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Radiological Habits Survey: Hartlepool, 2008

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SUMMARY

This report presents the results of a survey conducted in 2008 to determine the habits and consumption patterns of people living, working and pursuing recreational activities in the vicinity of Hartlepool nuclear power station. The site discharges gaseous radioactive waste via stacks to the atmosphere, liquid radioactive waste via a pipeline into Tees Bay and contains sources of direct radiation.

The following potential exposure pathways related to the site were investigated:

- The consumption of food from the aquatic survey area
- Activities and occupancy over intertidal substrates
- The handling of fishing gear and sediment
- Activities and occupancy in and on water
- The consumption of seaweed and the use of seaweed as a fertiliser or animal feed
- The consumption of food from the terrestrial survey area
- The production, use and destination of local produce
- The consumption and use of groundwater and surface water in the terrestrial survey area
- The transfer of contamination off-site by wildlife
- Occupancy within 1 km of the licensed site boundary
- Any new or unusual exposure pathways

Interviews were conducted with members of the public and data collected for 833 individuals are presented and discussed. High rates of consumption, occupancy and handling are identified by using the 'cut off' method and 97.5th percentiles. These rates can be used in dose assessments. Additionally, profiles of integrated habits data are presented specifically for use in total dose assessments.

The aquatic survey area covered the coast of North-East England from Parton Rocks in the north to Saltburn Scar in the south and extended 3 km offshore. It also included the tidal River Tees from its mouth to the tidal barrage approximately 16 km upstream. Internal and

external exposure pathways were investigated because of the potential effects from liquid discharges. Foods were consumed from the following food groups: fish, crustaceans, molluscs, wildfowl and marine plants/algae. For these food groups, the mean consumption rate for the adult high-rate group exceeded the respective generic 97.5th percentile rate (where generic data exists) only for crustaceans. The adult high-rate groups for intertidal occupancy included people undertaking 'hooking' for brown crabs, angling, bait digging, winkle collection, mussel collection, peeler crab collection, sea coal collection, boat and mooring maintenance, sand extraction, kite flying, dog walking and field centre duties. Gamma dose rate measurements were taken at most locations in the aquatic survey area where activities were occurring. Activities in the adult high-rate group for handling fishing gear were potting, setting nets, long lining and trawling, and the only activity in the adult high-rate group for handling sediment was collecting sea coal. People were undertaking water-based activities such as commercial fishing, crewing pilot boats and dredgers, sport diving, surfing, boat angling, kayaking, rowing and sailing. The use of seaweed as a fertiliser for vegetables or for animal feed was not identified, although sea coal was used as a growing medium for carrots and used for fuel for heating allotment sheds and greenhouses.

The terrestrial survey covered an area up to 5 km from the site centre. In this area, internal exposure pathways were investigated because of the potential effects from gaseous discharges. Food production was identified at six allotment sites and at five farms and an estate in the area, which were producing beef cattle, lambs and arable crops. Two beekeepers were identified who produced honey within the survey area. For foods consumed from the terrestrial survey area, the mean consumption rates for the adult high-rate group exceeded the respective generic 97.5th percentile rates for eggs and honey. Other local foods consumed were green vegetables, other vegetables, root vegetables, potato, domestic fruit, cattle meat, sheep meat, poultry, wild/free foods, rabbits/hares and wild fungi. Human consumption of groundwater was not identified. Although all farm livestock were supplied with mains water, some animals also had access to ditch water.

Wild foods consumed included blackberries, elderberries, sloes, rabbits, hares, mushrooms, pigeons, pheasants and partridges.

The transfer of contamination off-site by wildlife was investigated, as radionuclides could enter the food chain or contaminate the environment through this pathway. A representative of the Hartlepool site reported that rabbits, hares and pigeons were observed on site. Rabbits were periodically culled in the immediate area around the site but had not been analysed for radionuclide content. Some individuals living in the terrestrial survey area were consuming rabbits, hares and pigeons that were caught or shot within 5 km of the site but it was not known if these animals and birds had spent time on the site.

The direct radiation survey covered an area out to 1 km from the licensed site boundary. In this area, external pathways were investigated because of potential effects from ionising radiation. Only one residence, which was attached to business premises, was identified in the area. Most observations were for employees of several businesses and organisations. The highest total and indoor occupancy rates were for two residents and the highest outdoor rate was for an employee. Gamma dose rate measurements were taken inside and outside a representative selection of premises where interviews were conducted. For comparison, background readings were taken outside the 5 km radius of the terrestrial survey area.

Comparisons were made with the results from the previous combined habits survey undertaken around Hartlepool in 2002.

In the aquatic survey in 2008, compared with 2002, there were decreases in the mean consumption rates for the adult high rate groups for fish and molluscs and an increase in the mean consumption rate for the adult high-rate group for crustaceans. The mean consumption rate for the adult high-rate group for fish decreased from 32 kg y⁻¹ to 28 kg y⁻¹ and the rate for molluscs decreased from 12 kg y⁻¹ to 5.8 kg y⁻¹. The mean consumption rate for the adult high rate group for crustaceans increased from 15 kg y⁻¹ to 19 kg y⁻¹. The mean consumption rate for the adult high rate group for wildfowl (6.4 kg y⁻¹ in 2002 and 6.3 kg y⁻¹ in 2008)

remained almost unchanged and for marine plants/algae (0.2 kg y^{-1} in 2002 and in 2008) remained the same.

Where similar substrates were identified in 2002 and 2008, a comparison of mean intertidal occupancy rates for the adult high-rate groups have been made. There were significant changes between 2002 and 2008. The mean intertidal occupancy rate for the adult high-rate group over mud had decreased from 910 h y^{-1} to 12 h y^{-1} , over mud and sand had decreased from 390 h y^{-1} to 62 h y^{-1} , over rock had increased from 350 h y^{-1} to 580 h y^{-1} , over sand had decreased from 980 h y^{-1} to 600 h y^{-1} , and over sand and coal had increased from 76 h y^{-1} to 1200 h y^{-1} . The mean handling rates for the adult high-rate group for fishing gear increased from 1100 h y^{-1} to 1400 h y^{-1} , and for sediment increased from 1000 h y^{-1} to 1200 h y^{-1} .

In the terrestrial survey, there were significant changes in some of the mean consumption rates for the adult high-rate groups compared to the results of the previous survey of 2002. Food groups with significant increases in consumption rates in 2008 were: cattle meat, from nil to 9.5 kg y^{-1} ; and rabbits/hares from 1.4 kg y^{-1} to 10 kg y^{-1} . Food groups with significant decreases in consumption rates in 2008 were: other vegetables, from 36 kg y^{-1} to 18 kg y^{-1} ; root vegetables, from 44 kg y^{-1} to 22 kg y^{-1} ; poultry, from 9.4 kg y^{-1} to 3.7 kg y^{-1} ; and wild fungi from 4.2 kg y^{-1} to 0.76 kg y^{-1} .

In the direct radiation area, the most significant change to the total occupancy rates was in the $>0.5 - 1.0 \text{ km}$ zone, where two residents who also worked in the area were identified in 2008. In the $0 - 0.25 \text{ km}$ zone, the total occupancy rates were similar at 1700 h y^{-1} in 2002 and 1600 h y^{-1} in 2008. In the $>0.25 - 0.5 \text{ km}$ zone, the total occupancy rates were the same in both years at 2200 h y^{-1} . In the $>0.5 - 1.0 \text{ km}$ zone, the total occupancy rates increased significantly from 2200 h y^{-1} in 2002 to 7400 h y^{-1} in 2008. Gamma dose rate measurements at four businesses and one organisation were compared.

Suggestions are provided for changes to environmental monitoring programmes on the basis of the information collected during the survey (see Section 8.3). These include replacing the

sample of mussels with a sample of whelks; adding a sample of winkles from the breakwater just outside Paddy's Hole; adding a sample of brown crabs from just outside Paddy's Hole; analysing the current sample of brown crabs from the pipeline for polonium-210; replacing the sample of apples with a sample of rhubarb or strawberries; adding one-off samples of beef, lamb or chicken, or if meat is not available, samples of faeces; adding a sample of eggs; adding a sample of rabbits; and adding a sample of wild fungi.

1 INTRODUCTION

The public may be exposed to radiation as a result of operations on the Hartlepool site, either from discharges of liquid or gaseous radioactive wastes into the local environment, or from radiation emanating directly from the site. This report provides information about activities carried out by members of the public under everyday circumstances, which may influence their radiation exposure. The study has been funded by the Environment Agency, the Food Standards Agency and the Health and Safety Executive in order to support their respective roles in protecting the public from the effects of radiation.

UK policy on the control of radiation exposure has long been based on the recommendations of the International Commission on Radiological Protection (ICRP), which embody the principles of justification of practices, optimisation of protection and dose limitation. Radiological protection of the public is based on the concept of a 'representative person'. This individual is defined as being representative of the more highly exposed members of the population. It follows that, if the dose to the representative person is acceptable when compared to relevant dose limits and constraints, other members of the public will receive lower doses, and overall protection to the public is provided from the effects of radiation. The term 'representative person' is equivalent to, and replaces, the term 'average member of the critical group' as recommended by ICRP (ICRP 2006).

1.1 Regulatory framework

The Environment Agency regulates discharges of waste under the Radioactive Substances Act 1993 (RSA 93) (UK Parliament, 1993) as amended by: the Environment Act 1995 (EA 95) (UK Parliament, 1995a); by legislation implementing the European Union (EU) Basic Safety Standards (BSS) Directive 96/29/Euratom (CEC, 1996); and by the Energy Act 2004 (EA 04) (UK Parliament, 2004). The Directive takes into account the recommendations of the ICRP, particularly ICRP 60 (ICRP, 1991). Authorisations under RSA 93 are issued by the Environment Agency after wide-ranging consultations that include the Food Standards

Agency. As well as being a Statutory Consultee, the Food Standards Agency has responsibilities for ensuring that any radioactivity present in food does not compromise food safety and that authorised discharges of radioactivity do not result in unacceptable doses to consumers via the food chain. The Food Standards Agency also ensures that public radiation exposure via the food chain is within EU accepted limits. Consultation papers on Statutory Guidance to the Environment Agency on the regulation of radioactive waste discharges were issued by the Department of the Environment, Transport and the Regions (DETR) (now part of the Department for Environment, Food and Rural Affairs (Defra)) in 2000 (DETR, 2000a) and the Welsh Assembly in 2002 (The Welsh Assembly Government, 2002). These documents state that the protection of the most highly exposed individuals in the population is the appropriate radiological protection methodology to use.

Installation and operation of certain prescribed activities can only occur on sites if they are licensed under the Nuclear Installations Act 1965 (as amended) (NIA 65) (UK Parliament, 1965). The Nuclear Installations Inspectorate of the Health and Safety Executive implements this legislation and is also responsible for regulating, under the Ionising Radiations Regulations (IRR 99) (UK Parliament, 1999), the restriction of exposure of the public to direct radiation from operations occurring on these sites.

1.2 Radiological protection framework

Dose standards for the public are embodied in national policy (UK Parliament, 1995b), in guidance from the International Atomic Energy Agency (IAEA), in the Basic Safety Standards for Radiation Protection (IAEA, 1996) and in European Community legislation in the EU BSS Directive 96/29/Euratom. The public dose standards were incorporated into UK law in IRR 99. In order to implement the Directive in England and Wales, the Environment Agency was issued with a direction by the DETR in 2000 (DETR, 2000b). This included the requirements that the Environment Agency ensure, wherever applicable:

- All public radiation exposures from radioactive waste disposal are kept As Low As Reasonably Achievable (ALARA)

- The sum of such exposures does not exceed the dose limit of 1 mSv a year

The principal limit of 1 mSv per year to the public is also the recommendation made by the ICRP.

The Environment Agency shall have regard for maximum doses to individuals for use at the planning stage:

- 0.3 mSv a year from any source
- 0.5 mSv a year from the discharges from any single site

The Environment Agency is also required to ensure that the dose estimates are as realistic as possible for the population as a whole and for reference groups of the population. It is required to take all necessary steps to identify the reference groups of the population taking into account the effective pathways of transmission of radioactive substances. Guidance on the principles underlying prospective radiological assessment (i.e. assessments of potential future doses) has been provided by a group of UK Government Bodies (EA, SEPA, DoENI, NRPB and FSA, 2002). The National Dose Assessment Working Group (NDAWG) has also published principles underlying retrospective radiological assessment (i.e. assessment of doses already received from past discharges) (Allott, 2005) and possible methods of carrying out these assessments using data from combined habits surveys (Camplin *et al.*, 2005). NDAWG agreed that the optimal method for performing retrospective dose assessments would be to use habits profiles (profiling method). This approach is being adopted in Radioactivity in Food and the Environment (RIFE) publications, (e.g. EA, FSA, NIEA and SEPA, 2008), as combined habits surveys are completed.

2 THE SURVEY

2.1 Site activity

Hartlepool power station is located at the mouth of the Tees Estuary, approximately 5 km south of the town of Hartlepool (see Figure 1). The station has twin Advanced Gas-cooled Reactors (AGRs) and began generating electricity in 1983. At the time of the survey it was owned and operated by British Energy Generation Ltd. The site discharges gaseous and liquid radioactive wastes into the environment and contains sources of direct radiation. During the survey fieldwork period the station was undergoing maintenance and was not producing electricity. It had been off-line since September 2007 and it was anticipated that it would start generating electricity again in September 2008. Hartlepool power station is expected to operate until 2014, after which it will be decommissioned.

British Energy Generation Ltd is licensed to operate the site under NIA 65, which allows the installation and operation of certain activities. Under RSA 93 the company is authorised to discharge gaseous radioactive wastes via stacks to the atmosphere and liquid radioactive wastes via an outfall into Tees Bay in the North Sea. Revised discharge authorisation limits for British Energy Generation Ltd at Hartlepool came into effect on 1 April 2007. Details of the amounts of gaseous and liquid radioactive waste discharged in 2007 have been published (EA, FSA, NIEA and SEPA, 2008). In February 2009 British Energy Generation Ltd, along with other companies in the British Energy Group, became part of EDF Energy. However, the Hartlepool power station site licence and authorisations remain in the name of British Energy Generation Ltd.

2.2 Survey objectives

The Centre for Environment, Fisheries and Aquaculture Science (Cefas) undertook the survey in 2008 on behalf of the Environment Agency, the Food Standards Agency and the Health and Safety Executive. The aim of the survey was to obtain information on the habits of the

public that might lead to their exposure to atmospheric discharges, liquid discharges and direct radiation from the Hartlepool nuclear site. The survey provided comprehensive information to ensure that all potential exposure pathways were identified.

Specifically, investigations were conducted into the following:

- The consumption of food from the aquatic survey area
- Activities and occupancy over intertidal substrates
- The handling of fishing gear and sediment
- Activities and occupancy in and on water
- The consumption of seaweed and the use of seaweed as a fertiliser or animal feed
- The consumption of food from the terrestrial survey area
- The production, use and destination of local produce
- The consumption and use of groundwater and surface water in the terrestrial survey area
- The transfer of contamination off-site by wildlife
- Occupancy within 1 km of the licensed site boundary
- Any new or unusual exposure pathways

No additional site-specific investigations were requested by the Environment Agency, the Food Standards Agency or the Health and Safety Executive. However, since elevated levels of polonium-210 have been found in winkles collected from Paddy's Hole (EA, FSA, NIEA and SEPA, 2008), the survey team paid particular attention to determining if winkles from Paddy's Hole were consumed.

2.3 Survey areas

Three survey areas were defined to encompass the main areas potentially affected by the discharges from the site and sources of radioactivity. These were an aquatic area relating to liquid discharges, a terrestrial area relating to the deposition of gaseous discharges, and a direct radiation area relating to ionising radiation emanating directly from the site.

The aquatic survey area, shown in Figure 1, covered the coast of North-East England from Parton Rocks in the north to Saltburn Scar in the south and extended 3 km offshore. It also included the tidal River Tees from its mouth to the tidal barrage, approximately 16 km upstream.

The terrestrial survey area, shown in Figure 2, covered all land within 5 km of the site centre (NGR NZ 529 269) to encompass the main areas of potential deposition from gaseous discharges. Activities relating to groundwater and surface water in the terrestrial area were also investigated.

The direct radiation survey area, shown in Figure 2, covered all land within 1 km of the Hartlepool power station perimeter fence.

The same aquatic, terrestrial and direct radiation areas were used in the previous combined habits survey conducted by Cefas in the Hartlepool area, which was in 2002 (McTaggart *et al.*, 2003).

2.4 Conduct of the survey

Prior to the start of the fieldwork, discussions were held between members of the Cefas survey team and representatives from the Hartlepool nuclear power station, the Environment Agency, the Food Standards Agency and the Health and Safety Executive. These discussions provided an outline of the main aims of the survey.

As part of the pre-survey preparation, people with local knowledge of the survey area were contacted for information on any aspects relevant to the various exposure pathways. These included a Hartlepool site representative, parish councils, local Marine Fisheries Agency officers and staff of the North Eastern Sea Fisheries Committee. Further information regarding the habits of people in the aquatic and terrestrial survey areas was obtained from Internet searches, Ordnance Survey maps and from previous habits surveys undertaken at

Hartlepool. A proposed fieldwork programme was sent to the Environment Agency, the Food Standards Agency, and the Health and Safety Executive before the fieldwork commenced, for their comment.

The fieldwork component of the survey was carried out from 13th – 23rd May 2008 by a survey team of four people, according to techniques described by Leonard *et al.* (1982).

At the start of the fieldwork, on 14th May, a meeting was held between three members of the survey team and three representatives from the site. These discussions provided details about current site activities, local information, potential pathways and activities in the area, and the transfer of contamination off-site by wildlife.

The following information was obtained during the meeting:

- The site had been offline for maintenance since September 2007 and it was expected that it would stay offline until September 2008.
- The main liquid effluent discharges are via a pipeline into Tees Bay. When the station is online there are usually about 20 discharges per month and tritiated water is discharged down the pipeline from one to three times per month. Liquid discharges are timed to occur within the period between one hour before and three hours after high water.
- Minor gaseous and liquid discharges continued during the maintenance period but tritiated water was not being discharged down the pipeline while the station was offline.
- Information about potential pathways and activities in the area included; seal watching at Greatham Creek, bird watching, crab collecting close to the power station, visitors to the local field centre, golf course and sports field nearby, planned further development of the ship breaking yard adjacent to the power station and associated proposal for deep dredging of the Seaton on Tees Channel, grazing of horses and cattle on local pasture, no dairy farms in the 5 km survey area.
- Rabbits, hares and pigeons had been seen on the site. Rabbits in the immediate area around the site were culled periodically but had not been analysed for radionuclide content.

Interviews were conducted with individuals who were identified in the pre-survey preparation and others that were identified during the fieldwork. These included, for example, commercial fishermen, anglers, hobby fishermen, mollusc collectors, nature wardens, boat users, people carrying out activities on intertidal areas, farmers, allotment holders, beekeepers and people living, working and pursuing recreational activities close to the site. Interviews were used to establish individuals' consumption rates of locally caught seafood and locally grown/collected/shot terrestrial foods, their handling rates of fishing gear and sediment, their occupancy rates relevant to external exposure and occupancy rates in and on water. Any other information of possible use to the survey was also obtained. Using the information obtained in the interviews, a list of occupations and activities was built up to produce a picture of potential exposure pathways.

The survey did not involve the whole population in the vicinity of Hartlepool, but targeted subsets or groups, chosen in order to identify those individuals potentially most exposed to radiation pathways. However, it is possible that even within a subset or group there may be people not interviewed at the time of the survey. Therefore, to aid interpretation, the number of people for whom data were obtained in each group as a percentage of the estimated complete coverage for that group has been calculated. The results are summarised in Table 1. The 'groups' are described and quantified, and the numbers of people for whom data were obtained are given as percentages of the totals. It should be noted that for certain groups, such as anglers, it can be virtually impossible to calculate the total number of people who undertake the activity in the survey area as many people visit from outside or only visit occasionally during the year. In other cases, it may be necessary, for example, to estimate the number of individuals from the number of clubs. These cases are explained in Table 1. Overall, although the number of potential interviewees in the terrestrial survey area was estimated to be around 36000, information was obtained for a significantly smaller number than this. In particular, it should be noted that the survey did not include the activities of the employees of the Hartlepool power station or contractors while they were at work on the site. This is because dose criteria applicable to these people whilst at work and the dose

assessment methods are different to those for members of the public. However, any consumption data, and activities and occupancy rates for these employees while outside work, are included in the results if employees were encountered during the survey.

People were initially questioned about their habits relating to the survey area that their first identified activity occurred in and, where possible, they were also asked about their habits relating to the other two survey areas. For example, people in the terrestrial survey were initially questioned because it was known that they grew significant quantities of terrestrial foodstuffs. However, they were also asked about habits that might lead to exposure to liquid discharges or direct radiation. During interviews with representatives from large organisations such as local businesses, it was not possible to collect data for all pathways (such as consumption of local foods) for each person. In these cases, the data were limited to those relating to the primary reason for the interview (e.g. in the case of businesses in the 1 km direct radiation area, for occupancy rates). In Annexes 1 and 2, such individuals only have data for the pathways of primary interest.

Four Cefas personnel spent nine days each investigating the survey areas and interviewing individuals who were relevant to the survey. Observations for 833 individuals were recorded.

During the survey, gamma dose rate measurements were taken to aid assessment of external exposure pathways.

3 METHODS FOR DATA ANALYSIS

3.1 Data recording and presentation

Data collected during the fieldwork were recorded in logbooks. On return to the laboratory, the data were examined and any notably high rates were double-checked, where possible, by way of a follow-up phone call. In rare cases where follow-up phone calls were not possible (e.g. interviewees who wished to remain anonymous), the data were accepted at face value. The raw data were entered into a habits survey database where each individual for whom information was obtained was given a unique identifier (the observation number) to assist in maintaining data quality.

During the interviews, people could not always provide consumption rates in kilograms per year for food or litres per year for milk. In these circumstances, interviewees were asked to provide the information in a different format. For example, some estimated the size and number of items (e.g. eggs) consumed per year, whereas others gave the number of plants in a crop or the length and number of rows in which the crop was grown per year. The database converted these data into consumption rates (kg y^{-1} for food and l y^{-1} for milk) using a variety of conversion factors. These factors included produce weights (Hessayon, 1990 and 1997 and Good Housekeeping, 1994), edible fraction data researched by Cefas, and information supplied by the Meat and Livestock Commission.

The consumption and occupancy data in the text of this report are rounded to two significant figures, except for values less than 1.0, which are rounded to one decimal place. This method of presentation reflects the authors' judgement on the accuracy of the methods used. In the tables and annexes, the consumption rate data are usually presented to one decimal place. Occasionally, this rounding process causes the computed values (row totals, mean rates and 97.5th percentiles), which are based on un-rounded data, to appear slightly erroneous. Consumption rates less than 0.05 kg y^{-1} are presented to two decimal places in order to avoid the value of 0.0 kg y^{-1} . External exposure data are quoted as integers.

To ensure the quality of the data collected during the survey fieldwork and presented in the report, the following procedures have been employed:

- Experienced scientific staff were used for the fieldwork and data analysis. They had been trained in the techniques of interviewing and obtaining data for all pathways that were relevant to the survey being conducted. Where individuals offered information during interview that was considered unusual, they were questioned further in order to double-check the validity of their claims.
- Where possible, interviewees were contacted again to confirm the results of the initial interview if, when final consumption or occupancy rates were calculated, observations were found to be high in relation to our experience of other surveys. Local factors were taken into account in these cases.
- Data were manipulated in a purpose built database using a consistent set of conversion factors.
- Data were stored in a database in order to minimise transcription and other errors.
- Draft reports were reviewed by the Environment Agency, the Food Standards Agency and the Health and Safety Executive, and by a senior Cefas radiological scientist.
- Final reports were only issued when the Environment Agency, the Food Standards Agency and the Health and Safety Executive were entirely satisfied with the format and content of the draft report.

For the purpose of data analysis, foodstuffs were aggregated into food groups as identified in Table 2. Specific food types relevant to this survey are presented in the subsequent tables. The data are structured into groups when it is reasonable to assume that consistent concentrations or dose rates would apply within the group. For example, when considering terrestrial food consumption, all types of root vegetables are grouped together in a food group called 'root vegetables'. Similarly, for aquatic food consumption, all crustacean species are grouped as 'crustaceans'. For external exposure over intertidal sediments, occupancies over the same substrate (e.g. sand) are grouped together.

In addition, data are structured into age groups because different dose coefficients (i.e. the factors which convert intakes of radioactivity into dose) can apply to different ages. The age groups and their relevant age ranges are based on the recommendations in ICRP 72 (ICRP, 1996), and are listed below:

Age group	Age range in group
3-month-old	Under 1-year-old
1-year-old	1-year-old
5-year-old	2-year-old to 6-year-old
10-year-old	7-year-old to 11-year-old
15-year-old	12-year-old to 16-year-old
Adult	17-year-old and over

For direct radiation pathways, the data are grouped into distance zones from the site perimeter as a coarse indication of the potential dose rate distribution due to this source of exposure. The bands used are: 0 – 0.25 km, >0.25 – 0.5 km and >0.5 – 1 km. These distance bands are also useful when assessing exposure to gaseous discharges.

3.2 Data analysis

The results of the survey are the individuals' consumption, occupancy and handling rates given in Annexes 1 and 2. These can be used in radiological assessments of the effects of the operations at the Hartlepool site.

Annex 3 contains qualitative and estimated data for pathways where it was not possible to obtain quantifiable data from interviews. An estimated intertidal occupancy rate over mud and sand for commercial peeler crab collectors is presented.

The habits data have been analysed to indicate high rates of consumption, occupancy and handling, prior to a formal assessment being undertaken. Three approaches have been used:

Firstly, the 'cut-off' method described by Hunt *et al.* (1982) was used. With the 'cut-off' method, the appropriate high rate was calculated by taking the arithmetic mean of the values between the maximum observed rate and one third of the maximum observed rate. In this report, the term 'high-rate group' is used to represent the individuals derived by the 'cut-off' method. The mean of the high-rate group was calculated for each food group, intertidal substrate and handling pathways identified in the survey. In certain cases, using the 'cut-off' method resulted in only one person being in the high-rate group. In these cases, expert judgement was used to decide whether the high-rate group should remain as one individual or whether others should be included. If others were included, the second highest rate was divided by three to give a new cut-off value and all observations above this were included in the high-rate group.

Secondly, 97.5th percentile rates were calculated using the Excel mathematical function for calculating percentiles. This method accords with precedents used in risk assessment of the safety of food consumption.

Thirdly, profiles have been produced that give a complete view of the habits of the individual that might lead to exposure to all the discharges and radiation from the site. The profiles are based on values calculated by the 'cut off' method. The profiled data can be used to assess total dose, integrated across all pathways of exposure.

Mean and 97.5th percentile rates based on national statistics have been derived by the Ministry of Agriculture, Fisheries and Food (MAFF) (now part of Defra) and the Food Standards Agency (Byrom *et al.*, 1995 and FSA, 2002), and these are referred to as generic rates in this report. The generic rates are used as a baseline for comparison with the observed rates.

