunteer HMS Victory and RN Museum, done for my recreation/enjoyment.
Shopping.
Collecting berries and flowers to make wine.
Picnics on the beach. We love living so close to the water and make the most of it.
Undertaking beach survey. Observing cruise ships.
Because of unpredictable traffic flow, park up on coast before finishing journey to work and sometimes just read a book.
Climbing in Calshot Activities Centre.
Charity fundraising walk.
Childrens play area.
Feeding the swans and ducks.
On a day trip with a coach outing.
For the early morning fresh air.
Tour boat.
Having a picnic.
Archaeology, shore side outdoor Christian services and generally being by the water and listening to the sea.
Taking visitors to enjoy the Southsea/Old Portsmouth coast as I live so close to it.
Taking aged mother to see the sea.
As we live near the Bembridge Lifeboat Station, it has been interesting to see the building of the new station more or less everyday and also, the launching of the new lifeboat.
Visit the Arcades Funfair at Southsea.
Watching sailing events.
Visit children's play facilities.
Taking refreshment.
Work near the beach, harbour, Eastney, Portsmouth.
To visit our beach hut.
Live on the river, section 23, on a houseboat.
Visiting the historic site, e.g. Eling Tide Mill and to take the ferry to the Isle of Wight.
For a bit of peace and quiet close to the water.
Picnics, kite flying, toddler groups.
Watching liners arrive and leave.

I live on the coast.
To visit a museum.
To have a meal.
Barbecue, Lepe Beach.
Litter picking.
Surfing.
Shore search, beach clean.
To see the cruise liners.
Medical.
Surfing.
Walking to shops in Emsworth.
I am 82. My house is a holiday home. In the past my mother was a permanent resident. When I was younger in the summer I went sailing and swimming on most days, I owned a scow until 2006.
Watching other people enjoy themselves.
To sit on a bench in memory of my husband.
Children's play area, restaurants.
Crabbing with nieces and nephews.
Put in a bench for remembrance.
BBQ.
Wake boarding.
Work.
To do conservation work.
Visiting pub.
Seeing the boats come in.
Watching RNLI helicopter rescue display.
Flying kites.
Commute to and from the mainland and eat in the waterfront restaurants.
Gardening - we live on the waterside of Chichester Harbour Creek.
Baptism in the sea.
Camping in motorhome.
Sketching and painting.
Flying at Lee-on-the-Solent.
To take toddler to throw stones in the water!
Picnic.
Surfing.
Ship movements.
Attending shore search organised by Hampshire Wildlife Trust.
Pitch and putting.
Walking, strolling.
Listen to the sea.
Watching departure of boats from Southampton.
Kite Boarding/skating.
Spear fishing.
Live in Cowes.
Watching boats.
Catch ferry from Gosport to Portsmouth Harbour, for shopping/work.
Ship watching.
Shopping.

Meet with family.
Fossil hunting and beach combing.
Eating in the restaurants.
Playground.
Watching the ships.
Paddling.
Surfing.
Horse riding.
Feeding the ducks.
I work in H.M Naval Base in Portsmouth selling harbour boat trips.
Kite flying.
visiting restaurants on the beach
Surfing