For ingestion, intertidal occupancy and handling pathways, mean rates for the high-rate groups for children have been calculated from the survey data. However, because few child observations were identified, the rates should be viewed with caution. For assessments purposes, an alternative approach may be taken which involves scaling the mean rates for the adult high-rate groups by ratios. These ratios are given in Annex 4 and have been calculated using generic 97.5th percentile consumption rates.

For use in assessments of foetal dose, consumption and occupancy rates are provided in Annex 6 for women of childbearing age. The age range used in this report for women of childbearing age is 15 – 44 years old, which is based on the classification used by the Office of National Statistics (www.statistics.gov.uk).

For the direct radiation pathway, mean occupancy rates and 97.5th percentile rates have not been calculated. Such an analysis is of limited value without a detailed knowledge of the spatial extent of dose rates due to direct radiation.

4 AQUATIC RADIATION PATHWAYS

4.1 Aquatic survey area

Overview of survey area

The aquatic survey area, shown in Figure 1, covered the coast of North-East England from Parton Rocks in the north to Saltburn Scar in the south and extended 3 km offshore. It also included the tidal River Tees from its mouth to the tidal barrage approximately 16 km upstream.

Coal dust is washed up in patches on many beaches in the survey area but, except at one sheltered location where there is a thick permanent deposit, the patches are ephemeral; sometimes appearing on one tide and disappearing on the next. Therefore, with the exception of the permanent deposit, coal dust has not been included in the description of substrates in this section.

Parton Rocks to Victoria Harbour

Parton Rocks was used as a landmark to define the northern limit of the survey area but the rocks themselves were just offshore and no activities were recorded there. To the south of Parton Rocks the sandy beach at Throston was popular with walkers, dog walkers and non-commercial sea coal collectors, and also attracted families and sunbathers in fine weather. The rocky area of Throston Scar extended southwards from the beach and joined the rocks of the promontory to the north of Hartlepool known as The Headland. Winkle picking and peeler crab collecting took place from these rocks, and common lobster and brown crab were caught using pots set from the shore, or by hooking them out from amongst the rocks using a pole with a hook on the end. These activities were mainly carried out during spring tides when larger expanses of rock were exposed.

The Heugh breakwater jugged out into the sea from the south side of The Headland. It had previously been a popular angling venue but was now fenced off for safety reasons and anglers were no longer able to gain access.

Further east along the south side of The Headland, between the Heugh breakwater and the entrance to Victoria Harbour, there were two small beaches called Block Sands and Fish Sands, separated by a rocky area and a small pier that was frequently used by anglers. Block Sands beach was sand and stones with rocks on the lower shore and Fish Sands was sand with mud and rocks on the lower shore. Both these beaches were close to residential areas and easy parking, were sheltered from the wind, and were designated bathing areas patrolled by lifeguards. They were popular with families engaged in playing, paddling, swimming and rock pooling. A ramp led down to the beach at Fish Sands and this was used for launching canoes, jet-skis and small pleasure craft.

Victoria Harbour to Carr House Sands

Victoria Harbour was the main commercial fishing port within the survey area and also had a cargo terminal at the western end. The fish quay had landing facilities and fish wholesale businesses were located nearby. The quay and floating pontoons provided moorings for commercial fishing vessels, non-commercial fishing boats, angling boats, charter angling boats, yachts and other small pleasure craft. An RNLI lifeboat station was situated on the southeast corner of the harbour.

Middleton Sands, to the southwest of Victoria Harbour, fronted a derelict industrial area. The beach was sand, with mud and sand at the low water mark. Bait digging, sea coal collection and dog walking took place here and jet-skis and small pleasure boats were taken down an earth ramp onto the beach for launching.

Hartlepool Marina is protected by lock gates that maintain the water level at low tide. There were berths for up to 450 boats on floating pontoons and a wide variety of craft were moored

there including sailing yachts, motor cruisers, speedboats, charter angling boats, private angling boats, non-commercial fishing boats, and about six commercial fishing boats. A Sea Cadet Corps and a diving club had premises at the marina and a yacht club with its own launching slipway was situated just outside the lock gates on the south side. There had been an experimental mussel farm in the marina, using ropes suspended under the pontoons, but the mussels were never approved for human consumption. The mussels had been left on the ropes, and some people used them for angling bait. On the seaward side the entrance to the marina lock was sheltered by piers and jetties, but these were not very suitable for angling and only one angler was observed fishing from them during the survey.

To the south of Hartlepool Marina, the Old Town Basin was sheltered by a pier and an unusually deep deposit of sea coal dust had formed a narrow beach at the head of the basin. Further down the shore the substrate was mud and sand and many old car tyres had been laid out to attract peeler crabs. Sea coal was collected non-commercially from the beach but there was no commercial sea coal collection since there was no access to the beach for vehicles. Activities observed taking place over mud and sand were digging worms for bait, collecting peeler crabs and collecting cockles.

Carr House Sands to North Gare

Carr House Sands stretch south from the Old Town Basin combining with Seaton Sands to form a sandy beach five kilometres long. Two rocky areas called Long Scar and Little Scar were exposed at low water. The beach was easily accessible from Seaton Carew and Hartlepool. Carr House Sands was the main area for commercial coal dust collection and was very popular with dog walkers. Riders were observed exercising horses on the beach. Seaton Sands was used by walkers, families playing on the beach and dog walkers. Lifeguards patrolled the beach, and kite surfers and two adult swimmers were observed in the sea. The rocky scars were visited by people collecting pieces of sea coal that had been deposited in the gullies between the rocks and by people rockpooling. It was reported that hooking for brown crabs and common lobsters took place on the rocks during spring tides.

The liquid wastes from Hartlepool power station were discharged into Tees Bay from the site outfall, located just off the beach at Seaton Sands, approximately half a kilometre north of the North Gare Breakwater.

North Gare to Seal Sands

The North Gare Breakwater marked the southern limit to Seaton Sands and formed the western side of the mouth of the River Tees Estuary. Angling took place from the rocks and sand around the breakwater. North Gare Sands was a wide sandy beach backed by sand dunes that stretched two kilometres south from the breakwater. It was a Site of Special Scientific Interest (SSSI) and formed part of the Teesmouth National Nature Reserve managed by English Nature. A field centre provided environmental education for school parties and other interested visitors to learn about the reserve and visits usually included spending some time on the beach. Sand was extracted commercially from the beach and other activities included angling, walking, dog walking and jogging.

At the southern end of North Gare Sands, the Seaton on Tees Channel formed an inlet to the west of the main Tees Estuary. The nuclear power station was located on the northern bank of this channel. The upper shore in front of the power station was sand, backed by boulders and the remains of a sea wall, while the lower shore was mud and sand. It was reported that peeler crab collection took place in this area but no activities were observed at the time of the survey.

To the west of the power station was a wharf and dock basin used for ship breaking. Further development of the wharf was planned and it was anticipated that the Seaton on Tees Channel would be dredged to accommodate larger vessels. If the dredging goes ahead then any radionuclides buried in the sediment could be disturbed and redistributed in the environment.

West of the dock basin the shore was mud and sand, turning to mud further west at the mouth of Greatham Creek. Access was by permission down a track through a business property, or via public footpaths at Greatham Creek. Car tyres and pieces of pipe had been laid all along the lower shore to attract peeler crabs for angling bait. The area was part of an SSSI and English Nature had granted licences to two individuals in 2008 permitting the collection of peeler crabs, although it was possible that no licences would be issued in future years. The area attracted people to watch birds and seals but they usually stayed on the high banks and did not venture down to the intertidal areas.

Seal Sands, on the south side of the Seaton on Tees Channel, was a large expanse of mud and sand when exposed at low water. The Port Authority owned the track to it and public access was prohibited. The area was also part of a SSSI and no activities were permitted. Despite this it was reported that people occasionally dug worms for bait or collected winkles from the rocks at the eastern edge of the sands.

Seal Sands to South Gare including the River Tees upstream to the tidal barrage.

The River Tees is tidal from the river mouth, back to the tidal barrage approximately 16 km upstream. Above the barrage the river is freshwater. Between Seal Sands and the barrage large stretches of both banks of the river were heavily industrialised and there were several wharfs and docks used by large cargo vessels. Public access to the riverbank was possible at the Tees barrage and via the Teesdale Way path that ran by the river for approximately 4 km downstream from the barrage. In places along this stretch of river patches of mud and boulders were exposed along the shore at low tide, although the banks of the river were steep sided and access to the intertidal areas was difficult. No sign of any activity was observed in these intertidal areas at the time of the survey. A watersports slalom course used for kayaking and rafting was situated in a culvert around the barrage but this was entirely freshwater. It was reported that anglers occasionally fished for salmon from the riverbank just downstream from the barrage but that they rarely caught anything.

Bran Sands is located on the eastern side of the Tees Estuary opposite the Seaton on Tees Channel. It is backed by the South Gare Breakwater that extends northwards to form the eastern side of the mouth of the Tees Estuary. Access to the area was via a private road from Coatham, which was open to the public. At low water Bran Sands was a large expanse of mud and sand and was a very popular area for bait digging. The upper shore on both sides of the breakwater was rocks. Further down the intertidal zone the rocks were interspersed with areas of stones, mud and sand. In places strings of car tyres had been laid to attract peeler crabs. Commercial and non-commercial winkle collectors, bait diggers, peeler crab collectors and mussel collectors were all observed in the South Gare area and the end of the breakwater was a popular angling venue. The worms, peeler crabs and mussels (*Mytilus edulis*) were used as bait for boat and shore angling.

A coastguard station, diving club and disused lifeboat station were based on the South Gare Breakwater and there were two concrete slipways. Small boats were kept in various sheltered inlets on the west side of the breakwater, the most significant of which was known as Paddy's Hole where five commercial fishing boats and over 50 hobby fishing boats were moored. A large shore compound for yachts and motorboats was situated close by. The substrate at Paddy's Hole was a mix of areas of mud, sand and stones and observations were recorded for individuals carrying out boat maintenance and fixing moorings. Because elevated levels of polonium-210 have been found in winkles collected from Paddy's Hole (EA, FSA, NIEA and SEPA, 2008) enquiries were made specifically about the consumption of winkles collected from inside Paddy's Hole. People collecting winkles on other parts of South Gare, and local fishermen who spent much time at their huts at Paddy's Hole, reported that they did not know of anybody that consumed winkles from within Paddy's Hole. However, winkles for human consumption were collected from the outside of the small breakwater that formed Paddy's Hole. A fish wholesale business was located on the approach road to South Gare.

South Gare to Saltburn Scar

Outside the Tees Estuary, the coastline from South Gare Breakwater eastwards to Saltburn-by-the-Sea was an unbroken 12 km stretch of sandy beach, which had good access by road or foot for most of its length. The villages of Coatham, Redcar, Marske-by-the-Sea and Saltburn-by-the-Sea are situated on the coast. Commercial and hobby fishing boats were launched across the beach using tractors at Redcar, Marske-by-the-Sea and Saltburn-by-the-Sea. There were approximately three commercial and 40 hobby boats based at Redcar, one commercial and five hobby boats based at Marske-by-the-Sea, and one commercial and 15 hobby boats based at Saltburn-by-the-Sea. At Redcar most of the boats were kept in a compound away from the beach.

The beaches at Redcar and Saltburn-by-the-Sea were popular places for family outings and were also frequently used by people swimming from the shore. Water sports including surfing, kite surfing, wind surfing, kayaking and boogie boarding were undertaken in many places including Coatham Sands, Redcar Sands and Marske-by-the-Sea, but particularly at Saltburn-by-the-Sea where there was a surf school. Other activities undertaken at various beaches included angling, walking, dog walking, beach combing, metal detecting, boat maintenance and kite flying. The pier at Saltburn-by-the-Sea was a popular angling venue.

Coatham Rocks and Redcar Rocks were two large outcrops of rock at Coatham and Redcar respectively, which were exposed at low water. Angling, rockpooling, hooking for brown crabs and common lobsters, winkle collecting and mussel collecting took place on the rocks.

The start of Saltburn Scar marked the southern limit of the survey area. The scar was backed by high cliffs and could only be accessed along the shore from Saltburn-by-the-sea. Winkle collecting was reported to take place on the rocks.

4.2 Commercial fisheries

Approximately 80 registered fishing boats were based in the survey area. Most of these were small, less than 10 m in length, and many of them only operated part time or were not used for commercial fishing. About 30 boats were engaged in full time commercial fishing. The main commercial fishing port was at Victoria Harbour in Hartlepool but fishing boats also operated from Hartlepool Marina, Paddy's Hole, Redcar, Marske-by-the-Sea and Saltburn-by-the-Sea. Fishing methods included potting, netting, long lining and trawling.

The trawlers, which were based in Hartlepool, usually fished for *Nephrops* in the winter and whitefish in the summer. The main species of fish caught were cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), whiting (*Merlangius merlangus*), lemon sole (*Microstomus kitt*) and Dover sole (*Solea solea*). The trawlers mainly fished outside the survey area but a small amount of trawling for whitefish did take place within the area. The main fishing activity within the survey area was potting for common lobsters (*Homarus gammarus*) and brown crabs (*Cancer pagurus*). Velvet swimming crabs (*Necora puber*) were also caught in the pots but the fishery was not very profitable and few were landed. Potting could be carried out all year but was predominantly undertaken during the summer. Some netting and a little long-lining, both targeting whitefish, were also undertaken by the potting boats, mainly during the winter months. Although most commercial fishing took place in the open sea some potting was carried out within the lower reaches of the Tees Estuary.

There is no longer any drift-net fishing for salmon in the area but one fisherman held a licence for a static salmon 'T' net. The fishery was only open for a few months during the summer and was not operational at the time of the survey.

Two commercial winkle collectors were identified that harvested winkles (*Littorina littorea*) from South Gare breakwater during the spring and summer. It was reported that gangs from outside the area also periodically picked winkles from South Gare.

Fishing patterns within the survey area could be disrupted if plans go ahead to build a proposed wind-farm off Coatham Sands, to the south-east of South Gare.

4.3 Seafood wholesalers and retailers

The main landing centre for fish and shellfish within the survey area was at Victoria Harbour but most of the catches landed there were caught outside the survey area. Following the decline in the offshore fishing industry the fish auction at Victoria Harbour had closed and most of the fish and shellfish landed at the port were taken to fish markets in Sunderland and North Shields.

Three wholesalers were identified that handled catches from within the survey area. One was based at Victoria Harbour, one at South Gare and the other was outside the survey area at Staithes. In all cases the catch from within the survey area was only a small proportion of the total catch handled by each wholesaler. The wholesaler at Victoria Harbour supplied fish, brown crabs and common lobsters caught from the survey area to wet fish shops in Hartlepool, Stockton and Yarm and to hotels and restaurants within the local area and further afield. The wholesaler at South Gare handled common lobsters and winkles caught from within the survey area. The lobsters were sold throughout the United Kingdom and the winkles were sold in northern England. The wholesaler at Staithes handled brown crabs and common lobsters from the survey area and these were sold mainly in North-East England.

Only small quantities of velvet swimming crabs were landed and these were exported to Spain. Some common lobsters were exported to Europe.

Small quantities of fish, brown crabs and common lobsters were sold direct to the public from some of the smaller boats at various places along the coast.

4.4 Angling, hobby fishing and shellfish collecting

Angling was popular in the survey area with shore angling taking place from many of the local beaches and piers. Boat angling was also popular with boats being kept at Victoria Harbour, Hartlepool Marina, Paddy's Hole, Redcar, Marske-by-the-Sea and Saltburn-by-the-Sea. None of the angling charter boats operating from Victoria Harbour or Hartlepool Marina fished within the survey area.

The predominant fish species caught and eaten in the area during the summer months were mackerel (*Scomber scombrus*), plaice (*Pleuronectes platessa*), ling (*Molva molva*) and Dover sole (*Solea solea*). Species caught and eaten less frequently included bass (*Dicentrarchus labrax*), flounder (*Platichthys flesus*), lemon sole (*Microstomus kitt*), dab (*Limanda limanda*) and saithe (*Pollachius virens*).

During the winter the predominant species caught and eaten were cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*) and whiting (*Merlangius merlangus*).

In this report, the term 'hobby fishing' means recreational fishing on a small scale with gear such as nets or pots. It is usually carried out from boats that do not have commercial fishing licences and therefore it is illegal to offer the catch for sale. Many individuals were identified hobby fishing with a few pots or nets in the survey area. They operated their boats from Victoria Harbour, Hartlepool Marina, Paddy's Hole, Redcar, Marske-by-the-Sea and Saltburn-by-the-Sea. The catches of brown crabs, common lobsters, whelks and various fish species were consumed by the fishermen and their families and friends. Under North Eastern Fisheries District bylaws unlicensed fishermen are restricted to using a maximum of 10 pots or 100 meters of net and there is a retained catch limit of two common lobsters, 10 brown crabs and 30 whelks per day.

Edible crustaceans were collected non-commercially from the shore. Individuals collected brown crabs (*Cancer pagurus*) and common lobsters (*Homarus gammarus*) using hand held

'crabbing hooks' at low tide amongst the rocks at Throston Scar, Long Scar, Coatham Rocks and Redcar Rocks. A few lobster pots were set from the shore at Throston Scar and The Headland. It was reported that a few individuals used push-nets on sandy beaches to catch brown shrimps (*Crangon crangon*), which were consumed by their families and friends.

Molluscs collected and caught non-commercially in the survey area included winkles (*Littorina littorea*), mussels (*Mytilus edulis*), cockles (*Cerastoderma edule*) and whelks (*Buccinum undatum*). These were consumed by the collectors and their families and friends. Individuals collected winkles from the intertidal rocky areas at South Gare breakwater, Throston Scar, Coatham Rocks, Redcar Rocks and Saltburn Scar. Mussels were collected at South Gare breakwater and from rocks at Coatham and Redcar. Whelks were caught in season as a by-catch in lobster pots and by hand intertidally on very low tides. One individual was noted collecting cockles at Old Town Basin.

Many people collected peeler crabs for angling bait for their own use or on a semi commercial basis and it was reported that at least two commercial peeler crab collectors operated in the area. Interviews were conducted with non-commercial collectors but the commercial collectors, who had higher occupancy times, could not be identified during the survey. It was reported that the commercial collectors spent 15 to 20 hours over mud and sand per week from April to September, which is approximately 455 h y^{-1} . This estimate has been entered into Annex 3.

4.5 Wildfowling

No wildfowling occurred on tide washed areas within the aquatic survey area, therefore there are no intertidal occupancy times associated with this activity. However, one wildfowling club, with approximately ten active members, shot on the freshwater Cowpen Marsh located in the terrestrial survey area. Since the wildfowl that were shot on Cowpen Marsh could have spent time on local tide washed areas, and thereby been exposed to aquatic discharges, the club members consumption rates have been included in the aquatic section of this report. The

main species shot were mallard (*Anas platyrhynchos*), teal (*Anas crecca*) and widgeon (*Anas penelope*). Some greylag geese (*Anser anser*), Canada geese (*Branta canadensis*), shoveler (*Anas clypeata*), gadwall (*Anas strepera*) and pintail (*Anas acuta*) were also shot during the season, which is from 1st September to 31st January. The freshwater Saltholme Marsh is now a nature reserve and wildfowling is no longer allowed there.

4.6 Other pathways

Sea coal was washed up in places along the shore throughout the northern part of the aquatic survey area and this was collected both commercially and non-commercially. Coal dust, which was composed of particles about the same size as grains of sand, was found on the beaches in drifts up to about 10 centimeters deep and small lumps of coal were also washed up on the beaches and deposited in gullies on the rocky scars. About nine people were engaged in the commercial collection of sea coal. They collected coal dust from Carr House Sands and Middleton Sands by shoveling it onto pick-up trucks. It was taken to a scrap merchant in Hartlepool for cleaning before being sold on to a coal fired power station. Many people collected lumps of sea coal and coal dust for their own use from Throston Scar, Throston beach, Middleton Sands, Old Town Basin, Carr House Sands and other beaches. The coal was used mainly by allotment tenants to heat their allotment sheds and greenhouses. One person was identified who regularly used beach coal dust mixed with compost as a growing medium for his carrots.

One individual consumed small amounts of samphire (*Salicornia spp.*) collected from Greatham Creek.

It was reported that commercial bait digging gangs from outside the area sometimes dug for lugworm at Bran Sands.

4.7 Food consumption data

Consumption data for local aquatic foodstuffs are presented in Tables 3 to 7 for adults and in Tables 8 to 10 for children. The tables include the mean consumption rates of the high-rate groups together with the observed 97.5th percentile rates calculated as described in Section 3.2. For purposes of comparison, the data are summarised in Table 11 for adults and Tables 12 to 14 for children (15-year-olds, 10-year-olds and 5-year-olds, respectively). The summary tables also include mean rates and 97.5th percentile rates based on national data (referred to as 'generic' data in this report). No generic data are available for the 5-year-old age group.

Adults' consumption rates

Adults were identified consuming foods from the following five food groups: fish, crustaceans, molluscs, wildfowl and marine plants/algae. The people consuming the greatest quantities of food from the aquatic survey area were commercial fishermen, anglers and hobby fishermen, non-commercial mollusc collectors, wildfowlers and the families of each of these groups.

The predominant species of fish consumed by adults were cod, ling, Dover sole, haddock, mackerel, plaice and whiting with smaller quantities of bass, dab, flounder, herring (*Clupea harengus*), lemon sole, and saithe. A high-rate group of 25 individuals was identified with a maximum consumption rate of 50 kg y⁻¹ and a mean of 28 kg y⁻¹. The observed 97.5th percentile rate based on 88 observations was 35 kg y⁻¹. This compares with the adult generic mean and 97.5th percentile consumption rates for fish of 15 kg y⁻¹ and 40 kg y⁻¹ respectively. The percentage breakdown of species eaten by the high-rate group, rounded to the nearest 5% and excluding observations for 'mixed fish', was 60% cod, 10% haddock, 10% mackerel, 10% whiting, and 10% other species.

The predominant species of crustaceans consumed by adults were brown crab and common lobster with very small amounts of velvet swimming crab (*Liocarcinus puber*) and brown shrimp (*Crangon crangon*). Fourteen individuals were identified in the high-rate group with a

maximum consumption rate of 29 kg y⁻¹ and a mean consumption rate of 19 kg y⁻¹. The observed 97.5th percentile rate based on 69 observations was 23 kg y⁻¹. This compares with the adult generic mean and 97.5th percentile consumption rates for crustaceans of 3.5 kg y⁻¹ and 10 kg y⁻¹ respectively. The percentage breakdown of species eaten by the high-rate group, rounded to the nearest 5%, was 65% brown crab and 35% common lobster.

The predominant species of molluscs consumed by adults were winkles and whelks, with smaller amounts of mussels and cockles. A high-rate group of seven individuals was identified with a maximum consumption rate of 7.9 kg y⁻¹ and a mean of 5.8 kg y⁻¹. The observed 97.5th percentile rate based on 33 observations was 7.9 kg y⁻¹. This compares with the adult generic mean and 97.5th percentile consumption rates for molluscs of 3.5 kg y⁻¹ and 10 kg y⁻¹ respectively. The percentage breakdown of species eaten by the high-rate group, rounded to the nearest 5%, was 55% whelk, 35% winkle and 5% mussel. No consumption of winkles collected from Paddy's Hole was identified.

The wildfowl consumed by adults were goose and duck. A high-rate group of two individuals was identified with a maximum and a mean consumption rate of 6.3 kg y⁻¹. The observed 97.5th percentile rate based on five observations was 6.3 kg y⁻¹. No generic data are available for this food group. The percentage breakdown of types of wildfowl eaten by the high-rate group, rounded to the nearest 5%, was 65% duck and 35% goose.

The only species of marine plant consumed by adults was samphire. A high-rate group, represented by the only observation, consumed 0.2 kg y⁻¹. The observed 97.5th percentile rate is not applicable for one observation. No generic data are available for this food group.

Children's consumption rates

15-year-old age group

Children in the 15-year-old age group were identified to be consuming fish, crustaceans and molluscs. No consumption of wildfowl or marine plants/algae was identified.

For fish, a high-rate group of five individuals was identified with a maximum consumption rate of 6.5 kg y⁻¹ and a mean of 4.1 kg y⁻¹. The observed 97.5th percentile rate based on seven observations was 6.2 kg y⁻¹. This compares with the 15-year-old age group generic mean and 97.5th percentile consumption rates for fish of 6.5 kg y⁻¹ and 20 kg y⁻¹ respectively.

For crustaceans, a high-rate group of only one individual was identified with a consumption rate of 1.0 kg y⁻¹. The observed 97.5th percentile rate based on seven observations was 0.9 kg y⁻¹. This compares with the 15-year-old age group generic mean and 97.5th percentile consumption rates for crustaceans of 2.5 kg y⁻¹ and 6.0 kg y⁻¹ respectively.

For molluscs, a high-rate group of three individuals was identified with a maximum consumption rate of 1.3 kg y⁻¹ and a mean of 1.2 kg y⁻¹. The observed 97.5th percentile rate based on three observations was 1.3 kg y⁻¹. This compares with the 15-year-old age group generic mean and 97.5th percentile consumption rates for molluscs of 2.5 kg y⁻¹ and 6.0 kg y⁻¹ respectively.

10-year-old age group

Children in the 10-year-old age group were identified to be consuming fish, crustaceans and molluscs. No consumption of wildfowl or marine plants/algae was identified.

For fish, a high-rate group of two individuals was identified with a maximum consumption rate of 15 kg y⁻¹ and a mean of 11 kg y⁻¹. The observed 97.5th percentile rate based on eight

observations was 14 kg y^{-1} . This compares with the 10-year-old age group generic mean and 97.5th percentile consumption rates for fish of 6.0 kg y^{-1} and 20 kg y^{-1} respectively.

For crustaceans, a high-rate group of only one individual was identified with a consumption rate of 6.4 kg y^{-1} . The observed 97.5th percentile rate based on four observations was 6.0 kg y^{-1} . This compares with the 10-year-old age group generic mean and 97.5th percentile consumption rates for crustaceans of 2.5 kg y^{-1} and 7.0 kg y^{-1} respectively.

For molluscs, a high-rate group of four individuals was identified with a maximum consumption rate of 1.3 kg y^{-1} and a mean of 1.3 kg y^{-1} . The observed 97.5th percentile rate based on four observations was 1.3 kg y^{-1} . This compares with the 10-year-old age group generic mean and 97.5th percentile consumption rates for molluscs of 2.5 kg y^{-1} and 7.0 kg y^{-1} respectively

5-year-old age group

Children in the 5-year-old age group were noted to be consuming fish, crustaceans and molluscs. No consumption of wildfowl or marine plants/algae was identified.

For fish, two individuals were identified with the same consumption rate of 0.8 kg y^{-1} . The observed 97.5th percentile rate for two observations was 0.8 kg y^{-1} . Generic mean and 97.5th percentile fish consumption rates for 5-year-olds are not available for comparison.

For crustaceans, two individuals were identified with the same consumption rate of 0.1 kg y^{-1} . The observed 97.5th percentile rate for two observations was 0.1 kg y^{-1} . Generic mean and 97.5th percentile crustacean consumption rates for 5-year-olds are not available for comparison.

For molluscs, one individual was identified with a consumption rate of 1.3 kg y^{-1} . The observed 97.5th percentile rate is not applicable for one observation. A generic mean mollusc consumption rate for 5-year-olds is not available for comparison.

1-year-old age group

No children in the 1-year-old age group were noted to be consuming any local aquatic foodstuffs.

3-month-old age group

No children in the 3-month-old age group were noted to be consuming any local aquatic foodstuffs.

4.8 Intertidal occupancy

Intertidal occupancy rates for adults and children are presented in Table 16 and Table 17, respectively.

Adults' intertidal occupancy

Occupancy rates for adults were recorded over the following seven different types of substrate: mud; mud and sand; mud and stones; mud, sand and stones; rock; sand; and sand and coal.

The only occupancy rate recorded over mud was 12 h y^{-1} for an individual fixing his moorings.

The maximum occupancy rate recorded over mud and sand was 100 h y^{-1} for an individual who was bait digging. Three other individuals, an individual undertaking boat maintenance

and two individuals bait digging, had occupancy rates within a factor of three of this giving a mean occupancy rate for the high-rate group of 62 h y^{-1} .

It was reported that two commercial peeler crab collectors spent 460 h y^{-1} over mud and sand, but it was not possible to confirm this by interviews with the collectors themselves. This estimate of intertidal occupancy has been entered into Annex 3.

The only occupancy rate recorded over mud and stones was 300 h y^{-1} for a commercial fisherman maintaining his boat.

The maximum occupancy rate recorded over mud, sand and stones was 200 h y^{-1} for two individuals collecting winkles. Two anglers had occupancy rates within a factor of three of this giving a mean occupancy rate for the high-rate group of 130 h y^{-1} .

The maximum occupancy rate recorded over rock was 620 h y^{-1} for an individual who was angling and collecting crustaceans and molluscs. One other individual, who was an angler, had an occupancy rate within a factor of three of this giving a mean occupancy rate for the high-rate group of 580 h y^{-1} .

The maximum occupancy rate recorded over sand was 940 h y^{-1} for two individuals. One was a kite flyer and the other was an individual undertaking angling, bait digging and crustacean collecting. Thirteen other individuals had occupancy rates within a factor of three of this. Eight were dog walkers, two were field studies instructors, two were anglers and one was a sand extractor. This provides a mean occupancy rate for the high-rate group of 600 h y^{-1} .

The maximum occupancy rate recorded over sand and coal was 1500 h y^{-1} for two commercial sea coal collectors. Two other commercial sea coal collectors had occupancy rates within a factor of three of this giving a mean occupancy rate for the high-rate group of 1200 h y^{-1} .

Children's intertidal occupancy

15-year-old age group

Occupancy rates for 15-year olds were recorded over sand, sand and coal, and mud, sand and stones.

The maximum occupancy rate recorded over sand was 78 h y^{-1} for a child walking a dog. One other child, who was an angler, had an occupancy rate within a factor of three of this giving a mean occupancy rate for the high-rate group of 69 h y^{-1} .

The maximum occupancy rate recorded over sand and coal was 440 h y^{-1} for two children collecting sea coal. No other occupancies over this substrate were noted for children in this age group, giving a mean occupancy rate for the high-rate group of 440 h y^{-1} .

The only occupancy rate recorded over mud, sand and stones was 5 h y^{-1} for a child collecting winkles. No other children in this age group were identified over this substrate, so the mean occupancy rate for the high-rate group is 5 h y^{-1} .

10-year-old age group

Occupancy rates for 10-year olds were recorded over sand, sand and coal, mud, sand and stones, and rock.

The maximum occupancy rate recorded over sand was 140 h y^{-1} for a child playing. Three other children in this age group, two dog walking and another playing, had occupancy rates within a factor of three of this, giving a mean occupancy rate for the high-rate group of 88 h y^{-1} .

The only occupancy rate recorded over sand and coal was 40 h y^{-1} for a child collecting sea coal. No other children in this age group were identified with occupancy over sand and coal, so the mean occupancy rate for the high-rate group is 40 h y^{-1} .

The maximum occupancy rate recorded over rock was 94 h y^{-1} for a child playing. One other child in this age group, also playing, had an occupancy rate within a factor of three of this giving a mean occupancy rate for the high-rate group of 73 h y^{-1} .

The only occupancy rate recorded over mud, sand and stones was 5 h y^{-1} for a child collecting winkles. No other children in this age group were identified over mud, sand and stones, so the mean occupancy rate for the high-rate group is 5 h y^{-1} .

5-year-old age group

Occupancy rates for 5-year olds were recorded over rock, sand, and sand and coal.

The only occupancy rate recorded over rock was 13 h y^{-1} for a child collecting winkles. No other children in this age group were identified over rock, so the mean occupancy rate for the high-rate group is 13 h y^{-1} .

The maximum occupancy rate recorded over sand was 78 h y^{-1} for a child walking on the beach. Three other children in this age group, all playing, had occupancy rates within a factor of three of this giving a mean occupancy rate for the high-rate group of 51 h y^{-1} .

The only occupancy rate recorded over sand and coal was 40 h y^{-1} for a child collecting sea coal. No other children in this age group were identified over sand and coal, so the mean occupancy rate for the high-rate group is 40 h y^{-1} .

1-year-old age group

No children in the 1-year-old age group were identified spending time on intertidal areas.

3-month-old age group

No children in the 3-month-old age group were identified spending time on intertidal areas.

Gamma dose rate measurements

Representative gamma dose rate measurements at 1 m above the substrate were taken over coal dust; mud; mud and sand; mud and stones; sand; sand and coal dust; and sand and stones. These measurements (shown in Table 18) ranged from 0.114 to 0.154 $\mu\text{Gy h}^{-1}$ over mud, from 0.060 to 0.066 $\mu\text{Gy h}^{-1}$ over mud and sand, from 0.153 to 0.179 $\mu\text{Gy h}^{-1}$ over mud and stones, from 0.047 to 0.059 $\mu\text{Gy h}^{-1}$ over sand, and from 0.052 to 0.056 $\mu\text{Gy h}^{-1}$ over sand and coal dust. Measurements were 0.048 $\mu\text{Gy h}^{-1}$ over coal dust, and 0.058 $\mu\text{Gy h}^{-1}$ over sand and stones. Natural levels of around 0.05 $\mu\text{Gy h}^{-1}$ over sand and around 0.07 $\mu\text{Gy h}^{-1}$ over mud and salt marsh are expected. A value of 0.06 $\mu\text{Gy h}^{-1}$ is expected for all other substrate types. The relatively high values over mud and over mud and stones were all recorded at Paddy's Hole. The enhanced levels at Paddy's Hole are believed to be due to waste slag from the local iron and steel industries, used along the River Tees as sea defences, and/or the build up of naturally occurring radionuclides in sediments as the result of degradation of the sea defence materials over time (EA, FSA, NIEA and SEPA, 2008).

4.9 Handling of fishing gear and sediment

Handling sediment while bait digging or mollusc collecting, or handling commercial fishing gear that has become entrained with fine sediment particles, can potentially give rise to skin exposure from beta radiation. Doses to the skin need consideration as there is a separate

dose limit for skin for members of the public. There is also a contribution to effective dose due to skin exposure (ICRP, 1991).

Handling of angling equipment was not considered to be a significant pathway. Therefore, as in previous surveys, data for this pathway were not collected.

Fishing gear can also be a source of whole body gamma exposure due to occupancy in the vicinity of the gear. However, this pathway is minor compared with the exposure received during occupancy over intertidal areas and it has therefore been omitted from the report.

Adults' handling

Adults' handling rates of fishing gear and sediment are presented in Table 19.

The maximum fishing gear handling rate recorded was 2200 h y⁻¹ for two individuals. Eight other individuals had fishing gear handling rates within a factor of three of this giving a mean handling rate for the high-rate group of 1400 h y⁻¹.

The maximum sediment handling rate recorded was 1500 h y⁻¹ for two commercial sea coal collectors. Two other commercial sea coal collectors had sediment handling rates within a factor of three of this giving a mean handling rate for the high-rate group of 1200 h y⁻¹.

Children's handling

Children's handling rates for sediment are presented in Table 20. No handling of fishing gear by children of any age group was identified.

15-year-old age group

The maximum sediment handling rate recorded was 440 h y⁻¹ for two children collecting sea coal. No other children in this age group had handling rates that came within a factor of three of this giving a mean handling rate for the high-rate group of 440 h y⁻¹.

10-year-old age group

The maximum sediment handling rate recorded was 52 h y⁻¹ for a child collecting sea coal and winkles. No other children in this age group had handling rates that came within a factor of three of this giving a mean handling rate for the high-rate group of 52 h y⁻¹.

5-year-old age group

Only one child was noted to be handling sediment in this age group. This child, who was collecting sea coal and winkles, had a handling rate of 52 h y⁻¹.

1-year-old age group

No handling by children in this age group was identified.

3-month-old age group

No handling by children in this age group was identified.

4.10 Water based activities

Activities taking place in or on the water can lead to ingestion of water and/or inhalation of spray. These pathways are generally considered to be minor in comparison with other exposure pathways such as the ingestion of foods produced in the vicinity of a nuclear site.

However, in order to enable dose assessment, relevant data have been collected. No manipulation of the data (for example, calculating high-rate group rates) has been carried out.

Occupancy rates for activities taking place 'on water' and 'in water' in the survey area for adults and children are shown in Table 21 and Table 22, respectively. Representative data were obtained for members of the Sea Cadets, the pilot boat crew and the dredger boat crew.

Activities on the water

Activities taking place on the water around Hartlepool included boating, dredging, pilot boat operations, commercial fishing and boat angling. Sixty-four observations were recorded for adults and 15 observations were recorded for children. The highest occupancy rate for adults was 2900 h y⁻¹ for a fisherman potting for crabs and lobsters and the highest occupancy rate for children in both the 15-year-old and 10-year old age groups was 900 h y⁻¹ for members of the Sea Cadets.

No children in the 5-year-old, 1-year-old and 3-month-old age groups were identified with times on the water.

Activities in the water

Activities taking place in the water around Hartlepool included sport diving, surfing, kayaking, kite boarding and life guard duties. Twenty observations were recorded for adults and 14 observations were recorded for children. The highest occupancy rate for adults was 600 h y⁻¹ for a surfer and the highest occupancy rate for children in both the 15 and 10-year old age groups was 300 h y⁻¹ for members of the Sea Cadets.

No children in the 5-year, 1-year and 3-month old age groups were identified with times in the water.

5 TERRESTRIAL RADIATION PATHWAYS

5.1 Terrestrial survey area

The terrestrial survey area covered all land within 5 km of the site centre (NGR NZ 529 269) as shown in Figure 2.

The northwestern part of the survey area was largely urban, encompassing part of Hartlepool and the villages of Seaton Carew and Greatham, and the southeastern part of the survey area was a heavily industrialised zone along the banks of the River Tees. To the southwest of the power station was a more rural area where the farms and some marshland were located.

Five working farms and an estate (taking in several farms) were identified in the area. Of these:

- Two farms produced beef cattle
- Two farms produced arable crops
- One farm produced beef cattle, sheep and arable crops
- The estate produced beef cattle, sheep and arable crops

Some beef cattle were sold locally to other farms for breeding or stores. The rest of the beef cattle and all the lambs from the survey area were sold at Darlington and Durham livestock markets. Most of the arable crops, which included barley, wheat and oilseed rape were sold nationally. Some wheat was sold at markets in Stockport and Rotherham, some oilseed rape was sold in Liverpool and some field beans were sold at Northallerton or were exported.

Farmers and their families were noted to be consuming beef and lamb produced commercially on their own farms. Geese and chickens were kept on the farming estate for the owner's family's consumption of poultry and eggs.

Six allotment sites were located within the survey area. Three were in Hartlepool, two were in Seaton Carew and one was in Greatham. The allotment sites were well used and well maintained, with the exception of the Greatham site, which only had a few well-maintained plots. There were approximately 260 plots at the Hartlepool sites, 125 plots at the Seaton Carew sites and 17 plots at the Greatham site (11 of these were not used). Many varieties of fruit and vegetables were grown on the allotments. In addition, chickens, ducks and geese were kept for egg production and poultry at two allotment sites.

Two beekeepers were identified in the survey area and together they had seven hives. Four hives were located at Stranton allotments, one hive was on a farm in the area, one hive was in the garden at one of the beekeeper's residence in the area, and another was on an allotment just outside the area. The production of honey per hive ranged from 8 kg y⁻¹ to 15 kg y⁻¹ and the average production per hive was 11 kg y⁻¹. The beekeepers consumed some of the honey and the rest was given to family and friends.

The consumption of wild foods included blackberries, elderberries, sloes and mushrooms. These were collected from the allotments and from fields and farmland in the survey area. Game consumed from within the survey area included partridge, pheasant, pigeon, rabbits and hares. Rough shooting for rabbits and hares was carried out on farmland and some rabbits were trapped on the allotments.

All the households and farms visited used mains water for both their domestic supply and for watering livestock. Some farm animals also had access to ditch water.

5.2 Wholesalers and retailers

No wholesalers or retailers were identified selling produce from within the survey area.

5.3 Transfer of contamination offsite by wildlife

The transfer of contamination offsite by wildlife was investigated as radionuclides could enter the food chain or contaminate the environment through this pathway. Site representatives were asked about wildlife that could act as carriers for the transfer of radioactivity off site. They reported that rabbits, hares and pigeons were seen on the site. Rabbits were periodically culled in the immediate area around the site but had not been analysed for radionuclide content. Three individuals were consuming rabbits and hares from the survey area and two people were consuming pigeons from the survey area, but it was not known if these animals and birds had spent time on the site.

5.4 Unusual pathways

No unusual pathways were identified during the survey.

5.5 Food consumption data

Consumption data for locally produced foodstuffs potentially affected by gaseous discharges are presented in Tables 23 to 35 for adults and Tables 36 to 46 for children. These tables include the mean consumption rates of the high-rate groups together with the observed 97.5th percentile rates calculated as described in Section 3.2. For purposes of comparison, the data are summarised in Table 11 for adults and in Tables 12 to 15 for children (15-year-olds, 10-year-olds, 5-year-olds and 1-year-olds, respectively). No children in the 3-month-old age group were noted to be consuming foods produced in the terrestrial survey area.

In order to provide information relevant to surveillance and assessment studies, the consumption rate data collected during the survey were analysed to indicate which food types most commonly contributed to each food group. The data are summarised in Table 47. Those food types sampled as part of the 2007 Food Standards Agency monitoring programme (EA, FSA, NIEA and SEPA, 2008) are shown in emboldened italics.

Adult's consumption rates

Consumption of locally produced foods was identified in the following 13 food groups: green vegetables, other vegetables, root vegetables, potato, domestic fruit, cattle meat, sheep meat, poultry, eggs, wild/free foods, rabbits/hares, honey and wild fungi. No consumption of milk, pig meat, venison, freshwater fish and local cereals was identified.

The mean consumption rate for the adult high-rate group was found to be greater than the generic 97.5th percentile consumption rate only for honey. A further four mean consumption rates for high-rate groups exceeded the generic mean consumption rates. These were for green vegetables, root vegetables, eggs and rabbits/hares. Two observed 97.5th percentile consumption rates exceeded the generic 97.5th percentile consumption rates. These were for eggs and honey.

Children's consumption rates

15-year-old age group

Thirty-five children in this age group were identified to be eating locally produced food. Consumption was identified in the following 11 food groups: green vegetables, other vegetables, root vegetables, potato, domestic fruit, sheep meat, eggs, wild/free foods, rabbits/hares, honey and wild fungi. No consumption was identified for milk, cattle meat, pig meat, poultry, venison, freshwater fish or local cereals.

The mean consumption rate for the high-rate group did not exceed the generic 97.5th percentile consumption rate for any food group. Three mean consumption rates for high-rate groups exceeded the generic mean consumption rates. These were for green vegetables, root vegetables and eggs. One observed 97.5th percentile consumption rate was greater than the generic 97.5th percentile consumption rate. This was for root vegetables.

10-year-old age group

Thirty-six children in this age group were identified to be eating locally produced food. Consumption was identified in the following seven food groups: green vegetables, other vegetables, root vegetables, potato, domestic fruit, eggs and honey. No consumption was identified for milk, cattle meat, pig meat, sheep meat, poultry, wild/free foods, rabbits/hares, wild fungi, venison, freshwater fish or local cereals.

The mean consumption rate for the high-rate group did not exceed the generic 97.5th percentile consumption rates for any food group. Four mean consumption rates for the high-rate groups exceeded the generic mean consumption rates. These were for green vegetables, other vegetables, root vegetables and eggs. Two observed 97.5th percentile consumption rates were greater than the generic 97.5th percentile consumption rates. These were for green vegetables and root vegetables.

5-year-old age group

Thirty children in this age group were identified to be eating locally produced food. Consumption was identified in the following six food groups: green vegetables, other vegetables, root vegetables, potato, domestic fruit and eggs. No consumption was identified for milk, cattle meat, pig meat, sheep meat, poultry, wild/free foods, rabbits/hares, honey, wild fungi, venison, freshwater fish or local cereals. No generic 97.5th percentile or generic mean consumption rates have been determined for this age group so no comparisons with the corresponding observed rates are possible.

1-year-old age group

Two children in this age group were identified to be eating locally produced food. Consumption was identified in the following six food groups: green vegetables, other vegetables, root vegetables, potato, domestic fruit and eggs. No consumption was identified

for milk, cattle meat, pig meat, sheep meat, poultry, wild/free foods, rabbits/hares, honey, wild fungi, venison, freshwater fish or local cereals. No generic 97.5th percentile or generic mean consumption rates have been determined for this age group so no comparisons with the corresponding observed rates are possible.

3-month-old age group

No children in this age group were identified to be eating locally produced food.

6 DIRECT RADIATION PATHWAYS

6.1 Direct radiation survey area

The direct radiation survey area covered all land within 1 km of the Hartlepool licensed site boundary, as shown in Figure 2. The occupancy data collected from the direct radiation area is also applicable to the direct exposure arising from gaseous releases from the site.

Directly to the north of the licensed boundary were power station buildings and portacabins. One of the portacabins was an office for a nature conservation organisation. A golf course, a Nature Conservation Area, and land used for grazing cattle were situated beyond these buildings.

To the north-east of the site were a chemical works and a sand extraction site. Immediately east of the licensed site boundary was a grass field that was used for grazing horses and cattle. The Teesmouth National Nature Reserve was split into two sections. The North Gare section covered most of the north-eastern and eastern part of the direct radiation survey area. The reserve comprised a sand dune system and an extensive sandy beach.

The southern part of the survey area was intertidal. At low tide, the area immediately to the south of the site was mud and sand, which was separated from Seal Sands by the Seaton-on-Tees Channel. Seal Sands was the second section of the Teesmouth National Nature Reserve and was a large expanse of intertidal mudflats and sands. The sea covered this area at high tide.

The land to the west of the site was predominantly industrial. Adjacent to the western site boundary was a wharf and dock basin used for ship breaking and beyond this was land that belonged to a large chemical works. The chemical works building was outside the survey area and the part of their land in the survey area was a nature reserve that bordered the Seaton-on-Tees Channel.

To the north-west of the site was a field centre and beyond this was a playing field. Near the outer limit of the survey area was a landfill site and an industrial estate comprising numerous businesses of varying sizes.

6.2 Residential activities

Only two individuals were identified living within 1 km of the licensed site boundary. They lived in accommodation attached to the rear of a business in the >0.5 – 1.0 km zone.

6.3 Leisure activities

The direct radiation survey area was popular for leisure activities including walking, dog walking, jogging, bird watching, seal watching and sports.

The Teesmouth National Nature Reserve received approximately 25000 visitors per year. There were two sections to the reserve, one section covered North Gare Sands and the other covered Seal Sands. The reserve at North Gare Sands comprised a large sand dune system and a sandy beach. It was easily accessible and the area was popular with walkers, dog walkers and bird watchers. Seal Sands was a large expanse of mudflats and was practically inaccessible to the public. Only part of Seal Sands was in the direct radiation survey area. A field centre provided field studies courses for educational and recreational groups, some of which were undertaken on North Gare Sands. The centre accommodated approximately 3500 day-visitors per year, although not all of their time would be spent within the direct radiation survey area. The nature reserve owned by the chemical works company located to the west of the site was open to the public and was popular with bird watchers.

The playing field and the golf course were used by Hartlepool site employees. Other people could use the playing field with permission from the site. The Hartlepool Power Station Visitor Centre was closed to general visitors.

6.4 Employment activities

Employment activities in the 0 - 0.25 km zone included those at the field centre and nature conservation organisation office, and farming. Two staff worked for the nature conservation organisation and three staff worked for the field centre. All five staff were predominantly based in this zone but also spent time on North Gare Sands and Seal Sands. A farmer and two farm workers tended fields in this area.

Employment activities in the >0.25 - 0.5 km zone included those at a chemical works, a sand extraction site and a ship breaker's yard. The chemical works employed 72 staff and there was only one employee at the sand extraction site, who spent most of the time outdoors. It was reported that the ship breaker's yard employed approximately 200 people, but the company representative declined to be interviewed.

Employment activities in the >0.5 – 1.0 km zone included those at businesses on the Graythorp Industrial Estate and farming. The outer limit of the direct radiation survey area bisected the industrial estate and it was estimated that 17 of the businesses on the estate were within the survey area. Interviews were conducted at six of these premises and the number of employees varied between two and sixteen. One farmer tended fields in this zone. It was reported that the commercial collection of peeler crabs, using car tyres, occurred near the sea wall at the chemical works to the west of the site. A line of car tyres was observed at this location although no one was interviewed.

The activities of Hartlepool site employees and contractors while at work were not considered in the direct radiation survey.

6.5 Occupancy rates

Table 48 presents indoor, outdoor and total occupancy data for adults. An analysis of the data by distance zones and occupancy rates is shown in Table 49.

0 - 0.25 km from the licensed site boundary

Occupancy data were collected for eight individuals in the 0 - 0.25 km zone. The observations were for two nature wardens, three field centre staff, one farmer and two farm workers. Two of the field centre staff had the highest total, indoor and outdoor occupancy rates of 1600 h y^{-1} , 1100 h y^{-1} and 590 h y^{-1} respectively.

>0.25 – 0.5 km from the licensed site boundary

Occupancy data were collected for 73 individuals in the >0.25 – 0.5 km zone. All the observations were for employees. One worker had the highest total and outdoor occupancy rates of 2200 h y^{-1} and 1700 h y^{-1} respectively. Other employees had the highest indoor occupancy rates of 1800 h y^{-1} .

>0.5 – 1.0 km from the licensed site boundary

Occupancy data were collected for 46 people in the >0.5 - 1.0 km zone. The observations were for 41 employees, including two people that worked and lived in the area, a farmer, three dog walkers and a jogger. The individuals that lived and worked in the area had identical highest total and indoor occupancy rates of 7400 h y^{-1} and 7000 h y^{-1} . Other employees had the highest outdoor occupancy rates of 1900 h y^{-1} .

6.6 Gamma dose rate measurements

Table 50 presents gamma dose rate measurements for the Hartlepool direct radiation survey area. Gamma dose rate measurements were taken both indoors and outdoors at most businesses and organisations where interviews were conducted. Outdoor measurements were taken approximately 5 to 10 metres from the nearest building. Gamma dose rate measurements over rough grass were taken at locations at distances further than 5 km from the site centre to obtain background dose rates. All measurements were taken at a height of

1 metre above the substrate. It should be noted that these measurements have not been adjusted for natural background dose rates.

Seven outdoor measurements taken over grass ranged from 0.059 $\mu\text{Gy h}^{-1}$ to 0.102 $\mu\text{Gy h}^{-1}$, and two taken over concrete were 0.083 $\mu\text{Gy h}^{-1}$ and 0.084 $\mu\text{Gy h}^{-1}$. Four indoor measurements taken over concrete ranged from 0.055 $\mu\text{Gy h}^{-1}$ to 0.097 $\mu\text{Gy h}^{-1}$. Five background measurements ranged from 0.064 $\mu\text{Gy h}^{-1}$ to 0.080 $\mu\text{Gy h}^{-1}$. Five of the nine outdoor direct radiation measurements were higher than the highest background measurement.

Comprehensive studies of background radiation have been carried out on a national scale by the Radiation Protection Division of the Health Protection Agency (previously the National Radiological Protection Board), the most recent of these being a review conducted in 2005 (Watson *et al*, 2005). The results from this review could be used for comparison with the data collected during the survey.

Much of the land around the Tees Estuary has been reclaimed from the sea using waste slag from the steel industry. It is possible that the slag could contain elevated levels of natural radioactivity, which could affect some of the gamma dose rates. There may also be an affect from historic discharges from the former licensed site operated by ICI at Billingham.

7 COMBINED PATHWAYS

In determining habits data for the purposes of assessing radiological doses to the public, it may be necessary to consider a combination of pathways. Data are provided in Annexes 1 and 2 so that the full effect of combining pathways can be assessed for individual observations, given the concentrations and dose rates for a particular assessment. In some circumstances, it will be possible to make simplifying assumptions and define the consumption and external exposure rates appropriate to a series of potential high-rate groups. Such assumptions will depend on the assessment in question but some initial observations are provided here as a starting point for those undertaking assessments.

The most extensive combinations of pathways for adult dose assessment are shown in Table 51. Each of the 23 combinations shown in Table 51 represents an actual individual (or individuals) from Annex 1 who has positive data (irrespective of the magnitude), for each pathway marked with an asterisk. It should be noted that combination numbers in Table 51 do not correlate directly with observation numbers in Annex 1. Other individuals from Annex 1 have combinations that are not listed in Table 51 because they have fewer pathways and a dose assessment for them would be adequately covered by one of the 23 listed combinations.

Qualitative and estimated data shown in Annex 3 have not been included in Table 51. This is because data in Annex 3 are for pathways that were identified by hearsay during the survey, but not quantified by interviewees.

Combinations of pathways at high-rate group means may be achieved by considering the data in Annexes 1 and 2. Although these mean rates are not given in the annexes, the rates for individuals in the high-rate groups are emboldened and are therefore apparent.

7.1 Use of the data for total dose assessment

The Environment Agencies and the Food Standards Agency have considered ways of using habits data to calculate total dose retrospectively. The adopted approach is to use the adult consumption and occupancy data collected in each habits survey to create a matrix with a series of habits profiles for each site. The relevant matrix for the Hartlepool adults' profiled habits data is shown in Annex 5. The National Dose Assessment Working Group (NDAWG) has considered this approach to assessing retrospective total doses (Camplin *et al*, 2005) and has agreed that using habits profiles is an appropriate approach. Retrospective total doses around Hartlepool will in future be made using these profiles and reported in the Radioactivity in Food and the Environment Reports (e.g. EA, FSA, NIEA and SEPA, 2008). Data from Annex 3 are not included in Annex 5.

7.2 Use of the data for foetal dose assessment

Dose assessment of the foetus was introduced routinely for the first time in the Radioactivity in Food and the Environment Report for 2005 (EA, EHS, FSA and SEPA, 2006), following the publication of recommendations by the Radiation Protection Division of the Health Protection Agency (National Radiological Protection Board, 2005). The adopted approach is to use ratios of the consumption and occupancy data for women of childbearing age in order to calculate the dose to the foetus. Therefore consumption and occupancy data collected during the Hartlepool habits survey for females of childbearing age are presented in Annex 6. The Office of National Statistics classifies women to be of childbearing age if they are between 15 – 44 years old (www.statistics.gov.uk); this age range has been used in Annex 6. It was not possible to collect ages for all female observations during the habits survey; however, these females with unknown ages have been included in Annex 6 as they are potentially women of childbearing age.

8 CONCLUSIONS AND SUGGESTIONS

8.1 Survey findings

The survey investigated the three potential sources of public radiation exposure from the Hartlepool site, which were:

- Discharges of liquid radioactive waste to the Tees Bay
- Discharges of gaseous radioactive waste to the atmosphere
- Emissions of direct radiation

Data were collected for 833 individuals including commercial fishermen, hobby fishermen, anglers, water sports enthusiasts, people undertaking activities in intertidal areas, farmers, allotment holders, beekeepers, and people spending time within 1 km of the site. These people were targeted because their habits and where they live may cause them to be exposed to radioactivity from the site. However, it should be noted that the most exposed people can only be defined with the outcome of a dose assessment.

All consumption rates recorded are only for foods produced or caught from within the aquatic and terrestrial survey areas as defined in Section 2.3.

The mean consumption rates for the adult high-rate groups (as defined in Section 3.2) for the separate aquatic consumption pathways for foods potentially affected by liquid discharges were:

- 28 kg y⁻¹ for fish
- 19 kg y⁻¹ for crustaceans
- 5.8 kg y⁻¹ for molluscs
- 6.3 kg y⁻¹ for wildfowl
- 0.2 kg y⁻¹ for marine plants/algae

The predominant foods consumed by the respective high-rate groups for these food groups were cod, ling, Dover sole, haddock, mackerel, plaice, whiting, brown crab, common lobster, winkle, whelk, ducks, geese and samphire. No consumption of winkles from Paddy's Hole was identified.

The consumption of seaweed by humans or animals and the use of seaweed as fertiliser were not identified. Sea-coal dust was used as a growing medium and extensively used for heating allotment sheds and greenhouses. Coal dust was also collected commercially from intertidal areas.

The mean occupancy rates for the adult high-rate groups over the separate intertidal substrates were:

- 12 h y⁻¹ for mud
- 62 h y⁻¹ for mud and sand
- 300 h y⁻¹ for mud and stones
- 130 h y⁻¹ for mud, sand and stones
- 580 h y⁻¹ for rock
- 600 h y⁻¹ for sand
- 1200 h y⁻¹ for sand and coal

The adult mean high-rate handling times for fishing gear and sediment were 1400 h y⁻¹ and 1200 h y⁻¹ respectively.

The adult maximum occupancy rate for time spent in water was 600 h y⁻¹ and the adult maximum occupancy rate for time spent on water was 2900 h y⁻¹.

The mean consumption rates for the adult high-rate groups for the separate terrestrial consumption pathways for foods potentially affected by gaseous discharges were:

- 26 kg y⁻¹ for green vegetables
- 18 kg y⁻¹ for other vegetables

- 22 kg y⁻¹ for root vegetables
- 39 kg y⁻¹ for potato
- 15 kg y⁻¹ for domestic fruit
- 9.5 kg y⁻¹ for cattle meat
- 5.4 kg y⁻¹ for sheep meat
- 3.7 kg y⁻¹ for poultry
- 17 kg y⁻¹ for eggs
- 3.1 kg y⁻¹ for wild/free foods
- 10 kg y⁻¹ for rabbits/hares
- 10 kg y⁻¹ for honey
- 0.8 kg y⁻¹ for wild fungi

No consumption of milk, pig meat, venison, freshwater fish or cereals was identified. Consumption of foodstuffs by children (15-year-old, 10-year-old, 5-year-old and 1-year-old age groups) was also recorded. Combinations of food groups (both aquatic and terrestrial) consumed at high-rate group means, together with external pathway exposures, may be derived from the data for individuals in Annexes 1 and 2. Rates for individuals making up the high-rate groups are presented in bold type.

No human consumption of ground water or surface water was identified. Farm animals were supplied with mains water for drinking but also had access to ditch water.

Investigations into the off-site transfer of radioactive contamination by wildlife established that hares, rabbits and pigeons were present on site. Rabbits were culled periodically. Members of the public who lived in the terrestrial survey area were consuming pigeons and rabbits that were shot within 5 km of the site.

For occupancy by members of the public within 1 km of the Hartlepool site area, the highest rates were:

- For the 0 - 0.25 km zone; 1600 h y⁻¹ total occupancy, 1100 h y⁻¹ indoors and 590 h y⁻¹ outdoors
- For the >0.25 - 0.5 km zone; 2200 h y⁻¹ total occupancy, 1800 h y⁻¹ indoors and 1700 h y⁻¹ outdoors
- For the >0.5 - 1.0 km zone; 7400 h y⁻¹ total occupancy, 7000 h y⁻¹ indoors and 1900 h y⁻¹ outdoors

In the 0 - 0.25 km zone the highest total, indoor and outdoor occupancy rates were for two field studies instructors. In the >0.25 - 0.5 km zone the highest total and outdoor occupancy rates were for one employee and the highest indoor rates were for other employees. In the >0.5 - 1.0 km zone, two residents, who also work in the area, had the highest total and indoor occupancy rates and two employees had the highest outdoor occupancy rates.

8.2 Comparisons with previous surveys

The results from this 2008 survey can be compared with results from the combined survey undertaken in 2002. The aquatic, terrestrial and direct radiation survey areas in the 2008 survey were the same as those in the 2002 survey.

Aquatic survey

Internal pathways

A comparison of the maximum consumption rates, the high-rate group means and the number of individuals in each high-rate group for 2002 and 2008 are shown in Table A. Consumption rates had significantly decreased in 2008 in the mollusc food group, slightly decreased in the fish food group, increased in the crustacean food group and had remained comparatively constant in the wildfowl and marine plants/algae food groups.

Table A. Comparison between 2002 and 2008 aquatic internal exposure pathways at Hartlepool

Food group	2002			2008		
	Number in high-rate group	Maximum consumption rate (kg y ⁻¹)	Mean consumption rate for the high-rate group (kg y ⁻¹)	Number in high-rate group	Maximum consumption rate (kg y ⁻¹)	Mean consumption rate for the high-rate group (kg y ⁻¹)
Fish	77	56.3	32.4	25	49.8	27.9
Crustaceans	26	27.3	15.4	14	28.6	19.3
Molluscs	14	18.5	12.1	7	7.9	5.8
Wildfowl	36	13.4	6.4	2	6.3	6.3
Marine plants/algae	1	0.2	0.2	1	0.2	0.2

The main species of fish consumed by the high-rate group in 2002 were cod, haddock, whiting and mackerel, and in 2008 were also cod, haddock, whiting and mackerel, plus ling, Dover sole and plaice. The main species of crustaceans consumed by the high-rate groups in both the 2002 and 2008 surveys were common lobster and brown crab. The main species of molluscs consumed by the high-rate groups in both the 2002 and 2008 surveys were winkle and whelk. The wildfowl consumed by the high-rate groups in both the 2002 and 2008 surveys were goose and duck. The species of marine plants/algae consumed by the high-rate groups in both the 2002 and 2008 surveys was samphire.

External pathways

For intertidal occupancy, seven substrates listed in Section 4.8 were identified during the 2008 survey, but only five of these; mud; mud and sand; rock; sand, and sand and coal were identified in the 2002 survey. Therefore, only these substrates can be compared.

A comparison of the 2002 and 2008 maximum rates, high-rate group means and number of individuals in each high-rate group for intertidal occupancy and handling fishing gear and sediment in 2002 and 2008 are shown in Table B.

Table B. Comparison between 2002 and 2008 aquatic external exposure pathways at Hartlepool

Intertidal substrate or handling pathway	2002			2008		
	Number in high-rate group	Maximum occupancy or handling rate (h y^{-1})	Mean occupancy or handling rate for the high-rate group (h y^{-1})	Number in high-rate group	Maximum occupancy or handling rate (h y^{-1})	Mean occupancy or handling rate for the high-rate group (h y^{-1})
Mud	2	1260	911	1	12	12
Mud and sand	2	528	393	4	104	62
Rock	3	540	347	2	616	581
Sand	3	1584	975	15	936	601
Sand and coal	2	125	76	4	1529	1233
Fishing gear	19	1700	1057	10	2205	1357
Sediment	4	1584	1021	4	1529	1233

The intertidal occupancy activities undertaken by the individuals in the high-rate groups in 2002 were: shellfish collecting over mud; angling and bait digging over mud and sand; angling and checking lobster pots over rock; sand extraction and angling over sand; and sea coal collecting over sand and coal. The activities undertaken by the individuals in the high-rate groups in 2008 were: fixing moorings over mud; bait digging and boat maintenance over mud and sand; angling and shellfish collecting over rock; sand extraction, kite flying, bait digging, angling, collecting crabs, dog walking and field studies instruction over sand; and collecting sea coal over sand and coal. The activities in the high-rate group for handling fishing gear in 2002 were potting, setting nets, and using drift nets for salmon, and in 2008 were potting, setting nets, long lining and trawling. The activities in the high-rate group for handling sediment in 2002 were sand extraction, bait digging and shellfish collection. In 2008 the high-rate sediment handling activity was collecting sea coal.

In 2002 the highest occupancy rate in water was 49 h y^{-1} for divers and in 2008 it was 600 h y^{-1} for a surfer. In both the 2002 and 2008 surveys the highest occupancy rates on water, which were 2100 h y^{-1} and 2900 h y^{-1} respectively, were for commercial fishing.

Terrestrial survey

The adult high-rate group mean consumptions for terrestrial food groups from the 2002 and 2008 surveys are shown in Table C.

Table C. Comparison between 2002 and 2008 mean consumption rates for the adult high-rate groups for terrestrial food groups at Hartlepool (kg y⁻¹)

Food group	2002	2008
Green vegetables	32.7	25.9
Other vegetables	36.4	17.6
Root vegetables	43.8	21.5
Potato	35.7	39.4
Domestic fruit	11.9	15.0
Cattle meat	Nil	9.5
Sheep meat	4.8	5.4
Poultry	9.4	3.7
Eggs	14.4	16.5
Wild/free foods	4.5	3.1
Rabbits/hares	1.4	10.2
Honey	6.8	10.1
Wild fungi	4.2	0.8

Consumption rates had increased in 2008 in the following seven food groups: potato, domestic fruit, cattle meat, sheep meat, eggs, rabbits/hares and honey. Consumption rates had decreased in 2008 in the following six food groups: green vegetables, other vegetables, root vegetables, poultry, wild/free foods and wild fungi. No consumption of milk, pig meat, venison, cereals or freshwater fish was identified in either survey. There were large increases in cattle meat (not consumed in 2002) and rabbits/hares consumption rates and there were large reductions in other vegetables, root vegetables, poultry and wild fungi consumption rates.

Direct radiation survey

The adult direct radiation occupancy rates from the 2002 and 2008 Hartlepool surveys are shown in Table D, E and F below.

Table D. Comparison between 2002 and 2008 direct radiation occupancy rates in the 0 – 0.25 km zone at Hartlepool ($h\ y^{-1}$)

	2002	2008
Highest total	1652	1645
Highest indoor	1239	1057
Highest outdoor	1042	588

In 2002 the highest total occupancy was for two nature wardens and the highest indoor occupancy was for one of these wardens. The highest outdoor occupancy was for two people tending horses. In 2008 the highest total, indoor and outdoor occupancy rates were for two field centre staff.

Table E. Comparison between 2002 and 2008 direct radiation occupancy rates in the >0.25 – 0.5 km zone at Hartlepool ($h\ y^{-1}$)

	2002	2008
Highest total	2208	2208
Highest indoor	1987	1840
Highest outdoor	2160	1748

The highest total, indoor and outdoor occupancy rates in 2002 and 2008 were all for employees working for businesses in this zone.

Table F. Comparison between 2002 and 2008 direct radiation occupancy rates in the >0.5 – 1.0 km zone at Hartlepool ($h\ y^{-1}$)

	2002	2008
Highest total	2160	7416
Highest indoor	2094	6982
Highest outdoor	1080	1880

The highest total and outdoor occupancy rates in 2002 were for the same employees of a business. The highest indoor occupancy rates in 2002 were for employees of another business. The highest total and indoor occupancy rates in 2008 were for two residents who also worked in the area. The highest outdoor occupancy rates in 2008 were for employees of a business.

No residents were identified in the 2002 survey. Two residents, who also worked in the area, were identified during the 2008 survey. Commercial activities observed during both surveys were the same, namely; the businesses, nature organisations and a small amount of farming.

In the Hartlepool direct radiation area, gamma dose measurements taken in 2008 can be compared with those taken at the same premises in 2002. These are shown in Table G.

Table G. Comparison between 2002 and 2008 gamma dose rates at Hartlepool ($\mu\text{Gy h}^{-1}$).

Location	Indoor		Outdoor	
	2002	2008	2002	2008
Organisation 1	0.072	NM	0.083	0.071
Business 1	0.056	0.055	0.061	0.063
Business 2	NM	NM	0.059	0.059
Business 5	0.085	0.081	NM	0.087
Business 6	0.086	0.084	0.067	0.085

These measurements have not been adjusted for natural background dose rates

These organisation and business numbers relate to those in Table 50.

NM = Not measured

8.3 Suggestions for environmental monitoring

The 2007 monitoring programmes for Hartlepool operated by the Environment Agency and the Food Standards Agency included the samples and measurements listed below (EA, FSA, NIEA and SEPA, 2008). The location names and substrate classifications are taken directly from the publication. Some of the samples and measurements taken for the monitoring programme may be from outside the survey areas used for the 2008 Hartlepool habits survey.

Aquatic monitoring

- Plaice from the pipeline
- Cod from the pipeline
- Crabs from the pipeline
- Winkles from Paddy's Hole
- Winkles from South Gare
- Mussels from Seal Sands
- Seaweed from the Pilot Station
- Sediment from Old Town Basin
- Sediment from Seaton Carew
- Sediment from Paddy's Hole
- Sediment from North Gare

- Sediment from Greatham Creek
- Sea coal from Old Town Basin
- Sea coal from Carr House Sands
- Seawater from North Gare

Gamma dose rate measurements

- Sand at Fish Sands
- Sand and sea coal at Fish Sands
- Mud and sand at Old Town Basin
- Sand at Carr House
- Sea coal at Carr House
- Sand at Seaton Carew
- Sand and pebbles at Seaton Carew
- Sand at Seaton Sands
- Sand and pebbles at Seaton Sands
- Sand at North Gare
- Sand and pebbles at North Gare
- Mud and pebbles at Paddy's Hole
- Salt marsh and mud at Greatham Creek bird hide

Terrestrial monitoring

- Milk
- Apples
- Beetroot
- Blackberries
- Cabbage
- Honey
- Potatoes
- Runner beans
- Wheat

- Freshwater from public supply
- Freshwater from bore hole at Dalton Piercy

The following are suggestions for changes to the current environmental monitoring programmes. It should be noted that the suggestions are based on the findings of this survey. They are not the outcome of any form of assessment. It is suggested that samples currently monitored, which are not listed below, remain unchanged in the monitoring programme.

Environment Agency monitoring

The current environmental monitoring programme adequately covers the Hartlepool area and no changes to this are suggested.

Food Standards Agency monitoring

- A sample of whelks could replace the sample of mussels since they were eaten in greater quantities.
- Current monitoring of winkles shows a high concentrations of polonium-210 in those collected at Paddy's Hole and low concentrations in those collected at South Gare, although these locations are less than 1 km apart. Winkles were consumed from the breakwater outside Paddy's Hole. Therefore, a one-off sample of winkles from this location could be added to the programme for comparison with those sampled from Paddy's Hole and South Gare and to investigate whether there are localised effects of polonium-210.
- Brown crabs are caught commercially near the breakwater just outside Paddy's Hole and these were consumed. A one-off sample of brown crab could be analysed for polonium-210. Brown crabs are currently monitored from the pipeline although not for polonium-210. It is suggested that brown crabs from the pipeline are analysed for polonium-210 as a comparison with brown crabs from near Paddy's Hole and to investigate whether there are localised effects of polonium-210.

- A sample of rhubarb or strawberries could replace the sample of apples in the domestic fruit food group since they were eaten in far greater quantities.
- The consumption of meats from the 'cattle meat', 'sheep meat' and 'poultry' food groups were identified and these are not currently monitored. It is suggested that one-off samples of beef, lamb or chicken could be added to the programme for reassurance purposes. If samples of meat are not available, samples of faeces could be taken.
- A sample of eggs could be introduced as these were consumed at high rates and by a large number of people and are not currently monitored.
- An annual sample of rabbit could be introduced since it was being consumed and is not currently monitored. Rabbits could be potential carriers for off-site transfer of radioactivity.
- An annual sample of wild fungi could be introduced since this is consumed and is not currently monitored. Fungi are known to have high concentration factors for radionuclides.

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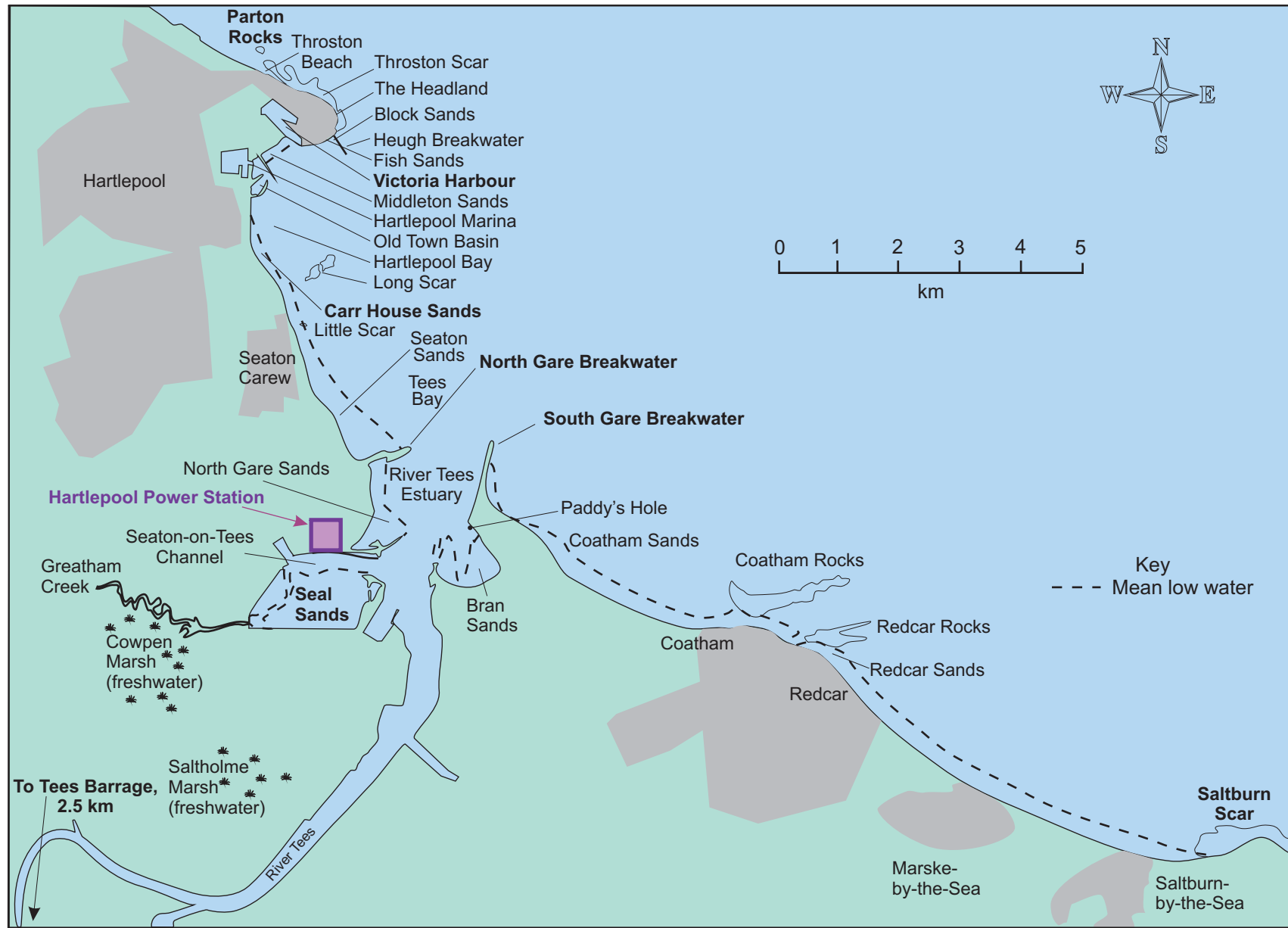


Figure 1. The Hartlepool aquatic survey area.
 (The emboldened place names show the demarcations between the different stretches of coast referred to in Chapter 4, Section 4.1)



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Figure 2. The Hartlepool terrestrial (outer ring) and direct radiation (inner ring) survey areas

Key

- Hartlepool site centre
- 1 Stranton allotments
- 2 Brierton allotments
- 3 Haswell allotments
- 4 Woodcroft allotments
- 5 Station Lane allotments
- 6 Greatham allotments

Table 1. Survey coverage

Group	Criteria	Estimate of complete coverage	Number for whom positive data were obtained	Coverage for positive observations	Notes
SUMMARY OF ALL PATHWAYS					
All potential people in the Hartlepool aquatic, terrestrial and direct radiation survey areas	Number of people resident in the terrestrial survey area (excluding those resident in the direct radiation survey area) (See (B) terrestrial pathways)	36000 ^a	505 ^b	1%	The survey targeted individuals who were potentially the most exposed (See Section 2.4), mostly producers of local food (farmers and allotment holders). The number for whom positive data were obtained includes 154 people who only consumed terrestrial foods but lived outside 5 km
	Number of people resident in the direct radiation survey area (See (C) direct radiation pathways)	2	2	100%	
	Number of people employed but not resident in the direct radiation survey area. (See (C) direct radiation pathways)	~400	121	30%	Excluding employees and contractors of British Energy Generation Ltd and people living in the direct radiation survey area
	Number of people visiting the direct radiation survey area	U	4	U	
	Number of people affected by liquid discharges (excluding people resident in the terrestrial survey area) (See (A) aquatic pathways)	U	201 ^b	U	
	Total for aquatic, terrestrial and direct radiation survey areas	U	833 ^b	U	In the Summary of All Pathways section each interviewee has only been counted once. This is in the section where their predominant activities took place

Table 1. Survey coverage

Group	Criteria	Estimate of complete coverage	Number for whom positive data were obtained	Coverage for positive observations	Notes
(A) AQUATIC PATHWAYS					
Shore anglers	Number of people interviewed during the survey	U	18	U	
Watersports participants, boat anglers and hobby fishermen	Number of people for whom data was collected during the survey	U	46	U	
Commercial boating activities (fishing, dredging, pilot boat crews etc)	Number of people for whom data was collected during the survey	55	41	75%	Not including cargo ships and oil tankers berthing in the River Tees for relatively short periods
Bait diggers	Number of people interviewed during the survey	U	11	U	
Commercial coal collectors	Number of people interviewed during the survey	9	6	67%	Collecting sea coal for sale to a coal fired power station
Coal collecting for personal use	Number of people interviewed during the survey	U	10	U	Collecting sea coal for heating green houses and allotment sheds etc
Shellfish collectors	Number of people interviewed during the survey	U	29	U	
Other beach users (walking, dog walking, playing etc)	Number of people interviewed during the survey	U	93	U	
(B) TERRESTRIAL PATHWAYS					
Farms	Number of farmers and their family members consuming food from the survey area	13	13	100%	6 working farms in the area. All the owners were visited
Allotments	Number of allotment holders and their family members consuming food from the survey area	3170	488	15%	Visited 5 out of 6 allotment sites in the area. Estimate of 390 plots in total, 60 plot holders were interviewed
Bee keepers	Number of people consuming honey from the survey area	11	11	100%	2 out of 2 beekeepers were interviewed

Table 1. Survey coverage

Group	Criteria	Estimate of complete coverage	Number for whom positive data were obtained	Coverage for positive observations	Notes
(C) DIRECT RADIATION PATHWAYS					
Residences	Number of residents in the survey area	2	2	100%	Only one house in the survey area
Employees	Number of people employed in the survey area	~400	121	30%	Excluding employees and contractors of British Energy Generation Ltd and people living in the direct radiation survey area
Visitors	Number of visitors to the survey area	U	4	U	
BREAKDOWN OF AGE GROUPS					
Adults	17-year-old and over	U	691	U	
15 year old	12-year-old to 16-year-old	U	52	U	
10 year old	7-year-old to 11-year-old	U	52	U	
5 year old	2-year-old to 6-year-old	U	36	U	
1 year old	1-year-old	U	2	U	
3 months old	Under 1-year-old	U	0	U	

Notes

^a Data from www.statistics.gov.uk were used to estimate this figure for people resident in the 5 km survey area

^b The number of people for whom positive data was obtained, for pathways (A) and (B), will not equal the relevant totals in the summary of all pathways. This is because some individuals, for example someone who participates in shore angling and digs their own bait, will be counted twice within the pathway, whereas others, such as the families of fishermen, will not be counted at all

U - Unknown

Table 2. Typical food groups used in habits surveys

Food group	Foods within the food groups
Green vegetables	Globe artichoke, asparagus, broccoli, Brussels sprout, cabbage, calabrese, cauliflower, chard, courgettes, cucumber, gherkin, herbs, kale, leaf beet, lettuce, marrow, spinach
Other vegetables	Aubergine, broad bean, chilli pepper, french bean, mangetout, pea, pepper, runner bean, sweetcorn, tomato
Root vegetables	Jerusalem artichoke, beetroot, carrot, celeriac, celery, chicory, fennel, garlic, kohlrabi, leek, onion, parsnip, radish, shallot, spring onion, swede, turnip
Potato	Potato
Domestic fruit	Apple, apricot, blackberry, blackcurrant, boysenberry, cherry, damson, fig, gooseberry, grapes, greengages, huckleberry, loganberry, melon, nectarines, peach, pear, plum, pumpkin, raspberry, redcurrants, rhubarb, rowanberry, strawberry, tayberry, whitecurrant
Milk	Cow's milk, cream, yoghurt, goat's milk
Solid milk products	Butter, cheese
Cattle meat ^b	Beef
Pig meat ^b	Pork
Sheep meat ^b	Lamb, mutton
Poultry	Chicken, duck, goose, grouse, guinea fowl, partridge, pheasant, pigeon, snipe, turkey, woodcock
Eggs	Chicken egg, duck egg, goose egg
Wild/free foods	Blackberry, chestnut, crab apple, damson, dandelion root, elderberry, nettle, raspberry, rowanberry, sloe, strawberry,
Honey	Honey
Wild Fungi	Mushrooms, other edible fungi
Rabbits/Hares	Rabbit, hare
Venison ^b	Venison
Fish (sea)	Bass, brill, cod, common ling, dab, Dover sole, flounder, gurnard, haddock, hake, herring, lemon sole, mackerel, monkfish, mullet, plaice, pollack, witch saithe, salmon, sea trout, squid ^a , cuttlefish ^a , rays, turbot, whitebait, whiting
Fish (freshwater)	Brown trout, rainbow trout, perch, pike, salmon (river), eels
Crustaceans	Brown crab, spider crab, crawfish, lobster, <i>Nephrops</i> , squat lobster, prawn, shrimp
Molluscs	Cockles, limpets, mussels, oysters, queens, scallops, razor shell, whelks, winkles

Notes

^a Although squid and cuttlefish are molluscs, radiologically they are more akin to fish

^b Including offal

Table 3. Adults' consumption rates of fish in the Hartlepool area (kg y⁻¹)

Observation number	Bass	Cod	Ling	Dab	Dover sole	Flounder	Haddock	Herring	Lemon sole	Mackerel	Mixed fish	Plaice	Saithe	Whiting	Total
796	-	16.3	0.8	-	0.8	-	6.5	-	0.8	24.0	-	-	-	0.8	49.8
671	-	17.7	-	-	-	-	17.7	-	-	-	-	-	-	-	35.4
677	-	35.4	-	-	-	-	-	-	-	-	-	-	-	-	35.4
678	-	35.4	-	-	-	-	-	-	-	-	-	-	-	-	35.4
697	-	20.6	-	-	2.1	-	1.4	-	-	2.4	-	1.5	-	2.0	30.0
696	-	20.6	-	-	2.1	-	1.4	-	-	2.4	-	1.5	-	2.0	30.0
698	-	20.6	-	-	2.1	-	1.4	-	-	2.4	-	1.5	-	2.0	30.0
699	-	20.6	-	-	2.1	-	1.4	-	-	2.4	-	1.5	-	2.0	30.0
700	-	20.6	-	-	2.1	-	1.4	-	-	2.4	-	1.5	-	2.0	30.0
695	-	29.9	-	-	-	-	-	-	-	-	-	-	-	-	29.9
738	-	15.0	4.4	-	-	-	-	-	-	6.6	-	-	-	3.9	29.8
739	-	15.0	4.4	-	-	-	-	-	-	6.6	-	-	-	3.9	29.8
776	-	17.7	-	-	-	-	11.8	-	-	-	-	-	-	-	29.5
797	-	16.3	0.8	-	0.8	-	6.5	-	0.8	-	-	-	-	0.8	25.8
798	-	16.3	0.8	-	0.8	-	6.5	-	0.8	-	-	-	-	0.8	25.8
799	-	16.3	0.8	-	0.8	-	6.5	-	0.8	-	-	-	-	0.8	25.8
703	-	14.4	-	-	-	-	-	-	-	3.3	-	-	-	6.2	23.9
702	-	14.4	-	-	-	-	-	-	-	3.3	-	-	-	6.2	23.9
704	-	14.4	-	-	-	-	-	-	-	3.3	-	-	-	6.2	23.9
1	1.0	9.0	-	-	-	-	-	-	-	6.9	-	-	-	6.5	23.3
2	1.0	9.0	-	-	-	-	-	-	-	6.9	-	-	-	6.5	23.3
705	-	10.2	-	-	-	-	5.0	-	-	-	-	-	-	5.0	20.2
492	-	1.0	-	-	-	-	-	-	-	-	-	7.9	-	10.3	19.2
493	-	1.0	-	-	-	-	-	-	-	-	-	7.9	-	10.3	19.2
689	-	4.4	4.4	-	-	-	4.4	-	-	-	-	-	-	4.4	17.7
271	-	15.6	-	-	-	-	-	-	-	-	-	-	-	-	15.6
272	-	15.6	-	-	-	-	-	-	-	-	-	-	-	-	15.6
674	-	7.7	-	-	-	-	-	-	-	-	-	-	-	7.7	15.3
675	-	7.7	-	-	-	-	-	-	-	-	-	-	-	7.7	15.3
711	0.6	0.9	-	1.1	-	1.0	-	-	-	2.8	-	1.0	4.2	3.6	15.3
673	-	-	-	-	-	-	-	-	-	15.2	-	-	-	-	15.2
778	-	7.4	-	-	-	-	-	-	-	-	-	-	-	7.4	14.7

Table 3. Adults' consumption rates of fish in the Hartlepool area (kg y⁻¹)

Observation number	Bass	Cod	Ling	Dab	Dover sole	Flounder	Haddock	Herring	Lemon sole	Mackerel	Mixed fish	Plaice	Saithe	Whiting	Total
242	-	3.3	-	-	-	-	0.4	-	-	-	-	-	-	-	3.7
568	-	1.5	-	-	-	0.6	-	-	-	-	-	-	-	1.6	3.7
569	-	1.5	-	-	-	0.6	-	-	-	-	-	-	-	1.6	3.7
138	1.3	1.9	-	-	-	-	-	-	-	-	-	-	-	-	3.2
139	1.3	1.9	-	-	-	-	-	-	-	-	-	-	-	-	3.2
140	1.3	1.9	-	-	-	-	-	-	-	-	-	-	-	-	3.2
707	-	0.9	-	-	-	-	-	-	-	-	-	-	0.9	0.9	2.7
706	-	0.9	-	0.5	-	-	-	-	-	-	-	-	-	1.4	2.7
800	-	0.3	-	-	-	-	-	-	-	2.2	-	-	-	-	2.5
801	-	0.3	-	-	-	-	-	-	-	2.2	-	-	-	-	2.5
802	-	0.3	-	-	-	-	-	-	-	2.2	-	-	-	-	2.5
803	-	0.3	-	-	-	-	-	-	-	2.2	-	-	-	-	2.5
804	-	0.3	-	-	-	-	-	-	-	2.2	-	-	-	-	2.5
805	-	0.3	-	-	-	-	-	-	-	2.2	-	-	-	-	2.5
741	-	0.6	-	-	-	-	-	-	-	0.6	-	-	0.6	0.6	2.4
742	-	0.6	-	-	-	-	-	-	-	0.6	-	-	0.6	0.6	2.4
227	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-	2.2
228	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-	2.2
229	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-	2.2
808	1.3	-	-	0.5	-	0.2	-	-	-	-	-	-	-	-	1.9
809	1.3	-	-	0.5	-	0.2	-	-	-	-	-	-	-	-	1.9
669	-	-	-	-	-	-	-	-	-	0.8	-	-	-	-	0.8
209	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	0.6
210	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	0.6

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of fish based on the 25 high-rate adult consumers is 27.9 kg y⁻¹

The observed 97.5th percentile rate based on 88 observations is 35.4 kg y⁻¹

Table 4. Adults' consumption rates of crustaceans in the Hartlepool area (kg y⁻¹)

Observation number	Brown shrimp	Brown crab	Common lobster	Velvet swimming crab	Total
711	-	22.6	6.0	-	28.6
796	-	5.6	16.9	-	22.5
797	-	5.6	16.9	-	22.5
798	-	5.6	16.9	-	22.5
799	-	5.6	16.9	-	22.5
696	-	17.3	1.4	-	18.6
697	-	17.3	1.4	-	18.6
698	-	17.3	1.4	-	18.6
699	-	17.3	1.4	-	18.6
700	-	17.3	1.4	-	18.6
776	-	8.8	9.6	-	18.4
810	-	11.3	3.0	-	14.3
811	-	11.3	3.0	-	14.3
671	-	11.3	-	-	11.3
653	-	8.5	-	-	8.5
702	-	6.8	-	-	6.8
703	-	6.8	-	-	6.8
704	-	6.8	-	-	6.8
668	-	4.5	-	-	4.5
656	-	4.2	-	-	4.2
673	-	3.4	-	-	3.4
9	-	2.3	0.3	0.9	3.4
10	-	2.3	0.3	0.9	3.4
804	-	1.7	-	0.8	2.5
805	-	1.7	-	0.8	2.5
812	-	0.9	1.4	-	2.3
813	-	0.9	1.4	-	2.3
271	-	2.3	-	-	2.3
272	-	2.3	-	-	2.3
565	-	2.3	-	-	2.3
685	-	2.3	-	-	2.3
1	-	1.1	0.8	-	1.9
2	-	1.1	0.8	-	1.9
654	-	-	1.8	-	1.8
800	-	1.7	-	-	1.7
801	-	1.7	-	-	1.7
802	-	1.7	-	-	1.7
803	-	1.7	-	-	1.7
705	1.4	-	-	-	1.4
199	-	1.1	-	-	1.1
200	-	1.1	-	-	1.1
227	-	0.8	0.3	-	1.0
228	-	0.8	0.3	-	1.0
229	-	0.8	0.3	-	1.0
677	-	0.6	0.3	-	0.8
678	-	0.6	0.3	-	0.8
689	-	0.6	0.3	-	0.8
559	-	-	0.6	-	0.6
669	-	0.6	-	-	0.6
65	-	0.5	-	-	0.5
66	-	0.5	-	-	0.5
67	-	0.5	-	-	0.5

Table 4. Adults' consumption rates of crustaceans in the Hartlepool area (kg y⁻¹)

Observation number	Brown shrimp	Brown crab	Common lobster	Velvet swimming crab	Total
68	-	0.5	-	-	0.5
69	-	0.5	-	-	0.5
93	-	0.4	-	-	0.4
94	-	0.4	-	-	0.4
138	-	0.3	-	-	0.3
139	-	0.3	-	-	0.3
140	-	0.3	-	-	0.3
95	-	0.2	-	-	0.2
96	-	0.2	-	-	0.2
98	-	0.2	-	-	0.2
99	-	0.2	-	-	0.2
114	-	0.2	-	-	0.2
115	-	0.2	-	-	0.2
209	-	0.2	-	-	0.2
210	-	0.2	-	-	0.2
88	0.05	-	-	-	0.05
89	0.05	-	-	-	0.05

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of crustaceans based on the 14 high-rate adult consumers is 19.3 kg y⁻¹

The observed 97.5th percentile rate based on 69 observations is 22.5 kg y⁻¹

Table 5. Adults' consumption rates of molluscs in the Hartlepool area (kg y⁻¹)

Observation number	Cockle	Mussel	Whelk	Winkle	Total
702	-	-	7.7	0.2	7.9
703	-	-	7.7	0.2	7.9
704	-	-	7.7	0.2	7.9
571	-	-	-	7.6	7.6
657	-	-	-	3.1	3.1
658	-	-	-	3.1	3.1
674	-	3.0	-	-	3.0
566	-	-	-	1.6	1.6
567	-	-	-	1.6	1.6
710	-	0.3	0.4	0.8	1.5
271	-	-	-	1.3	1.3
666	-	-	-	1.3	1.3
667	-	-	-	1.3	1.3
668	-	-	-	1.3	1.3
685	-	-	-	1.3	1.3
782	0.1	-	-	1.2	1.3
784	0.1	-	-	1.2	1.3
679	-	-	-	1.1	1.1
680	-	-	-	1.1	1.1
681	-	-	-	1.1	1.1
778	-	-	-	1.1	1.1
789	-	-	-	1.1	1.1
711	-	0.8	-	-	0.8
810	-	-	-	0.7	0.7
811	-	-	-	0.7	0.7
689	-	-	-	0.3	0.3
653	-	-	-	0.1	0.1
800	-	-	0.1	-	0.1
801	-	-	0.1	-	0.1
802	-	-	0.1	-	0.1
803	-	-	0.1	-	0.1
804	-	-	0.1	-	0.1
805	-	-	0.1	-	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of molluscs based on the 7 high-rate adult consumers is 5.8 kg y⁻¹

The observed 97.5th percentile rate based on 33 observations is 7.9 kg y⁻¹

Table 6. Adults' consumption rates of wildfowl in the Hartlepool area (kg y⁻¹)

Observation number	Duck	Goose	Total
685	4.1	2.2	6.3
686	4.1	2.2	6.3
702	0.3	-	0.3
703	0.3	-	0.3
704	0.3	-	0.3

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wildfowl based on the 2 high-rate adult consumers is 6.3 kg y⁻¹

The observed 97.5th percentile rate based on 5 observations is 6.3 kg y⁻¹

Table 7. Adults' consumption rates of marine plants/algae in the Hartlepool area (kg y⁻¹)

Observation number	Samphire
685	0.2

Notes

The emboldened observation is the high-rate consumer

The mean consumption rate of marine plants/algae based on the only high-rate adult consumer is 0.2 kg y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 8. Children's consumption rates of fish in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Bass	Cod	Dover sole	Haddock	Mackerel	Plaice	Saithe	Whiting	Total
14	12	1.3	1.9	-	-	1.7	-	-	1.6	6.5
747	14	-	-	-	-	4.2	-	-	-	4.2
746	13	-	-	-	-	4.2	-	-	-	4.2
141	13	1.3	1.9	-	-	-	-	-	-	3.2
740	16	-	0.6	-	-	0.6	-	0.6	0.6	2.4
230	13	-	2.2	-	-	-	-	-	-	2.2
743	12	-	0.3	-	-	0.3	-	0.3	0.3	1.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of fish based on the 5 high-rate 15-year-old age group consumers is 4.1 kg y⁻¹

The observed 97.5th percentile rate based on 7 observations is 6.2 kg y⁻¹

10-year-old age group

Observation number	Age	Bass	Cod	Dover sole	Haddock	Mackerel	Plaice	Saithe	Whiting	Total
701	11	-	10.3	1.1	0.7	1.2	0.8	-	1.0	15.0
13	10	1.3	1.9	-	-	1.7	-	-	1.6	6.5
725	10	-	3.6	-	-	1.1	-	-	-	4.7
726	8	-	3.6	-	-	1.1	-	-	-	4.7
670	10	-	-	-	-	4.7	-	-	-	4.7
231	9	-	2.2	-	-	-	-	-	-	2.2
245	7	-	1.7	-	0.2	-	-	-	-	1.9
246	7	-	1.7	-	0.2	-	-	-	-	1.9

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of fish based on the 2 high-rate 10-year-old age group consumers is 10.8 kg y⁻¹

The observed 97.5th percentile rate based on 8 observations is 13.5 kg y⁻¹

5-year-old age group

Observation number	Age	Bass	Cod	Dover sole	Haddock	Mackerel	Plaice	Saithe	Whiting	Total
243	5	-	0.7	-	0.1	-	-	-	-	0.8
244	5	-	0.7	-	0.1	-	-	-	-	0.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of fish based on the 2 high-rate 5-year-old age group consumers is 0.8 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 0.8 kg y⁻¹

Table 9. Children's consumption rates of crustaceans in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Brown shrimp	Brown crab	Common lobster	Total
230	13	-	0.8	0.3	1.0
141	13	-	0.3	-	0.3
100	15	-	0.2	-	0.2
101	13	-	0.2	-	0.2
90	16	0.05	-	-	0.05
91	14	0.05	-	-	0.05
92	12	0.05	-	-	0.05

Notes

The emboldened observation is the high-rate consumer

The mean consumption rate of crustaceans based on the only high-rate 15-year-old age group consumer is 1.0 kg y⁻¹

The observed 97.5th percentile rate based on 7 observations is 0.9 kg y⁻¹

10-year-old age group

Observation number	Age	Brown shrimp	Brown crab	Common lobster	Total
701	11	-	5.7	0.7	6.4
670	10	-	1.7	-	1.7
231	9	-	0.8	0.3	1.0
97	9	-	0.2	-	0.2

Notes

The emboldened observation is the high-rate consumer

The mean consumption rate of crustaceans based on the only high-rate 10-year-old age group consumer is 6.4 kg y⁻¹

The observed 97.5th percentile rate based on 4 observations is 6.0 kg y⁻¹

Table 9. Children's consumption rates of crustaceans in the Hartlepool area (kg y⁻¹)

5-year-old age group

Observation number	Age	Brown shrimp	Brown crab	Common lobster	Total
102	6	-	0.1	-	0.1
103	3	-	0.1	-	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of crustaceans based on the 2 high-rate 5-year-old age group consumers is 0.1 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 0.1 kg y⁻¹

Table 10. Children's consumption rates of molluscs in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Cockle	Mussel	Winkle	Total
785	16	0.1	-	1.2	1.3
786	13	0.1	-	1.2	1.3
484	12	-	0.1	1.1	1.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of molluscs based on the 3 high-rate 15-year-old age group consumers is 1.2 kg y⁻¹

The observed 97.5th percentile rate based on 3 observations is 1.3 kg y⁻¹

10-year-old age group

Observation number	Age	Cockle	Mussel	Winkle	Total
663	9	-	-	1.3	1.3
664	8	-	-	1.3	1.3
787	7	0.1	-	1.2	1.3
485	7	-	0.1	1.1	1.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of molluscs based on the 4 high-rate 10-year-old age group consumers is 1.3 kg y⁻¹

The observed 97.5th percentile rate based on 4 observations is 1.3 kg y⁻¹

5-year-old age group

Observation number	Age	Cockle	Mussel	Winkle	Total
665	6	-	-	1.3	1.3

Notes

The emboldened observation is the high-rate consumer

The mean consumption rate of molluscs based on the only 5-year-old age group consumer is 1.3 kg y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 11. Summary of adults' consumption rates in the Hartlepool area (kg y⁻¹ or l y⁻¹)

Food group	Number of observations	Number of high-rate consumers	Observed maximum consumption rate for the high-rate group	Observed minimum consumption rate for the high-rate group	Observed mean consumption rate for the high-rate group	Observed 97.5 th percentile consumption rate	Generic mean consumption rate	Generic 97.5 th percentile consumption rate
Fish	88	25	49.8	17.7	27.9	35.4	15.0	40.0
Crustaceans	69	14	28.6	11.3	19.3	22.5	3.5	10.0
Molluscs	33	7	7.9	3.0	5.8	7.9	3.5	10.0
Wildfowl	5	2	6.3	6.3	6.3	6.3	ND	ND
Marine plants/algae	1	1	0.2	0.2	0.2	NA	ND	ND
Green vegetables	390	132	56.1	18.9	25.9	41.4	15.0	45.0
Other vegetables	380	185	36.6	12.2	17.6	31.2	20.0	50.0
Root vegetables	392	232	40.7	13.6	21.5	34.3	10.0	40.0
Potato	361	45	81.9	27.3	39.4	41.0	50.0	120.0
Domestic fruit	281	46	29.0	10.7	15.0	20.8	20.0	75.0
Milk	NC	NC	NC	NC	NC	NC	95.0	240.0
Cattle meat	5	5	9.5	9.5	9.5	9.5	15.0	45.0
Pig meat	NC	NC	NC	NC	NC	NC	15.0	40.0
Sheep meat	9	9	6.8	3.8	5.4	6.8	8.0	25.0
Poultry	7	5	3.7	3.7	3.7	3.7	10.0	30.0
Eggs	90	29	35.3	11.9	16.5	26.7	8.5	25.0
Wild/free foods	20	8	4.5	1.8	3.1	4.5	7.0	25.0
Rabbits/hares	3	1	10.2	10.2	10.2	9.8	6.0	15.0
Honey	9	3	11.3	7.7	10.1	11.3	2.5	9.5
Wild fungi	16	6	1.4	0.5	0.8	1.4	3.0	10.0
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Cereals	NC	NC	NC	NC	NC	NC	50.0	100.0
Fish (freshwater)	NC	NC	NC	NC	NC	NC	15.0	40.0

ND = not determined

NC = not consumed

NA = not applicable

Table 12. Summary of 15-year-old children's consumption rates in the Hartlepool area (kg y⁻¹ or l y⁻¹)

Food group	Number of observations	Number of high-rate consumers	Observed maximum consumption rate for the high-rate group	Observed minimum consumption rate for the high-rate group	Observed mean consumption rate for the high-rate group	Observed 97.5 th percentile consumption rate	Generic mean consumption rate	Generic 97.5 th percentile consumption rate
Fish	7	5	6.5	2.4	4.1	6.2	6.5	20.0
Crustaceans	7	1	1.0	1.0	1.0	0.9	2.5	6.0
Molluscs	3	3	1.3	1.1	1.2	1.3	2.5	6.0
Wildfowl	NC	NC	NC	NC	NC	NC	ND	ND
Marine plants/algae	NC	NC	NC	NC	NC	NC	ND	ND
Green vegetables	33	22	20.9	7.8	15.4	20.9	9.0	25.0
Other vegetables	31	19	16.0	5.4	9.9	14.6	10.0	30.0
Root vegetables	33	27	29.0	9.8	17.6	29.0	7.5	20.0
Potato	29	16	32.8	11.5	20.1	32.8	60.0	130.0
Domestic fruit	27	9	16.8	6.8	11.7	16.8	15.0	50.0
Milk	NC	NC	NC	NC	NC	NC	110.0	260.0
Cattle meat	NC	NC	NC	NC	NC	NC	15.0	35.0
Pig meat	NC	NC	NC	NC	NC	NC	10.0	30.0
Sheep meat	2	2	3.8	3.8	3.8	3.8	5.5	15.0
Poultry	NC	NC	NC	NC	NC	NC	6.5	20.0
Eggs	10	10	15.0	5.3	10.8	15.0	7.0	25.0
Wild/free foods	2	2	0.2	0.2	0.2	0.2	3.0	13.0
Rabbits/hares	1	1	6.8	6.8	6.8	NA	ND	ND
Honey	1	1	1.1	1.1	1.1	NA	2.0	5.0
Wild fungi	2	2	0.4	0.4	0.4	0.4	2.0	5.5
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Cereals	NC	NC	NC	NC	NC	NC	50.0	95.0
Fish (freshwater)	NC	NC	NC	NC	NC	NC	6.5	20.0

ND = not determined

NC = not consumed

NA = not applicable

Table 13. Summary of 10-year-old children's consumption rates in the Hartlepool area (kg y⁻¹ or l y⁻¹)

Food group	Number of observations	Number of high-rate consumers	Observed maximum consumption rate for the high-rate group	Observed minimum consumption rate for the high-rate group	Observed mean consumption rate for the high-rate group	Observed 97.5 th percentile consumption rate	Generic mean consumption rate	Generic 97.5 th percentile consumption rate
Fish	8	2	15.0	6.5	10.8	13.5	6.0	20.0
Crustaceans	4	1	6.4	6.4	6.4	6.0	2.5	7.0
Molluscs	4	4	1.3	1.1	1.3	1.3	2.5	7.0
Wildfowl	NC	NC	NC	NC	NC	NC	ND	ND
Marine plants/algae	NC	NC	NC	NC	NC	NC	ND	ND
Green vegetables	36	27	20.9	7.9	15.1	20.9	6.0	20.0
Other vegetables	35	24	16.0	6.7	10.9	14.5	8.0	25.0
Root vegetables	36	28	28.2	10.1	16.5	24.1	6.0	20.0
Potato	35	19	30.6	10.9	16.5	30.4	45.0	85.0
Domestic fruit	31	5	14.0	8.6	11.4	13.2	15.0	50.0
Milk	NC	NC	NC	NC	NC	NC	110.0	240.0
Cattle meat	NC	NC	NC	NC	NC	NC	15.0	30.0
Pig meat	NC	NC	NC	NC	NC	NC	8.5	25.0
Sheep meat	NC	NC	NC	NC	NC	NC	4.0	10.0
Poultry	NC	NC	NC	NC	NC	NC	5.5	15.0
Eggs	12	10	15.0	6.5	10.9	15.0	6.5	20.0
Wild/free foods	NC	NC	NC	NC	NC	NC	3.0	11.0
Rabbits/hares	NC	NC	NC	NC	NC	NC	ND	ND
Honey	1	1	1.1	1.1	1.1	NA	2.0	7.5
Wild fungi	NC	NC	NC	NC	NC	NC	1.5	4.5
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Cereals	NC	NC	NC	NC	NC	NC	45.0	75.0
Fish (freshwater)	NC	NC	NC	NC	NC	NC	6.0	20.0

ND = not determined

NC = not consumed

NA = not applicable

Table 14. Summary of 5-year-old children's consumption rates in the Hartlepool area (kg y⁻¹ or l y⁻¹)

Food group	Number of observations	Number of high-rate consumers	Observed maximum consumption rate for the high-rate group	Observed minimum consumption rate for the high-rate group	Observed mean consumption rate for the high-rate group	Observed 97.5 th percentile consumption rate	Generic mean consumption rate	Generic 97.5 th percentile consumption rate
Fish	2	2	0.8	0.8	0.8	0.8	ND	ND
Crustaceans	2	2	0.1	0.1	0.1	0.1	ND	ND
Molluscs	1	1	1.3	1.3	1.3	NA	ND	ND
Wildfowl	NC	NC	NC	NC	NC	NC	ND	ND
Marine plants/algae	NC	NC	NC	NC	NC	NC	ND	ND
Green vegetables	30	20	13.3	4.5	7.6	11.7	ND	ND
Other vegetables	29	25	7.7	3.4	4.9	7.3	ND	ND
Root vegetables	30	23	13.1	4.8	7.7	11.6	ND	ND
Potato	29	16	15.3	5.5	8.8	13.0	ND	ND
Domestic fruit	28	9	7.8	4.4	5.7	6.9	ND	ND
Milk	NC	NC	NC	NC	NC	NC	ND	ND
Cattle meat	NC	NC	NC	NC	NC	NC	ND	ND
Pig meat	NC	NC	NC	NC	NC	NC	ND	ND
Sheep meat	NC	NC	NC	NC	NC	NC	ND	ND
Poultry	NC	NC	NC	NC	NC	NC	ND	ND
Eggs	9	6	7.5	4.8	5.9	7.4	ND	ND
Wild/free foods	NC	NC	NC	NC	NC	NC	ND	ND
Rabbits/hares	NC	NC	NC	NC	NC	NC	ND	ND
Honey	NC	NC	NC	NC	NC	NC	ND	ND
Wild fungi	NC	NC	NC	NC	NC	NC	ND	ND
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Cereals	NC	NC	NC	NC	NC	NC	ND	ND
Fish (freshwater)	NC	NC	NC	NC	NC	NC	ND	ND

ND = not determined

NC = not consumed

NA = not applicable

Table 15. Summary of 1-year-old children's consumption rates in the Hartlepool area (kg y⁻¹ or l y⁻¹)

Food group	Number of observations	Number of high-rate consumers	Observed maximum consumption rate for the high-rate group	Observed minimum consumption rate for the high-rate group	Observed mean consumption rate for the high-rate group	Observed 97.5 th percentile consumption rate	Generic mean consumption rate	Generic 97.5 th percentile consumption rate
Fish	NC	NC	NC	NC	NC	NC	ND	ND
Crustaceans	NC	NC	NC	NC	NC	NC	ND	ND
Molluscs	NC	NC	NC	NC	NC	NC	ND	ND
Wildfowl	NC	NC	NC	NC	NC	NC	ND	ND
Marine plants/algae	NC	NC	NC	NC	NC	NC	ND	ND
Green vegetables	2	2	3.2	2.8	3.0	3.2	ND	ND
Other vegetables	2	2	3.4	1.9	2.6	3.3	ND	ND
Root vegetables	2	2	4.6	1.7	3.2	4.5	ND	ND
Potato	2	2	3.2	2.8	3.0	3.2	ND	ND
Domestic fruit	2	2	0.9	0.4	0.7	0.9	ND	ND
Milk	NC	NC	NC	NC	NC	NC	ND	ND
Cattle meat	NC	NC	NC	NC	NC	NC	ND	ND
Pig meat	NC	NC	NC	NC	NC	NC	ND	ND
Sheep meat	NC	NC	NC	NC	NC	NC	ND	ND
Poultry	NC	NC	NC	NC	NC	NC	ND	ND
Eggs	2	2	4.8	2.0	3.4	4.7	ND	ND
Wild/free foods	NC	NC	NC	NC	NC	NC	ND	ND
Rabbits/hares	NC	NC	NC	NC	NC	NC	ND	ND
Honey	NC	NC	NC	NC	NC	NC	ND	ND
Wild fungi	NC	NC	NC	NC	NC	NC	ND	ND
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Cereals	NC	NC	NC	NC	NC	NC	ND	ND
Fish (freshwater)	NC	NC	NC	NC	NC	NC	ND	ND

ND = not determined

NC = not consumed

Table 16. Adults' intertidal occupancy rates in the Hartlepool area (h y⁻¹)

Observation number	Location	Activity	Mud	Mud and sand	Mud and stones	Mud, sand and stones	Rock	Sand	Sand and coal
559	Paddy's Hole	Fixing moorings	12	-	-	-	-	-	-
		Boat maintenance	-	-	300	-	-	-	-
492	Bran Sands	Bait digging	-	104	-	-	-	-	-
656	Paddy's Hole	Boat maintenance	-	74	-	-	-	-	-
568	Bran Sands	Bait digging	-	36	-	-	-	-	-
	South Gare breakwater	Angling	-	-	-	72	-	-	-
	Bran Sands	Angling	-	-	-	-	-	72	-
569	Bran Sands	Bait digging	-	36	-	-	-	-	-
	South Gare breakwater	Angling	-	-	-	72	-	-	-
	Bran Sands	Angling	-	-	-	-	-	72	-
723	Middleton Sands	Bait digging	-	32	-	-	-	-	-
	Block beach	Rock pooling	-	-	-	-	6	-	-
677	Paddy's Hole	Boat maintenance	-	24	-	-	-	-	-
	Bran Sands	Angling and bait digging	-	-	-	-	-	104	-
781	Old Town Basin	Collecting cockles	-	9	-	-	-	-	-
	Throston Scar	Collecting winkles	-	-	-	-	50	-	-
	Throston beach	Collecting sea coal	-	-	-	-	-	-	158
494	Bran Sands	Bait digging	-	5	-	-	-	-	-
566	South Gare breakwater	Collecting winkles	-	-	-	196	-	-	-
567	South Gare breakwater	Collecting winkles	-	-	-	196	-	-	-
565	Marske-by-the Sea	Metal detecting, dog walking and boat maintenance	-	-	-	-	-	300	-
570	South Gare breakwater	Collecting winkles	-	-	-	54	-	-	-
560	South Gare breakwater	Angling	-	-	-	30	-	-	-
483	South Gare breakwater	Collecting winkles	-	-	-	5	-	-	-
	Bran Sands	Dog walking	-	-	-	-	-	78	-
711	Coatham Rocks and Redcar Rocks	Angling, hooking and collecting mussels	-	-	-	-	616	-	-
	Redcar Sands	Angling	-	-	-	-	-	546	-
712	Coatham Rocks and Redcar Rocks	Angling	-	-	-	-	546	-	-
	Coatham Sands	Angling	-	-	-	-	-	546	-
810	Throston Scar	Hooking and collecting winkles	-	-	-	-	90	-	-
789	Throston Scar	Collecting winkles	-	-	-	-	80	-	-
778	Throston Scar	Collecting crabs and winkles	-	-	-	-	60	-	-
	North Gare Sands	Angling	-	-	-	-	-	65	-
727	Various	Playing	-	-	-	-	52	80	-
728	Various	Playing	-	-	-	-	52	80	-

Table 16. Adults' intertidal occupancy rates in the Hartlepool area (h y⁻¹)

Observation number	Location	Activity	Mud	Mud and sand	Mud and stones	Mud, sand and stones	Rock	Sand	Sand and coal
779	Throston Scar	Collecting crabs	-	-	-	-	24	-	-
780	Throston Scar	Collecting crabs	-	-	-	-	24	-	-
720	Throston Scar	Dog walking	-	-	-	-	13	-	-
	Throston beach	Dog walking	-	-	-	-	-	13	-
782	Throston Scar	Collecting winkles	-	-	-	-	13	-	-
	Throston beach	Collecting sea coal	-	-	-	-	-	-	40
783	Throston Scar	Collecting winkles	-	-	-	-	13	-	-
	Throston beach	Collecting sea coal	-	-	-	-	-	-	40
710	Coatham Rocks and Redcar Rocks	Collecting mussels, winkles and whelks	-	-	-	-	8	-	-
702	Throston Scar	Collecting winkles	-	-	-	-	6	-	-
724	Block beach	Rock pooling	-	-	-	-	6	-	-
691	South Gare breakwater	Collecting mussels	-	-	-	-	2	-	-
	Coatham Sands	Dog walking and angling	-	-	-	-	-	74	-
674	Bran Sands and various others	Collecting crabs, bait digging and angling	-	-	-	-	-	936	-
693	Redcar Sands	Kite flying	-	-	-	-	-	936	-
682	Marske to Saltburn	Dog walking	-	-	-	-	-	913	-
575	North Gare Sands	Sand extraction	-	-	-	-	-	840	-
671	North Gare Sands and Bran Sands	Dog walking	-	-	-	-	-	676	-
572	North Gare Sands	Field centre staff duties	-	-	-	-	-	588	-
573	North Gare Sands	Field centre staff duties	-	-	-	-	-	588	-
683	Marske-by-the-Sea	Dog walking	-	-	-	-	-	548	-
660	Coatham Sands	Dog walking	-	-	-	-	-	390	-
661	Coatham Sands	Dog walking	-	-	-	-	-	390	-
481	North Gare Sands and Seaton Sands	Dog walking	-	-	-	-	-	389	-
722	Throston beach	Dog walking	-	-	-	-	-	365	-
792	Carr House Sands and Seaton Sands	Dog walking	-	-	-	-	-	365	-
795	Carr House Sands	Dog walking	-	-	-	-	-	274	-
563	Marske-by-the-Sea	Dog walking	-	-	-	-	-	260	-
564	Marske-by-the-Sea	Dog walking	-	-	-	-	-	260	-
359	Seaton Sands	Dog walking	-	-	-	-	-	250	-
736	Block Sands, Fish Sands and Seaton Sands	Lifeguard duties	-	-	-	-	-	218	-
737	Block Sands, Fish Sands and Seaton Sands	Lifeguard duties	-	-	-	-	-	218	-
577	North Gare Sands	Jogging	-	-	-	-	-	208	-
89	Seaton Sands	Dog walking	-	-	-	-	-	200	-
684	Marske-by-the-Sea	Beach occupancy	-	-	-	-	-	195	-

Table 16. Adults' intertidal occupancy rates in the Hartlepool area (h y⁻¹)

Observation number	Location	Activity	Mud	Mud and sand	Mud and stones	Mud, sand and stones	Rock	Sand	Sand and coal
793	North Gare Sands	Dog walking	-	-	-	-	-	183	-
70	Seaton Sands	Kite flying	-	-	-	-	-	135	-
1	Seaton Sands	Collecting crabs and angling	-	-	-	-	-	130	-
794	Carr House Sands	Dog walking	-	-	-	-	-	130	-
672	Bran Sands and Saltburn-by-the-sea	Bait digging and angling	-	-	-	-	-	119	-
687	Redcar Sands	Dog walking	-	-	-	-	-	104	-
688	Redcar Sands	Dog walking	-	-	-	-	-	104	-
718	Throston beach	Dog walking	-	-	-	-	-	104	-
88	Seaton Sands	Walking	-	-	-	-	-	100	-
65	Seaton Sands	Walking	-	-	-	-	-	90	-
676	Various	Beach combing and walking	-	-	-	-	-	85	-
19	Seaton Sands	Angling	-	-	-	-	-	78	-
561	Marske-by-the-Sea	Walking	-	-	-	-	-	78	-
717	Throston beach	Dog walking	-	-	-	-	-	78	-
690	Coatham Sands	Angling	-	-	-	-	-	70	-
9	Seaton Sands	Angling	-	-	-	-	-	66	-
808	North Gare Sands	Angling	-	-	-	-	-	60	-
809	North Gare Sands	Angling	-	-	-	-	-	60	-
655	Bran Sands	Bait digging	-	-	-	-	-	52	-
74	Seaton Sands	Walking	-	-	-	-	-	48	-
75	Seaton Sands	Walking	-	-	-	-	-	48	-
791	Seaton Sands	Dog walking	-	-	-	-	-	43	-
731	Seaton Sands and Fish Sands	Playing	-	-	-	-	-	42	-
732	Seaton Sands and Fish Sands	Playing	-	-	-	-	-	42	-
806	Seaton Sands	Walking	-	-	-	-	-	36	-
807	Seaton Sands	Walking	-	-	-	-	-	36	-
689	Bran Sands	Bait digging	-	-	-	-	-	30	-
657	South Gare breakwater	Collecting winkles	-	-	-	-	-	24	-
658	South Gare breakwater	Collecting winkles	-	-	-	-	-	24	-
578	North Gare Sands	Nature reserve warden duties	-	-	-	-	-	23	-
579	North Gare Sands	Nature reserve warden duties	-	-	-	-	-	23	-
673	Bran Sands	Bait digging	-	-	-	-	-	12	-
679	Saltburn Scar	Collecting winkles	-	-	-	-	-	12	-
93	Seaton Sands	Playing	-	-	-	-	-	10	-
94	Seaton Sands	Playing	-	-	-	-	-	10	-

Table 16. Adults' intertidal occupancy rates in the Hartlepool area (h y⁻¹)

Observation number	Location	Activity	Mud	Mud and sand	Mud and stones	Mud, sand and stones	Rock	Sand	Sand and coal
715	Saltburn-by-the-Sea	Beach combing	-	-	-	-	-	6	-
576	North Gare Sands	Dog walking	-	-	-	-	-	5	-
692	Coatham Sands	Dog walking	-	-	-	-	-	4	-
482	North Gare Sands	Dog walking	-	-	-	-	-	3	-
744	Carr House Sands and Middleton Sands	Collecting sea coal	-	-	-	-	-	-	1529
745	Carr House Sands and Middleton Sands	Collecting sea coal	-	-	-	-	-	-	1529
708	Carr House Sands	Collecting sea coal	-	-	-	-	-	-	1248
709	Carr House Sands	Collecting sea coal	-	-	-	-	-	-	624
716	Throston beach	Collecting sea coal	-	-	-	-	-	-	175

Notes

Emboldened observations are the high-rate individuals

The mean intertidal occupancy rate over mud based on the only high-rate observation is 12 h y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

The mean intertidal occupancy rate over mud and sand based on 4 high-rate observations is 62 h y⁻¹

The observed 97.5th percentile rate for mud and sand based on 8 observations is 99 h y⁻¹

The mean intertidal occupancy rate over mud and stones based on the only high-rate observation is 300 h y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

The mean intertidal occupancy rate over mud, sand and stones based on 4 high-rate observations is 134 h y⁻¹

The observed 97.5th percentile rate for mud, sand and stones based on 7 observations is 196 h y⁻¹

The mean intertidal occupancy rate over rock based on 2 high-rate observations is 581 h y⁻¹

The observed 97.5th percentile rate for rock based on 18 observations is 586 h y⁻¹

The mean intertidal occupancy rate over sand based on 15 high-rate observations is 601 h y⁻¹

The observed 97.5th percentile rate for sand based on 73 observations is 917 h y⁻¹

The mean intertidal occupancy rate over sand and coal based on 4 high-rate observations is 1233 h y⁻¹

The observed 97.5th percentile rate for sand and coal based on 8 observations is 1529 h y⁻¹

Table 17. Children's intertidal occupancy rates in the Hartlepool area (h y⁻¹)

15-year-old age group

Observation number	Age	Location	Activity	Mud, sand and stones	Rock	Sand	Sand and coal
484	12	Bran Sands breakwater	Collecting winkles	5	-	-	-
		Bran Sands	Dog walking	-	-	78	-
740	16	Throston beach	Angling	-	-	60	-
100	15	Seaton Sands	Playing	-	-	10	-
101	13	Seaton Sands	Playing	-	-	10	
746	13	Carr House Sands and Middleton Sands	Collecting sea coal	-	-	-	437
747	14	Carr House Sands and Middleton Sands	Collecting sea coal	-	-	-	437

Notes

Emboldened observations are the high-rate individuals

The mean intertidal occupancy rate over mud, sand and stones based on the only high-rate observation is 5 h y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

The mean intertidal occupancy rate over sand based on 2 high-rate observations is 69 h y⁻¹

The observed 97.5th percentile rate for sand based on 4 observations is 77 h y⁻¹

The mean intertidal occupancy rate over sand and coal based on 2 high-rate observations is 437 h y⁻¹

The observed 97.5th percentile rate for sand and coal based on 2 observations is 437 h y⁻¹

Table 17. Children's intertidal occupancy rates in the Hartlepool area (h y⁻¹)

10-year-old age group

Observation number	Age	Location	Activity	Mud, sand and stones	Rock	Sand	Sand and coal
485	7	Bran Sands breakwater	Collecting winkles	5	-	-	-
		Bran Sands	Dog walking		-	78	-
730	11	Various	Playing	-	94	142	-
729	7	Various	Playing	-	52	80	-
721	8	Throston Scar	Dog walking	-	13	-	-
		Throston beach	Dog walking	-	-	13	-
787	7	Throston Scar	Collecting winkles	-	13	-	-
		Throston beach	Collecting sea coal	-	-	-	40
725	10	Block beach	Rock Pooling	-	6	-	-
726	8	Block beach	Rock Pooling	-	6	-	-
719	10	Throston beach	Dog walking	-	-	52	-
97	9	Seaton Sands	Playing	-	-	10	-

Notes

Emboldened observations are the high-rate individuals

The mean intertidal occupancy rate over mud, sand and stones based on the only high-rate observation is 5 h y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

The mean intertidal occupancy rate over rock based on 2 high-rate observations is 73 h y⁻¹

The observed 97.5th percentile rate for rock based on 6 observations is 89 h y⁻¹

The mean intertidal occupancy rate over sand based on 4 high-rate observations is 88 h y⁻¹

The observed 97.5th percentile rate for sand based on 6 observations is 134 h y⁻¹

The mean intertidal occupancy rate over sand and coal based on the only high-rate observation is 40 h y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 17. Children's intertidal occupancy rates in the Hartlepool area (h y⁻¹)

5-year-old age group

Observation number	Age	Location	Activity	Mud, sand and stones	Rock	Sand	Sand and coal
788	4	Throston Scar	Collecting winkles	-	13	-	
		Throston beach	Collecting sea coal	-		-	40
562	2	Marske-by-the Sea	Walking	-	-	78	-
733	6	Seaton Sands and Fish Sands	Playing	-	-	42	-
734	4	Seaton Sands and Fish Sands	Playing	-	-	42	-
735	4	Seaton Sands and Fish Sands	Playing	-	-	42	-
103	3	Seaton Sands	Playing	-	-	10	-
102	6	Seaton Sands	Playing	-	-	10	-

Notes

Emboldened observations are the high-rate individuals

The mean intertidal occupancy rate over rock based on the only high-rate observation is 13 h y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

The mean intertidal occupancy rate over sand based on 4 high-rate observations is 51 h y⁻¹

The observed 97.5th percentile rate for sand based on 6 observations is 74 h y⁻¹

The mean intertidal occupancy rate over sand and coal based on the only high-rate observation is 40 h y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 18. Gamma dose rate measurements over intertidal substrates in the Hartlepool area ($\mu\text{Gy h}^{-1}$)

Location	NGR	Substrate	Gamma dose rate at 1 metre ^a
North Gare Sands	NZ 539 274	Sand	0.049
Hartlepool Power Station	NZ 534 267	Mud and sand	0.066
Bran Sands	NZ 556 267	Sand	0.055
Coatham sands	NZ 558 276	Sand	0.057
Redcar	NZ 606 252	Sand	0.059
Marske-by-the-Sea	NZ 636 230	Sand and stones	0.058
Paddy's Hole (near slipway)	NZ 555 273	Mud and stones	0.153
Paddy's Hole	NZ 555 273	Soft, sticky mud	0.114
Paddy's Hole (near jetty)	NZ 555 273	Mud	0.154
Paddy's Hole (near boats)	NZ 555 273	Mud and stones	0.179
Saltburn Sands	NZ 667 217	Sand	0.049
Throston Beach	NZ 523 345	Sand	0.051
Block Sands	NZ 529 334	Sand	0.056
Fish Sands	NZ 527 335	Sand	0.052
Middleton Sands	NZ 522 334	Sand and coal dust	0.056
Old Town Basin (upper shore)	NZ 518 327	Coal dust	0.048
Old Town Basin (lower shore)	NZ 519 328	Mud and sand	0.060
Carr House Sands	NZ 519 318	Sand and coal dust	0.052
Seaton Sands	NZ 528 297	Sand	0.047

^a These measurements have not been adjusted for natural background dose rates.

Table 19. Adults' handling rates of fishing gear and sediment in the Hartlepool area (h y⁻¹)

Observation number	Location	Activity	Fishing gear	Sediment
679	Off Saltburn-by-the-sea	Handling pots	2205	-
	Saltburn-by-the-sea	Collecting winkles	-	12
681	Off Saltburn-by-the-sea	Handling pots	2205	-
694	Off Hartlepool	Handling pots and set nets	1925	-
559	South Gare to Saltburn-by-the-Sea	Handling pots	1390	-
	Paddy's Hole	Fixing moorings	-	12
656	Tees Bay	Handling pots	1288	-
696	Off Hartlepool	Handling pots, set nets and long lines	1008	-
702	Off Hartlepool	Handling pots and set nets	900	-
	Throston Scar	Collecting winkles	-	6
705	Off Hartlepool	Handling pots and set nets	900	-
776	Off Hartlepool	Handling pots and trawl net	875	-
777	Off Hartlepool	Handling pots and trawl net	875	-
677	Tees Estuary	Handling pots	546	-
	Bran Sands	Bait digging	-	26
796	Off Hartlepool	Handling pots and set nets	450	-
800	Off Hartlepool	Handling pots	245	-
802	Off Hartlepool	Handling pots	245	-
804	Off Hartlepool	Handling pots	245	-
565	Redcar to Saltburn-by-the-Sea	Handling pots	126	-
655	Tees Bay	Handling pots	78	-
	Bran Sands	Bait digging	-	52
652	Tees Bay	Handling pots	78	-
653	Tees Bay	Handling pots	78	-
744	Carr House Sands and Middleton Sands	Collecting sea coal	-	1529
745	Carr House Sands and Middleton Sands	Collecting sea coal	-	1529
708	Carr House Sands	Collecting sea coal	-	1248
709	Carr House Sands	Collecting sea coal	-	624
674	Bran Sands	Bait digging and collecting crabs	-	360
781	Old Town Basin, Throston beach and Throston Scar	Collecting cockles, winkles and sea coal	-	217
566	South Gare breakwater	Collecting winkles	-	196
567	South Gare breakwater	Collecting winkles	-	196

Table 19. Adults' handling rates of fishing gear and sediment in the Hartlepool area (h y⁻¹)

Observation number	Location	Activity	Fishing gear	Sediment
716	Throston beach	Collecting sea coal	-	175
492	Bran Sands	Bait digging	-	104
789	Throston Scar	Collecting winkles	-	80
1	Seaton Sands	Collecting crabs	-	65
778	Throston Scar	Collecting winkles and crabs	-	60
570	South Gare breakwater	Collecting winkles	-	54
782	Throston beach and Throston Scar	Collecting sea coal and winkles	-	52
783	Throston beach and Throston Scar	Collecting sea coal and winkles	-	52
711	Coatham Rocks and Redcar Rocks	Collecting mussels	-	40
568	Bran Sands	Bait digging	-	36
569	Bran Sands	Bait digging	-	36
723	Middleton Sands	Bait digging	-	32
689	Bran Sands	Bait digging	-	30
657	South Gare breakwater	Collecting winkles	-	24
658	South Gare breakwater	Collecting winkles	-	24
779	Throston Scar	Collecting crabs	-	24
780	Throston Scar	Collecting crabs	-	24
810	Throston Scar	Collecting winkles	-	20
672	Bran Sands	Bait digging and collecting crabs	-	15
673	Bran Sands	Bait digging	-	12
710	Coatham Rocks and Redcar Rocks	Collecting mussels, whelks and winkles	-	8
483	Bran Sands breakwater	Collecting winkles	-	5
494	Bran Sands	Bait digging	-	5
691	South Gare breakwater	Collecting mussels	-	2

Notes

Emboldened observations are the high-rate individuals

The mean handling rate for fishing gear based on 10 high-rate observations is 1357 h y⁻¹

The observed 97.5th percentile rate for handling fishing gear based on 19 observations is 2205 h y⁻¹

The mean handling rate for sediment based on 4 high-rate observations is 1233 h y⁻¹

The observed 97.5th percentile rate for handling sediment based on 37 observations is 1529 h y⁻¹

Table 20. Children's handling rates of sediment in the Hartlepool area (h y^{-1})

15-year-old age group

Observation number	Age	Location	Activity	Sediment
746	13	Carr House Sands and Middleton Sands	Collecting sea coal	437
747	14	Carr House Sands and Middleton Sands	Collecting sea coal	437
484	12	Bran Sands breakwater	Collecting winkles	5

Notes

Emboldened observations are the high-rate individuals

The mean handling rate for sediment based on 2 high-rate observations is 437 h y^{-1}

The observed 97.5th percentile rate for handling sediment based on 3 observations is 437 h y^{-1}

10-year-old age group

Observation number	Age	Location	Activity	Sediment
787	7	Throston beach, Throston Scar	Collecting sea coal and winkles	52
485	7	Bran Sands breakwater	Collecting winkles	5

Notes

Emboldened observations is the high-rate individual

The mean handling rate for sediment based on the only high-rate observation is 52 h y^{-1}

The observed 97.5th percentile rate for handling sediment based on 2 observations is 51 h y^{-1}

5-year-old age group

Observation number	Age	Location	Activity	Sediment
788	4	Throston beach, Throston Scar	Collecting sea coal and winkles	52

Notes

The emboldened observation is the high-rate individual

The mean handling rate for sediment based on the only high-rate observation is 52 h y^{-1}

The observed 97.5th percentile rate is not applicable for 1 observation

Table 21. Adults' occupancy rates in and on water in the Hartlepool area (h y⁻¹)

Observation number	Location	Activity	In water	On water
713	Saltburn-by-the-Sea	Surfing	600	-
714	Saltburn-by-the-Sea	Surfing	525	-
821	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
	Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
822	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
	Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
830	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
	Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
831	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
	Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
832	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
	Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
833	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
	Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
684	Marske-by-the-Sea	Kitesurfing	195	-
659	Coatham Sands	Kitesurfing	80	-
736	Off Seaton Sands	Lifeguard Duties	50	-
737	Off Seaton Sands	Lifeguard Duties	50	-
486	Off Hartlepool, South Gare and Saltburn-by-the-sea	Diving	42	-
	Off Hartlepool, South Gare and Saltburn-by-the-sea	On dive boat	-	56
487	Off Hartlepool, South Gare and Saltburn-by-the-sea	Diving	42	-
	Off Hartlepool, South Gare and Saltburn-by-the-sea	On dive boat	-	56
488	Off Hartlepool, South Gare and Saltburn-by-the-sea	Diving	42	-
	Off Hartlepool, South Gare and Saltburn-by-the-sea	On dive boat	-	56
489	Off Hartlepool, South Gare and Saltburn-by-the-sea	Diving	42	-
	Off Hartlepool, South Gare and Saltburn-by-the-sea	On dive boat	-	56
490	Off Hartlepool, South Gare and Saltburn-by-the-sea	Diving	42	-
	Off Hartlepool, South Gare and Saltburn-by-the-sea	On dive boat	-	56
491	Off Hartlepool, South Gare and Saltburn-by-the-sea	Diving	42	-
	Off Hartlepool, South Gare and Saltburn-by-the-sea	On dive boat	-	56
690	Coatham Sands	Kayaking	24	-
691	Coatham Sands	Kayaking	24	-

Table 21. Adults' occupancy rates in and on water in the Hartlepool area (h y⁻¹)

Observation number	Location	Activity	In water	On water
679	Off Saltburn-by-the-sea	Potting	-	2940
681	Off Saltburn-by-the-sea	Potting	-	2940
656	Tees Bay	Potting	-	2181
694	Off Hartlepool	Potting and setting nets	-	1925
536	River Tees	Dredging	-	1692
537	River Tees	Dredging	-	1692
538	River Tees	Dredging	-	1692
539	River Tees	Dredging	-	1692
540	River Tees	Dredging	-	1692
541	River Tees	Dredging	-	1692
542	River Tees	Dredging	-	1692
543	River Tees	Dredging	-	1692
559	South Gare to Saltburn-by-the-Sea	Potting	-	1600
696	Off Hartlepool	Potting, setting nets and long lining	-	1512
776	Off Hartlepool	Potting and trawling	-	975
777	Off Hartlepool	Potting and trawling	-	975
544	River Tees	Pilot boat crew	-	940
545	River Tees	Pilot boat crew	-	940
546	River Tees	Pilot boat crew	-	940
547	River Tees	Pilot boat crew	-	940
548	River Tees	Pilot boat crew	-	940
549	River Tees	Pilot boat crew	-	940
550	River Tees	Pilot boat crew	-	940
551	River Tees	Pilot boat crew	-	940
552	River Tees	Pilot boat crew	-	940
553	River Tees	Pilot boat crew	-	940
554	River Tees	Pilot boat crew	-	940
555	River Tees	Pilot boat crew	-	940
556	River Tees	Pilot boat crew	-	940
557	River Tees	Pilot boat crew	-	940
558	River Tees	Pilot boat crew	-	940
652	Tees Bay	Potting and boat angling	-	936

Table 21. Adults' occupancy rates in and on water in the Hartlepool area (h y⁻¹)

Observation number	Location	Activity	In water	On water
653	Tees Bay	Potting and boat angling	-	936
655	Tees Bay	Potting and boat angling	-	936
702	Off Hartlepool	Potting and setting nets	-	900
705	Off Hartlepool	Potting and setting nets	-	900
677	Tees Bay and Tees Estuary	Potting and boat angling	-	891
565	Redcar to Saltburn-by-the-Sea	Potting	-	770
796	Off Hartlepool	Potting and setting nets	-	450
689	Tees Bay	Boat angling	-	312
800	Off Hartlepool	Potting	-	294
802	Off Hartlepool	Potting	-	294
804	Off Hartlepool	Potting	-	294
11	Tees Bay	Boat angling	-	240
672	Bran Sands	Wading	-	208
657	Off Saltburn-by-the-Sea	Boat angling	-	163
658	Off Saltburn-by-the-Sea	Boat angling	-	163
673	Tees Bay	Boat angling	-	90
669	Off Saltburn-by-the-Sea	Boat angling	-	78
738	Off Hartlepool	Boat angling	-	72
494	Tees Bay	Boat angling	-	54
662	Tees Bay	Boat angling	-	25

Table 22. Children's occupancy rates in and on water in the Hartlepool area (h y⁻¹)

Observation number	Age	Location	Activity	In water	On water
15-year-old age group					
816	12	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
817	13	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
818	14	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
819	15	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
820	16	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
825	12	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
826	13	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
827	14	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
828	15	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
829	16	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
10-year-old age group					
814	10	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
815	11	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
823	10	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
824	11	Hartlepool Marina and Hartlepool Bay	Kayaking	300	-
		Hartlepool Marina, Hartlepool Bay, Tees Bay and Tees Estuary	Sailing, rowing and power boating	-	900
670	10	Off Saltburn-by-the-Sea	Angling (boat)	-	78

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
111	-	-	9.8	-	4.0	9.9	9.9	-	7.8	8.2	0.4	-	-	4.0	2.2	56.1
30	7.7	-	11.2	10.2	9.6	-	-	-	8.3	4.3	-	-	-	3.4	-	54.6
29	7.7	-	11.2	10.2	9.6	-	-	-	8.3	4.3	-	-	-	3.4	-	54.6
415	-	-	7.5	13.7	13.7	-	-	-	7.4	3.4	-	-	-	-	6.8	52.4
416	-	-	7.5	13.7	13.7	-	-	-	7.4	3.4	-	-	-	-	6.8	52.4
280	-	-	6.7	8.2	11.0	-	6.7	-	-	7.7	-	-	-	8.1	-	48.4
281	-	-	6.7	8.2	11.0	-	6.7	-	-	7.7	-	-	-	8.1	-	48.4
68	-	-	-	6.8	14.6	5.6	5.6	-	-	7.7	-	-	-	1.1	-	41.4
65	-	-	-	6.8	14.6	5.6	5.6	-	-	7.7	-	-	-	1.1	-	41.4
66	-	-	-	6.8	14.6	5.6	5.6	-	-	7.7	-	-	-	1.1	-	41.4
67	-	-	-	6.8	14.6	5.6	5.6	-	-	7.7	-	-	-	1.1	-	41.4
69	-	-	-	6.8	14.6	5.6	5.6	-	-	7.7	-	-	-	1.1	-	41.4
129	-	-	8.2	3.3	13.3	-	2.7	-	11.1	-	-	-	0.8	1.7	-	41.1
128	-	-	8.2	3.3	13.3	-	2.7	-	11.1	-	-	-	0.8	1.7	-	41.1
131	-	-	8.2	3.3	13.3	-	2.7	-	11.1	-	-	-	0.8	1.7	-	41.1
1	-	-	5.6	6.0	11.2	2.7	5.6	-	-	2.8	-	-	-	2.0	-	35.9
2	-	-	5.6	6.0	11.2	2.7	5.6	-	-	2.8	-	-	-	2.0	-	35.9
347	-	-	-	8.2	12.2	-	7.5	-	-	-	-	-	-	5.4	-	33.3
348	-	-	-	8.2	12.2	-	7.5	-	-	-	-	-	-	5.4	-	33.3
133	-	-	11.2	5.5	9.1	-	5.6	-	-	-	-	-	-	-	-	31.4
135	-	-	11.2	5.5	9.1	-	5.6	-	-	-	-	-	-	-	-	31.4
136	-	-	11.2	5.5	9.1	-	5.6	-	-	-	-	-	-	-	-	31.4
137	-	-	11.2	5.5	9.1	-	5.6	-	-	-	-	-	-	-	-	31.4
132	-	-	11.2	5.5	9.1	-	5.6	-	-	-	-	-	-	-	-	31.4
134	-	-	11.2	5.5	9.1	-	5.6	-	-	-	-	-	-	-	-	31.4
165	-	-	-	6.8	9.1	-	5.6	-	-	6.4	-	-	-	3.0	-	31.0
166	-	-	-	6.8	9.1	-	5.6	-	-	6.4	-	-	-	3.0	-	31.0
130	-	-	-	11.4	10.6	-	8.5	-	-	-	-	-	-	-	-	30.5
9	-	-	1.0	7.3	13.6	-	1.0	-	1.4	2.7	-	-	-	3.2	0.2	30.4
10	-	-	1.0	7.3	13.6	-	1.0	-	1.4	2.7	-	-	-	3.2	0.2	30.4
93	-	-	-	4.5	16.1	-	2.5	-	-	4.2	-	-	-	2.0	-	29.2
94	-	-	-	4.5	16.1	-	2.5	-	-	4.2	-	-	-	2.0	-	29.2
15	-	-	1.0	7.3	13.6	-	1.0	-	1.4	-	-	-	-	3.2	0.2	27.7
11	-	-	1.0	7.3	13.6	-	1.0	-	1.4	-	-	-	-	3.2	0.2	27.7

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
12	-	-	1.0	7.3	13.6	-	1.0	-	1.4	-	-	-	-	3.2	0.2	27.7
16	-	-	1.0	7.3	13.6	-	1.0	-	1.4	-	-	-	-	3.2	0.2	27.7
17	-	-	1.0	7.3	13.6	-	1.0	-	1.4	-	-	-	-	3.2	0.2	27.7
18	-	-	1.0	7.3	13.6	-	1.0	-	1.4	-	-	-	-	3.2	0.2	27.7
104	-	-	-	9.1	6.1	-	-	-	-	8.5	-	-	-	3.0	-	26.7
105	-	-	-	9.1	6.1	-	-	-	-	8.5	-	-	-	3.0	-	26.7
209	-	-	-	4.4	5.1	-	4.1	-	-	12.8	-	-	-	-	-	26.3
210	-	-	-	4.4	5.1	-	4.1	-	-	12.8	-	-	-	-	-	26.3
375	-	-	1.1	10.1	3.8	1.1	3.0	1.8	-	2.8	-	-	-	2.2	-	26.0
379	-	-	1.1	10.1	3.8	1.1	3.0	1.8	-	2.8	-	-	-	2.2	-	26.0
380	-	-	1.1	10.1	3.8	1.1	3.0	1.8	-	2.8	-	-	-	2.2	-	26.0
381	-	-	1.1	10.1	3.8	1.1	3.0	1.8	-	2.8	-	-	-	2.2	-	26.0
382	-	-	1.1	10.1	3.8	1.1	3.0	1.8	-	2.8	-	-	-	2.2	-	26.0
378	-	-	1.1	10.1	3.8	1.1	3.0	1.8	-	2.8	-	-	-	2.2	-	26.0
395	-	-	-	0.9	6.9	-	4.2	-	-	6.4	0.1	-	-	6.8	-	25.2
396	-	-	-	0.9	6.9	-	4.2	-	-	6.4	0.1	-	-	6.8	-	25.2
397	-	-	-	0.9	6.9	-	4.2	-	-	6.4	0.1	-	-	6.8	-	25.2
398	-	-	-	0.9	6.9	-	4.2	-	-	6.4	0.1	-	-	6.8	-	25.2
401	-	-	-	0.9	6.9	-	4.2	-	-	6.4	0.1	-	-	6.8	-	25.2
402	-	-	-	0.9	6.9	-	4.2	-	-	6.4	0.1	-	-	6.8	-	25.2
399	-	-	-	0.9	6.9	-	4.2	-	-	6.4	0.1	-	-	6.8	-	25.2
400	-	-	-	0.9	6.9	-	4.2	-	-	6.4	0.1	-	-	6.8	-	25.2
417	-	-	3.0	-	9.7	-	7.5	-	-	-	-	-	-	4.0	-	24.2
418	-	-	3.0	-	9.7	-	7.5	-	-	-	-	-	-	4.0	-	24.2
419	-	-	3.0	-	9.7	-	7.5	-	-	-	-	-	-	4.0	-	24.2
3	-	-	3.7	4.0	7.5	1.8	3.7	-	-	1.9	-	-	-	1.3	-	23.9
4	-	-	3.7	4.0	7.5	1.8	3.7	-	-	1.9	-	-	-	1.3	-	23.9
5	-	-	3.7	4.0	7.5	1.8	3.7	-	-	1.9	-	-	-	1.3	-	23.9
7	-	-	3.7	4.0	7.5	1.8	3.7	-	-	1.9	-	-	-	1.3	-	23.9
8	-	-	3.7	4.0	7.5	1.8	3.7	-	-	1.9	-	-	-	1.3	-	23.9
6	-	-	3.7	4.0	7.5	1.8	3.7	-	-	1.9	-	-	-	1.3	-	23.9
57	-	-	-	2.3	8.1	-	3.6	-	-	7.2	-	-	-	1.1	-	22.1
58	-	-	-	2.3	8.1	-	3.6	-	-	7.2	-	-	-	1.1	-	22.1
60	-	-	-	2.3	8.1	-	3.6	-	-	7.2	-	-	-	1.1	-	22.1

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
59	-	-	-	2.3	8.1	-	3.6	-	-	7.2	-	-	-	1.1	-	22.1
217	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
218	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
219	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
220	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
221	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
222	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
223	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
224	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
225	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
226	-	-	-	4.4	11.7	-	2.7	-	-	1.7	-	-	-	0.6	-	21.1
114	-	1.2	-	5.1	6.8	4.2	2.1	-	-	-	-	-	-	1.5	-	20.9
118	-	1.2	-	5.1	6.8	4.2	2.1	-	-	-	-	-	-	1.5	-	20.9
115	-	1.2	-	5.1	6.8	4.2	2.1	-	-	-	-	-	-	1.5	-	20.9
116	-	1.2	-	5.1	6.8	4.2	2.1	-	-	-	-	-	-	1.5	-	20.9
117	-	1.2	-	5.1	6.8	4.2	2.1	-	-	-	-	-	-	1.5	-	20.9
119	-	1.2	-	5.1	6.8	4.2	2.1	-	-	-	-	-	-	1.5	-	20.9
351	-	-	6.7	4.1	5.5	-	3.4	-	-	-	-	-	-	0.9	-	20.6
352	-	-	6.7	4.1	5.5	-	3.4	-	-	-	-	-	-	0.9	-	20.6
353	-	-	6.7	4.1	5.5	-	3.4	-	-	-	-	-	-	0.9	-	20.6
354	-	-	6.7	4.1	5.5	-	3.4	-	-	-	-	-	-	0.9	-	20.6
194	-	-	-	5.5	7.3	-	1.1	-	-	3.4	-	-	-	2.7	-	20.0
195	-	-	-	5.5	7.3	-	1.1	-	-	3.4	-	-	-	2.7	-	20.0
196	-	-	-	5.5	7.3	-	1.1	-	-	3.4	-	-	-	2.7	-	20.0
193	-	-	-	5.5	7.3	-	1.1	-	-	3.4	-	-	-	2.7	-	20.0
74	-	-	1.9	4.6	6.1	-	2.3	-	-	2.1	-	1.6	-	1.1	-	19.7
76	-	-	1.9	4.6	6.1	-	2.3	-	-	2.1	-	1.6	-	1.1	-	19.7
75	-	-	1.9	4.6	6.1	-	2.3	-	-	2.1	-	1.6	-	1.1	-	19.7
21	-	-	0.9	1.7	7.4	0.9	1.4	-	1.4	4.3	-	-	-	1.0	0.4	19.5
27	-	-	0.9	1.7	7.4	0.9	1.4	-	1.4	4.3	-	-	-	1.0	0.4	19.5
22	-	-	0.9	1.7	7.4	0.9	1.4	-	1.4	4.3	-	-	-	1.0	0.4	19.5
24	-	-	0.9	1.7	7.4	0.9	1.4	-	1.4	4.3	-	-	-	1.0	0.4	19.5
25	-	-	0.9	1.7	7.4	0.9	1.4	-	1.4	4.3	-	-	-	1.0	0.4	19.5
26	-	-	0.9	1.7	7.4	0.9	1.4	-	1.4	4.3	-	-	-	1.0	0.4	19.5

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
28	-	-	0.9	1.7	7.4	0.9	1.4	-	1.4	4.3	-	-	-	1.0	0.4	19.5
23	-	-	0.9	1.7	7.4	0.9	1.4	-	1.4	4.3	-	-	-	1.0	0.4	19.5
411	-	-	-	4.6	14.6	-	-	-	-	-	-	-	-	-	-	19.2
412	-	-	-	4.6	14.6	-	-	-	-	-	-	-	-	-	-	19.2
413	-	-	-	4.6	14.6	-	-	-	-	-	-	-	-	-	-	19.2
414	-	-	-	4.6	14.6	-	-	-	-	-	-	-	-	-	-	19.2
391	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
385	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
387	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
389	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
390	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
393	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
386	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
388	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
392	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
394	-	-	-	3.4	11.9	-	2.8	-	-	-	-	-	-	0.9	-	19.0
316	-	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	-	19.0
318	-	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	-	19.0
320	-	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	-	19.0
313	-	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	-	19.0
314	-	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	-	19.0
315	-	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	-	19.0
317	-	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	-	19.0
319	-	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	-	19.0
325	-	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	-	19.0
227	-	-	-	4.8	5.1	3.4	2.3	-	-	-	-	-	-	3.4	-	18.9
228	-	-	-	4.8	5.1	3.4	2.3	-	-	-	-	-	-	3.4	-	18.9
229	-	-	-	4.8	5.1	3.4	2.3	-	-	-	-	-	-	3.4	-	18.9
232	-	-	-	4.8	5.1	3.4	2.3	-	-	-	-	-	-	3.4	-	18.9
233	-	-	-	4.8	5.1	3.4	2.3	-	-	-	-	-	-	3.4	-	18.9
55	-	-	-	2.3	8.1	-	3.6	-	-	3.6	-	-	-	1.1	-	18.6
56	-	-	-	2.3	8.1	-	3.6	-	-	3.6	-	-	-	1.1	-	18.6
765	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
766	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
767	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
768	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
769	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
770	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
771	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
772	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
773	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
774	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
775	-	-	5.5	3.4	9.0	-	-	-	-	0.6	-	-	-	-	-	18.4
271	-	-	-	4.6	6.1	-	-	-	-	2.1	0.6	-	-	5.0	-	18.3
272	-	-	-	4.6	6.1	-	-	-	-	2.1	0.6	-	-	5.0	-	18.3
442	-	-	-	-	10.8	-	3.0	-	-	1.9	-	-	-	2.2	-	18.0
444	-	-	-	-	10.8	-	3.0	-	-	1.9	-	-	-	2.2	-	18.0
445	-	-	-	-	10.8	-	3.0	-	-	1.9	-	-	-	2.2	-	18.0
446	-	-	-	-	10.8	-	3.0	-	-	1.9	-	-	-	2.2	-	18.0
447	-	-	-	-	10.8	-	3.0	-	-	1.9	-	-	-	2.2	-	18.0
448	-	-	-	-	10.8	-	3.0	-	-	1.9	-	-	-	2.2	-	18.0
449	-	-	-	-	10.8	-	3.0	-	-	1.9	-	-	-	2.2	-	18.0
240	-	-	4.5	2.7	3.7	-	2.2	-	2.2	2.5	-	-	-	-	-	17.9
242	-	-	4.5	2.7	3.7	-	2.2	-	2.2	2.5	-	-	-	-	-	17.9
237	-	-	4.5	2.7	3.7	-	2.2	-	2.2	2.5	-	-	-	-	-	17.9
238	-	-	4.5	2.7	3.7	-	2.2	-	2.2	2.5	-	-	-	-	-	17.9
239	-	-	4.5	2.7	3.7	-	2.2	-	2.2	2.5	-	-	-	-	-	17.9
241	-	-	4.5	2.7	3.7	-	2.2	-	2.2	2.5	-	-	-	-	-	17.9
256	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9
257	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9
258	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9
259	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9
260	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9
261	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9
262	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9
263	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9
264	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9
265	-	-	-	-	7.3	-	4.5	-	-	5.1	-	-	-	-	-	16.9

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
77	-	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	-	1.0	-	16.9
78	-	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	-	1.0	-	16.9
79	-	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	-	1.0	-	16.9
80	-	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	-	1.0	-	16.9
81	-	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	-	1.0	-	16.9
82	-	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	-	1.0	-	16.9
83	-	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	-	1.0	-	16.9
759	-	-	2.7	3.3	4.4	-	1.4	-	-	3.1	-	-	-	1.5	-	16.4
760	-	-	2.7	3.3	4.4	-	1.4	-	-	3.1	-	-	-	1.5	-	16.4
761	-	-	2.7	3.3	4.4	-	1.4	-	-	3.1	-	-	-	1.5	-	16.4
762	-	-	2.7	3.3	4.4	-	1.4	-	-	3.1	-	-	-	1.5	-	16.4
763	-	-	2.7	3.3	4.4	-	1.4	-	-	3.1	-	-	-	1.5	-	16.4
469	-	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	-	1.1	-	15.8
470	-	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	-	1.1	-	15.8
471	-	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	-	1.1	-	15.8
472	-	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	-	1.1	-	15.8
473	-	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	-	1.1	-	15.8
474	-	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	-	1.1	-	15.8
475	-	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	-	1.1	-	15.8
476	-	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	-	1.1	-	15.8
477	-	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	-	1.1	-	15.8
20	-	-	-	2.7	6.4	-	5.1	-	-	1.1	-	-	-	-	-	15.3
19	-	-	-	2.7	6.4	-	5.1	-	-	1.1	-	-	-	-	-	15.3
96	-	-	-	2.6	8.0	-	1.2	-	-	2.1	-	-	-	1.0	-	14.9
99	-	-	-	2.6	8.0	-	1.2	-	-	2.1	-	-	-	1.0	-	14.9
95	-	-	-	2.6	8.0	-	1.2	-	-	2.1	-	-	-	1.0	-	14.9
98	-	-	-	2.6	8.0	-	1.2	-	-	2.1	-	-	-	1.0	-	14.9
211	-	-	-	2.3	2.7	-	2.2	-	-	6.8	-	-	-	-	-	14.0
212	-	-	-	2.3	2.7	-	2.2	-	-	6.8	-	-	-	-	-	14.0
432	-	-	-	-	11.5	-	1.4	-	-	-	-	-	-	0.6	-	13.5
434	-	-	-	-	11.5	-	1.4	-	-	-	-	-	-	0.6	-	13.5
435	-	-	-	-	11.5	-	1.4	-	-	-	-	-	-	0.6	-	13.5
436	-	-	-	-	11.5	-	1.4	-	-	-	-	-	-	0.6	-	13.5
437	-	-	-	-	11.5	-	1.4	-	-	-	-	-	-	0.6	-	13.5

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
277	-	-	4.6	-	3.7	-	2.3	-	-	-	-	-	-	-	-	10.7
274	-	-	4.6	-	3.7	-	2.3	-	-	-	-	-	-	-	-	10.7
167	-	-	-	2.3	3.0	-	1.9	-	-	2.1	-	-	-	1.0	-	10.3
168	-	-	-	2.3	3.0	-	1.9	-	-	2.1	-	-	-	1.0	-	10.3
169	-	-	-	2.3	3.0	-	1.9	-	-	2.1	-	-	-	1.0	-	10.3
170	-	-	-	2.3	3.0	-	1.9	-	-	2.1	-	-	-	1.0	-	10.3
171	-	-	-	2.3	3.0	-	1.9	-	-	2.1	-	-	-	1.0	-	10.3
172	-	-	-	2.3	3.0	-	1.9	-	-	2.1	-	-	-	1.0	-	10.3
292	-	-	-	-	1.9	-	0.8	-	-	4.4	-	-	-	1.1	-	8.2
33	0.9	-	1.9	1.7	1.6	-	-	-	0.9	0.7	-	-	-	0.4	-	8.0
36	0.9	-	1.9	1.7	1.6	-	-	-	0.9	0.7	-	-	-	0.4	-	8.0
31	0.9	-	1.9	1.7	1.6	-	-	-	0.9	0.7	-	-	-	0.4	-	8.0
32	0.9	-	1.9	1.7	1.6	-	-	-	0.9	0.7	-	-	-	0.4	-	8.0
34	0.9	-	1.9	1.7	1.6	-	-	-	0.9	0.7	-	-	-	0.4	-	8.0
35	0.9	-	1.9	1.7	1.6	-	-	-	0.9	0.7	-	-	-	0.4	-	8.0
199	-	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	-	7.9
200	-	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	-	7.9
201	-	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	-	7.9
202	-	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	-	7.9
203	-	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	-	7.9
204	-	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	-	7.9
205	-	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	-	7.9
206	-	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	-	7.9
355	-	-	-	-	4.9	-	3.0	-	-	-	-	-	-	-	-	7.9
357	-	-	-	-	4.9	-	3.0	-	-	-	-	-	-	-	-	7.9
358	-	-	-	-	4.9	-	3.0	-	-	-	-	-	-	-	-	7.9
360	-	-	-	-	4.9	-	3.0	-	-	-	-	-	-	-	-	7.9
361	-	-	-	-	4.9	-	3.0	-	-	-	-	-	-	-	-	7.9
122	-	-	-	2.2	4.4	-	-	-	-	-	-	-	-	0.8	-	7.4
123	-	-	-	2.2	4.4	-	-	-	-	-	-	-	-	0.8	-	7.4
124	-	-	-	2.2	4.4	-	-	-	-	-	-	-	-	0.8	-	7.4
125	-	-	-	2.2	4.4	-	-	-	-	-	-	-	-	0.8	-	7.4
126	-	-	-	2.2	4.4	-	-	-	-	-	-	-	-	0.8	-	7.4
127	-	-	-	2.2	4.4	-	-	-	-	-	-	-	-	0.8	-	7.4

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
266	-	-	-	-	6.6	-	-	-	-	-	-	-	-	-	-	6.6
267	-	-	-	-	6.6	-	-	-	-	-	-	-	-	-	-	6.6
268	-	-	-	-	6.6	-	-	-	-	-	-	-	-	-	-	6.6
247	-	-	-	1.6	1.9	-	1.2	-	-	-	-	-	-	1.8	-	6.6
248	-	-	-	1.6	1.9	-	1.2	-	-	-	-	-	-	1.8	-	6.6
327	-	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	-	1.5	-	6.5
328	-	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	-	1.5	-	6.5
329	-	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	-	1.5	-	6.5
330	-	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	-	1.5	-	6.5
331	-	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	-	1.5	-	6.5
332	-	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	-	1.5	-	6.5
333	-	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	-	1.5	-	6.5
41	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
42	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
51	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
54	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
40	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
43	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
44	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
45	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
46	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
47	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
48	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
49	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
50	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
52	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
53	-	-	-	2.3	3.0	-	-	-	-	-	-	-	-	0.7	-	6.0
173	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
174	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
175	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
176	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
177	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
178	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
179	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
180	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
181	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
182	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
183	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
184	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
185	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
186	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
187	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
188	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
189	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
190	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
191	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
192	-	-	-	1.4	1.8	-	1.1	-	-	1.3	-	-	-	-	-	5.6
282	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
283	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
285	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
287	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
288	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
289	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
290	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
291	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
293	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
294	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
295	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
284	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
286	-	-	-	-	1.9	-	0.8	-	-	1.7	-	-	-	1.1	-	5.5
465	-	-	-	1.9	2.6	-	-	-	-	-	-	-	-	-	-	4.5
466	-	-	-	1.9	2.6	-	-	-	-	-	-	-	-	-	-	4.5
467	-	-	-	1.9	2.6	-	-	-	-	-	-	-	-	-	-	4.5
468	-	-	-	1.9	2.6	-	-	-	-	-	-	-	-	-	-	4.5
253	-	-	-	1.1	1.3	-	0.8	-	-	-	-	-	-	1.2	-	4.4
255	-	-	-	1.1	1.3	-	0.8	-	-	-	-	-	-	1.2	-	4.4
252	-	-	-	1.1	1.3	-	0.8	-	-	-	-	-	-	1.2	-	4.4
254	-	-	-	1.1	1.3	-	0.8	-	-	-	-	-	-	1.2	-	4.4

Table 23. Adults' consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Leaf beet	Lettuce	Spinach	Total
88	-	-	-	-	3.7	-	-	-	-	-	-	-	-	-	-	3.7
89	-	-	-	-	3.7	-	-	-	-	-	-	-	-	-	-	3.7
403	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.5
404	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.5
405	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.5
406	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.5
407	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.5
408	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.5
409	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.5
410	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.5
457	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.9
458	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.9
459	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.9
460	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.9
461	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.9
462	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.9

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables based on the 132 high-rate adult consumers is 25.9 kg y⁻¹

The observed 97.5th percentile rate based on 390 observations is 41.4 kg y⁻¹

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
347	-	2.7	-	4.9	-	7.2	2.9	-	11.6	-	-	7.2	36.6
348	-	2.7	-	4.9	-	7.2	2.9	-	11.6	-	-	7.2	36.6
415	-	13.7	-	10.8	-	-	-	-	10.2	-	-	-	34.7
416	-	13.7	-	10.8	-	-	-	-	10.2	-	-	-	34.7
351	-	13.7	-	9.7	-	1.4	-	-	-	-	-	9.0	33.7
352	-	13.7	-	9.7	-	1.4	-	-	-	-	-	9.0	33.7
353	-	13.7	-	9.7	-	1.4	-	-	-	-	-	9.0	33.7
354	-	13.7	-	9.7	-	1.4	-	-	-	-	-	9.0	33.7
280	-	-	0.4	-	-	6.1	0.9	-	12.2	-	-	13.0	32.6
281	-	-	0.4	-	-	6.1	0.9	-	12.2	-	-	13.0	32.6
364	-	1.7	-	-	-	6.8	-	-	13.5	-	-	7.9	29.8
365	-	1.7	-	-	-	6.8	-	-	13.5	-	-	7.9	29.8
209	3.7	-	-	-	-	4.6	2.4	-	-	-	-	14.0	24.7
210	3.7	-	-	-	-	4.6	2.4	-	-	-	-	14.0	24.7
1	-	-	-	1.3	-	5.3	-	-	6.7	-	-	10.7	24.1
2	-	-	-	1.3	-	5.3	-	-	6.7	-	-	10.7	24.1
765	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
766	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
767	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
768	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
769	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
770	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
771	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
772	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
773	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
774	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
775	-	6.7	-	5.3	-	3.3	-	-	-	-	-	8.2	23.5
29	-	-	-	8.1	-	6.8	1.1	-	-	-	-	7.2	23.2
30	-	-	-	8.1	-	6.8	1.1	-	-	-	-	7.2	23.2
378	-	3.7	-	6.0	-	-	1.1	-	-	0.5	1.0	10.0	22.4
379	-	3.7	-	6.0	-	-	1.1	-	-	0.5	1.0	10.0	22.4
380	-	3.7	-	6.0	-	-	1.1	-	-	0.5	1.0	10.0	22.4
381	-	3.7	-	6.0	-	-	1.1	-	-	0.5	1.0	10.0	22.4

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
382	-	3.7	-	6.0	-	-	1.1	-	-	0.5	1.0	10.0	22.4
375	-	3.7	-	6.0	-	-	1.1	-	-	0.5	1.0	10.0	22.4
403	-	-	-	3.0	-	3.0	-	-	15.3	-	-	-	21.4
404	-	-	-	3.0	-	3.0	-	-	15.3	-	-	-	21.4
405	-	-	-	3.0	-	3.0	-	-	15.3	-	-	-	21.4
406	-	-	-	3.0	-	3.0	-	-	15.3	-	-	-	21.4
407	-	-	-	3.0	-	3.0	-	-	15.3	-	-	-	21.4
408	-	-	-	3.0	-	3.0	-	-	15.3	-	-	-	21.4
409	-	-	-	3.0	-	3.0	-	-	15.3	-	-	-	21.4
410	-	-	-	3.0	-	3.0	-	-	15.3	-	-	-	21.4
65	-	3.4	-	4.1	-	-	2.9	-	-	-	-	10.8	21.2
66	-	3.4	-	4.1	-	-	2.9	-	-	-	-	10.8	21.2
67	-	3.4	-	4.1	-	-	2.9	-	-	-	-	10.8	21.2
68	-	3.4	-	4.1	-	-	2.9	-	-	-	-	10.8	21.2
69	-	3.4	-	4.1	-	-	2.9	-	-	-	-	10.8	21.2
114	0.8	5.1	0.1	-	-	2.5	0.3	-	-	-	-	10.6	19.5
115	0.8	5.1	0.1	-	-	2.5	0.3	-	-	-	-	10.6	19.5
116	0.8	5.1	0.1	-	-	2.5	0.3	-	-	-	-	10.6	19.5
117	0.8	5.1	0.1	-	-	2.5	0.3	-	-	-	-	10.6	19.5
118	0.8	5.1	0.1	-	-	2.5	0.3	-	-	-	-	10.6	19.5
119	0.8	5.1	0.1	-	-	2.5	0.3	-	-	-	-	10.6	19.5
132	-	-	-	-	-	2.7	-	-	16.3	-	-	-	19.0
133	-	-	-	-	-	2.7	-	-	16.3	-	-	-	19.0
134	-	-	-	-	-	2.7	-	-	16.3	-	-	-	19.0
135	-	-	-	-	-	2.7	-	-	16.3	-	-	-	19.0
136	-	-	-	-	-	2.7	-	-	16.3	-	-	-	19.0
137	-	-	-	-	-	2.7	-	-	16.3	-	-	-	19.0
111	-	-	-	-	-	3.0	3.9	-	-	-	-	11.5	18.4
417	-	-	-	3.6	-	1.5	2.6	-	-	-	0.9	8.4	17.0
418	-	-	-	3.6	-	1.5	2.6	-	-	-	0.9	8.4	17.0
419	-	-	-	3.6	-	1.5	2.6	-	-	-	0.9	8.4	17.0
21	0.2	2.0	1.1	1.4	-	2.3	-	-	2.7	0.1	-	6.8	16.6
22	0.2	2.0	1.1	1.4	-	2.3	-	-	2.7	0.1	-	6.8	16.6

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
24	0.2	2.0	1.1	1.4	-	2.3	-	-	2.7	0.1	-	6.8	16.6
25	0.2	2.0	1.1	1.4	-	2.3	-	-	2.7	0.1	-	6.8	16.6
26	0.2	2.0	1.1	1.4	-	2.3	-	-	2.7	0.1	-	6.8	16.6
27	0.2	2.0	1.1	1.4	-	2.3	-	-	2.7	0.1	-	6.8	16.6
28	0.2	2.0	1.1	1.4	-	2.3	-	-	2.7	0.1	-	6.8	16.6
23	0.2	2.0	1.1	1.4	-	2.3	-	-	2.7	0.1	-	6.8	16.6
759	-	-	-	-	-	3.3	-	-	9.9	-	-	3.3	16.4
760	-	-	-	-	-	3.3	-	-	9.9	-	-	3.3	16.4
761	-	-	-	-	-	3.3	-	-	9.9	-	-	3.3	16.4
762	-	-	-	-	-	3.3	-	-	9.9	-	-	3.3	16.4
763	-	-	-	-	-	3.3	-	-	9.9	-	-	3.3	16.4
104	-	4.6	-	-	-	4.5	-	-	-	-	-	7.2	16.3
105	-	4.6	-	-	-	4.5	-	-	-	-	-	7.2	16.3
76	-	1.7	-	-	-	3.4	0.2	-	3.4	-	-	7.5	16.1
74	-	1.7	-	-	-	3.4	0.2	-	3.4	-	-	7.5	16.1
75	-	1.7	-	-	-	3.4	0.2	-	3.4	-	-	7.5	16.1
3	-	-	-	0.9	-	3.6	-	-	4.5	-	-	7.2	16.1
4	-	-	-	0.9	-	3.6	-	-	4.5	-	-	7.2	16.1
5	-	-	-	0.9	-	3.6	-	-	4.5	-	-	7.2	16.1
6	-	-	-	0.9	-	3.6	-	-	4.5	-	-	7.2	16.1
7	-	-	-	0.9	-	3.6	-	-	4.5	-	-	7.2	16.1
8	-	-	-	0.9	-	3.6	-	-	4.5	-	-	7.2	16.1
173	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
174	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
175	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
176	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
177	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
178	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
179	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
180	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
181	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
182	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
183	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
184	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
185	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
186	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
187	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
188	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
189	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
190	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
191	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
192	-	2.7	-	-	-	-	-	-	8.2	-	-	4.3	15.2
130	-	4.1	-	-	-	10.8	-	-	-	-	-	-	14.9
19	-	-	-	0.5	-	4.5	-	-	-	-	0.7	9.0	14.6
20	-	-	-	0.5	-	4.5	-	-	-	-	0.7	9.0	14.6
395	-	-	0.3	1.0	-	1.7	0.6	-	5.1	-	0.4	5.4	14.5
396	-	-	0.3	1.0	-	1.7	0.6	-	5.1	-	0.4	5.4	14.5
397	-	-	0.3	1.0	-	1.7	0.6	-	5.1	-	0.4	5.4	14.5
398	-	-	0.3	1.0	-	1.7	0.6	-	5.1	-	0.4	5.4	14.5
399	-	-	0.3	1.0	-	1.7	0.6	-	5.1	-	0.4	5.4	14.5
400	-	-	0.3	1.0	-	1.7	0.6	-	5.1	-	0.4	5.4	14.5
401	-	-	0.3	1.0	-	1.7	0.6	-	5.1	-	0.4	5.4	14.5
402	-	-	0.3	1.0	-	1.7	0.6	-	5.1	-	0.4	5.4	14.5
145	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
150	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
154	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
155	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
138	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
139	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
140	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
143	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
144	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
146	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
147	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
148	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
149	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
151	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
152	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
153	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
156	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
157	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
158	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
159	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
93	-	3.0	0.3	-	-	3.0	0.6	-	1.0	-	-	5.9	13.9
94	-	3.0	0.3	-	-	3.0	0.6	-	1.0	-	-	5.9	13.9
77	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
78	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
79	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
80	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
81	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
82	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
83	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
465	-	7.7	-	-	-	5.7	-	-	-	-	-	-	13.5
466	-	7.7	-	-	-	5.7	-	-	-	-	-	-	13.5
467	-	7.7	-	-	-	5.7	-	-	-	-	-	-	13.5
468	-	7.7	-	-	-	5.7	-	-	-	-	-	-	13.5
386	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
387	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
388	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
391	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
392	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
393	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
385	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
389	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
390	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
394	-	2.2	-	2.4	-	-	-	-	-	-	0.8	7.9	13.3
212	2.0	-	-	-	-	2.4	1.3	-	-	-	-	7.5	13.1
211	2.0	-	-	-	-	2.4	1.3	-	-	-	-	7.5	13.1
142	-	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	13.0

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
469	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
470	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
471	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
473	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
475	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
472	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
474	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
476	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
477	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
271	-	-	-	-	-	2.3	-	-	-	-	1.2	9.0	12.4
272	-	-	-	-	-	2.3	-	-	-	-	1.2	9.0	12.4
313	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
314	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
315	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
316	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
317	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
318	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
319	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
320	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
325	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
301	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
302	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
303	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
304	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
305	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
306	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
307	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
308	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
40	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
41	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
42	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
43	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
44	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
45	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
46	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
47	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
48	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
49	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
50	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
51	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
52	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
53	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
54	-	6.8	-	-	-	1.8	-	-	2.7	-	-	-	11.3
366	-	-	-	1.4	-	-	0.2	-	4.5	-	-	5.0	11.2
367	-	-	-	1.4	-	-	0.2	-	4.5	-	-	5.0	11.2
368	-	-	-	1.4	-	-	0.2	-	4.5	-	-	5.0	11.2
370	-	-	-	1.4	-	-	0.2	-	4.5	-	-	5.0	11.2
371	-	-	-	1.4	-	-	0.2	-	4.5	-	-	5.0	11.2
373	-	-	-	1.4	-	-	0.2	-	4.5	-	-	5.0	11.2
369	-	-	-	1.4	-	-	0.2	-	4.5	-	-	5.0	11.2
374	-	-	-	1.4	-	-	0.2	-	4.5	-	-	5.0	11.2
214	-	-	-	-	-	-	1.6	-	-	-	-	9.0	10.6
215	-	-	-	-	-	-	1.6	-	-	-	-	9.0	10.6
216	-	-	-	-	-	-	1.6	-	-	-	-	9.0	10.6
457	-	-	-	-	-	2.6	-	-	7.8	-	-	-	10.3
458	-	-	-	-	-	2.6	-	-	7.8	-	-	-	10.3
459	-	-	-	-	-	2.6	-	-	7.8	-	-	-	10.3
460	-	-	-	-	-	2.6	-	-	7.8	-	-	-	10.3
461	-	-	-	-	-	2.6	-	-	7.8	-	-	-	10.3
462	-	-	-	-	-	2.6	-	-	7.8	-	-	-	10.3
349	-	-	-	-	-	10.1	-	-	-	-	-	-	10.1
350	-	-	-	-	-	10.1	-	-	-	-	-	-	10.1
442	-	-	-	-	-	4.0	0.2	-	-	-	-	5.6	9.8
444	-	-	-	-	-	4.0	0.2	-	-	-	-	5.6	9.8
445	-	-	-	-	-	4.0	0.2	-	-	-	-	5.6	9.8
446	-	-	-	-	-	4.0	0.2	-	-	-	-	5.6	9.8

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
447	-	-	-	-	-	4.0	0.2	-	-	-	-	5.6	9.8
448	-	-	-	-	-	4.0	0.2	-	-	-	-	5.6	9.8
449	-	-	-	-	-	4.0	0.2	-	-	-	-	5.6	9.8
165	-	-	-	-	-	-	-	-	-	-	-	9.0	9.0
166	-	-	-	-	-	-	-	-	-	-	-	9.0	9.0
452	-	-	-	-	-	9.0	-	-	-	-	-	-	9.0
453	-	-	-	-	-	9.0	-	-	-	-	-	-	9.0
454	-	-	-	-	-	9.0	-	-	-	-	-	-	9.0
455	-	-	-	-	-	9.0	-	-	-	-	-	-	9.0
229	-	-	-	-	-	3.4	0.8	-	-	-	0.2	4.5	9.0
232	-	-	-	-	-	3.4	0.8	-	-	-	0.2	4.5	9.0
227	-	-	-	-	-	3.4	0.8	-	-	-	0.2	4.5	9.0
228	-	-	-	-	-	3.4	0.8	-	-	-	0.2	4.5	9.0
233	-	-	-	-	-	3.4	0.8	-	-	-	0.2	4.5	9.0
237	-	-	-	-	-	1.8	-	-	-	0.1	0.3	6.5	8.8
238	-	-	-	-	-	1.8	-	-	-	0.1	0.3	6.5	8.8
239	-	-	-	-	-	1.8	-	-	-	0.1	0.3	6.5	8.8
240	-	-	-	-	-	1.8	-	-	-	0.1	0.3	6.5	8.8
241	-	-	-	-	-	1.8	-	-	-	0.1	0.3	6.5	8.8
242	-	-	-	-	-	1.8	-	-	-	0.1	0.3	6.5	8.8
106	-	2.3	-	-	-	2.3	-	-	-	-	-	3.6	8.1
107	-	2.3	-	-	-	2.3	-	-	-	-	-	3.6	8.1
108	-	2.3	-	-	-	2.3	-	-	-	-	-	3.6	8.1
247	-	2.7	-	1.6	2.7	-	-	-	-	-	0.7	-	7.8
248	-	2.7	-	1.6	2.7	-	-	-	-	-	0.7	-	7.8
70	-	-	-	-	-	-	-	-	-	-	-	7.7	7.7
71	-	-	-	-	-	-	-	-	-	-	-	7.7	7.7
72	-	-	-	-	-	-	-	-	-	-	-	7.7	7.7
73	-	-	-	-	-	-	-	-	-	-	-	7.7	7.7
355	-	-	-	-	-	-	-	-	7.3	-	-	-	7.3
357	-	-	-	-	-	-	-	-	7.3	-	-	-	7.3
358	-	-	-	-	-	-	-	-	7.3	-	-	-	7.3
360	-	-	-	-	-	-	-	-	7.3	-	-	-	7.3

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
361	-	-	-	-	-	-	-	-	7.3	-	-	-	7.3
218	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
219	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
222	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
223	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
224	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
225	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
226	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
217	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
220	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
221	-	2.2	-	-	-	-	0.2	-	-	-	0.6	4.3	7.3
129	-	3.3	-	-	-	3.3	-	-	-	-	0.6	-	7.3
131	-	3.3	-	-	-	3.3	-	-	-	-	0.6	-	7.3
128	-	3.3	-	-	-	3.3	-	-	-	-	0.6	-	7.3
420	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
421	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
422	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
423	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
424	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
425	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
426	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
427	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
428	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
429	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
430	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
9	2.3	-	2.9	-	-	1.1	-	-	-	-	0.7	-	7.0
10	2.3	-	2.9	-	-	1.1	-	-	-	-	0.7	-	7.0
96	-	1.5	0.1	-	-	1.5	0.3	-	0.5	-	-	3.0	6.9
99	-	1.5	0.1	-	-	1.5	0.3	-	0.5	-	-	3.0	6.9
95	-	1.5	0.1	-	-	1.5	0.3	-	0.5	-	-	3.0	6.9
98	-	1.5	0.1	-	-	1.5	0.3	-	0.5	-	-	3.0	6.9
432	-	3.8	-	1.0	-	1.9	-	-	-	-	-	-	6.7
434	-	3.8	-	1.0	-	1.9	-	-	-	-	-	-	6.7

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
435	-	3.8	-	1.0	-	1.9	-	-	-	-	-	-	6.7
436	-	3.8	-	1.0	-	1.9	-	-	-	-	-	-	6.7
437	-	3.8	-	1.0	-	1.9	-	-	-	-	-	-	6.7
438	-	3.8	-	1.0	-	1.9	-	-	-	-	-	-	6.7
282	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
283	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
284	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
285	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
286	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
287	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
288	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
289	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
290	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
291	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
292	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
293	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
294	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
295	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
193	-	2.7	-	-	-	2.7	-	-	-	-	-	-	5.4
194	-	2.7	-	-	-	2.7	-	-	-	-	-	-	5.4
195	-	2.7	-	-	-	2.7	-	-	-	-	-	-	5.4
196	-	2.7	-	-	-	2.7	-	-	-	-	-	-	5.4
252	-	1.8	-	1.1	1.8	-	-	-	-	-	0.5	-	5.2
253	-	1.8	-	1.1	1.8	-	-	-	-	-	0.5	-	5.2
254	-	1.8	-	1.1	1.8	-	-	-	-	-	0.5	-	5.2
255	-	1.8	-	1.1	1.8	-	-	-	-	-	0.5	-	5.2
327	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
328	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
329	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
330	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
331	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
332	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
333	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0

Table 24. Adults' consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
170	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
171	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
172	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
200	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
202	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
203	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
205	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
206	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
199	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
201	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
204	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
11	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
12	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
15	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
16	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
17	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
18	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables based on the 185 high-rate adult consumers is 17.6 kg y⁻¹

The observed 97.5th percentile rate based on 380 observations is 31.2 kg y⁻¹

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
349	8.4	-	-	-	-	-	-	5.1	14.3	-	1.4	6.0	1.5	-	4.1	40.7
350	8.4	-	-	-	-	-	-	5.1	14.3	-	1.4	6.0	1.5	-	4.1	40.7
364	5.1	6.8	-	-	-	-	-	1.2	11.0	5.4	-	3.8	-	-	4.1	37.2
365	5.1	6.8	-	-	-	-	-	1.2	11.0	5.4	-	3.8	-	-	4.1	37.2
415	2.3	-	-	-	-	-	-	9.0	7.2	7.2	-	-	-	6.8	2.7	35.2
416	2.3	-	-	-	-	-	-	9.0	7.2	7.2	-	-	-	6.8	2.7	35.2
117	4.6	-	-	-	-	-	-	5.0	12.1	2.0	-	1.8	1.1	7.6	-	34.3
114	4.6	-	-	-	-	-	-	5.0	12.1	2.0	-	1.8	1.1	7.6	-	34.3
115	4.6	-	-	-	-	-	-	5.0	12.1	2.0	-	1.8	1.1	7.6	-	34.3
116	4.6	-	-	-	-	-	-	5.0	12.1	2.0	-	1.8	1.1	7.6	-	34.3
118	4.6	-	-	-	-	-	-	5.0	12.1	2.0	-	1.8	1.1	7.6	-	34.3
119	4.6	-	-	-	-	-	-	5.0	12.1	2.0	-	1.8	1.1	7.6	-	34.3
130	3.4	5.1	-	-	-	-	-	7.5	11.6	-	-	4.5	1.7	-	-	33.8
29	6.8	-	-	-	-	-	-	-	14.3	4.1	-	-	2.3	-	6.1	33.4
30	6.8	-	-	-	-	-	-	-	14.3	4.1	-	-	2.3	-	6.1	33.4
111	3.0	5.9	-	-	-	1.7	-	-	9.5	9.5	1.2	-	1.3	-	-	32.2
70	5.6	2.8	-	-	-	-	-	9.8	-	6.8	-	-	-	-	6.8	31.8
71	5.6	2.8	-	-	-	-	-	9.8	-	6.8	-	-	-	-	6.8	31.8
72	5.6	2.8	-	-	-	-	-	9.8	-	6.8	-	-	-	-	6.8	31.8
73	5.6	2.8	-	-	-	-	-	9.8	-	6.8	-	-	-	-	6.8	31.8
355	-	1.2	-	-	-	4.9	-	12.0	8.6	4.8	-	-	-	-	-	31.6
357	-	1.2	-	-	-	4.9	-	12.0	8.6	4.8	-	-	-	-	-	31.6
358	-	1.2	-	-	-	4.9	-	12.0	8.6	4.8	-	-	-	-	-	31.6
360	-	1.2	-	-	-	4.9	-	12.0	8.6	4.8	-	-	-	-	-	31.6
361	-	1.2	-	-	-	4.9	-	12.0	8.6	4.8	-	-	-	-	-	31.6
104	4.5	2.3	-	-	-	-	-	4.5	12.6	5.4	-	-	1.0	-	-	30.3
105	4.5	2.3	-	-	-	-	-	4.5	12.6	5.4	-	-	1.0	-	-	30.3
194	2.7	2.7	-	-	-	0.4	-	6.8	9.7	-	-	1.0	0.6	4.1	1.6	29.5
195	2.7	2.7	-	-	-	0.4	-	6.8	9.7	-	-	1.0	0.6	4.1	1.6	29.5
193	2.7	2.7	-	-	-	0.4	-	6.8	9.7	-	-	1.0	0.6	4.1	1.6	29.5
196	2.7	2.7	-	-	-	0.4	-	6.8	9.7	-	-	1.0	0.6	4.1	1.6	29.5
88	2.7	2.7	-	-	-	2.4	-	2.7	7.6	2.2	-	-	0.6	8.2	-	29.0

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
89	2.7	2.7	-	-	-	2.4	-	2.7	7.6	2.2	-	-	0.6	8.2	-	29.0
1	2.7	2.7	-	-	-	-	-	5.3	13.0	4.3	0.3	-	0.5	-	-	28.7
2	2.7	2.7	-	-	-	-	-	5.3	13.0	4.3	0.3	-	0.5	-	-	28.7
351	8.1	2.7	-	-	-	-	-	-	6.5	-	-	4.8	1.2	-	4.9	28.1
352	8.1	2.7	-	-	-	-	-	-	6.5	-	-	4.8	1.2	-	4.9	28.1
353	8.1	2.7	-	-	-	-	-	-	6.5	-	-	4.8	1.2	-	4.9	28.1
354	8.1	2.7	-	-	-	-	-	-	6.5	-	-	4.8	1.2	-	4.9	28.1
271	4.5	1.4	-	-	-	0.7	-	4.5	7.2	1.8	0.9	-	1.0	-	5.4	27.3
272	4.5	1.4	-	-	-	0.7	-	4.5	7.2	1.8	0.9	-	1.0	-	5.4	27.3
266	9.7	-	-	-	-	-	-	-	13.0	-	-	-	-	-	3.9	26.6
267	9.7	-	-	-	-	-	-	-	13.0	-	-	-	-	-	3.9	26.6
268	9.7	-	-	-	-	-	-	-	13.0	-	-	-	-	-	3.9	26.6
274	2.8	-	-	-	-	-	-	2.8	11.1	-	0.6	-	0.6	8.4	-	26.2
273	2.8	-	-	-	-	-	-	2.8	11.1	-	0.6	-	0.6	8.4	-	26.2
275	2.8	-	-	-	-	-	-	2.8	11.1	-	0.6	-	0.6	8.4	-	26.2
276	2.8	-	-	-	-	-	-	2.8	11.1	-	0.6	-	0.6	8.4	-	26.2
277	2.8	-	-	-	-	-	-	2.8	11.1	-	0.6	-	0.6	8.4	-	26.2
214	9.6	-	-	-	-	-	-	4.8	11.5	-	-	-	-	-	-	25.9
215	9.6	-	-	-	-	-	-	4.8	11.5	-	-	-	-	-	-	25.9
216	9.6	-	-	-	-	-	-	4.8	11.5	-	-	-	-	-	-	25.9
165	6.8	-	-	-	-	-	-	-	10.8	-	-	-	-	-	8.1	25.7
166	6.8	-	-	-	-	-	-	-	10.8	-	-	-	-	-	8.1	25.7
280	-	4.1	-	-	-	2.4	-	-	9.7	3.2	1.2	2.9	1.4	-	-	24.8
281	-	4.1	-	-	-	2.4	-	-	9.7	3.2	1.2	2.9	1.4	-	-	24.8
417	3.6	7.2	-	-	-	-	-	3.0	7.2	-	-	-	1.3	-	2.2	24.5
418	3.6	7.2	-	-	-	-	-	3.0	7.2	-	-	-	1.3	-	2.2	24.5
419	3.6	7.2	-	-	-	-	-	3.0	7.2	-	-	-	1.3	-	2.2	24.5
131	1.7	3.3	-	1.1	-	-	-	6.6	6.6	0.7	0.3	1.2	0.4	2.5	-	24.3
128	1.7	3.3	-	1.1	-	-	-	6.6	6.6	0.7	0.3	1.2	0.4	2.5	-	24.3
129	1.7	3.3	-	1.1	-	-	-	6.6	6.6	0.7	0.3	1.2	0.4	2.5	-	24.3
465	-	-	-	-	-	-	-	-	12.2	-	-	-	-	11.6	-	23.8
466	-	-	-	-	-	-	-	-	12.2	-	-	-	-	11.6	-	23.8

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
467	-	-	-	-	-	-	-	-	12.2	-	-	-	-	11.6	-	23.8
468	-	-	-	-	-	-	-	-	12.2	-	-	-	-	11.6	-	23.8
378	5.0	-	-	2.3	-	1.8	-	1.8	7.3	2.0	-	3.3	-	-	-	23.5
380	5.0	-	-	2.3	-	1.8	-	1.8	7.3	2.0	-	3.3	-	-	-	23.5
381	5.0	-	-	2.3	-	1.8	-	1.8	7.3	2.0	-	3.3	-	-	-	23.5
382	5.0	-	-	2.3	-	1.8	-	1.8	7.3	2.0	-	3.3	-	-	-	23.5
375	5.0	-	-	2.3	-	1.8	-	1.8	7.3	2.0	-	3.3	-	-	-	23.5
379	5.0	-	-	2.3	-	1.8	-	1.8	7.3	2.0	-	3.3	-	-	-	23.5
65	-	3.4	-	-	-	-	-	5.1	3.2	1.4	-	-	-	10.2	-	23.2
66	-	3.4	-	-	-	-	-	5.1	3.2	1.4	-	-	-	10.2	-	23.2
67	-	3.4	-	-	-	-	-	5.1	3.2	1.4	-	-	-	10.2	-	23.2
68	-	3.4	-	-	-	-	-	5.1	3.2	1.4	-	-	-	10.2	-	23.2
69	-	3.4	-	-	-	-	-	5.1	3.2	1.4	-	-	-	10.2	-	23.2
74	4.5	1.7	-	1.4	-	-	-	1.7	6.8	0.9	0.2	-	0.5	5.1	-	22.7
75	4.5	1.7	-	1.4	-	-	-	1.7	6.8	0.9	0.2	-	0.5	5.1	-	22.7
76	4.5	1.7	-	1.4	-	-	-	1.7	6.8	0.9	0.2	-	0.5	5.1	-	22.7
93	3.0	2.2	0.3	0.8	-	0.4	-	-	8.9	2.4	0.7	1.1	1.0	-	1.8	22.6
94	3.0	2.2	0.3	0.8	-	0.4	-	-	8.9	2.4	0.7	1.1	1.0	-	1.8	22.6
403	6.1	1.0	-	-	-	-	-	3.0	8.1	1.6	0.4	-	2.3	-	-	22.5
404	6.1	1.0	-	-	-	-	-	3.0	8.1	1.6	0.4	-	2.3	-	-	22.5
405	6.1	1.0	-	-	-	-	-	3.0	8.1	1.6	0.4	-	2.3	-	-	22.5
406	6.1	1.0	-	-	-	-	-	3.0	8.1	1.6	0.4	-	2.3	-	-	22.5
407	6.1	1.0	-	-	-	-	-	3.0	8.1	1.6	0.4	-	2.3	-	-	22.5
408	6.1	1.0	-	-	-	-	-	3.0	8.1	1.6	0.4	-	2.3	-	-	22.5
409	6.1	1.0	-	-	-	-	-	3.0	8.1	1.6	0.4	-	2.3	-	-	22.5
410	6.1	1.0	-	-	-	-	-	3.0	8.1	1.6	0.4	-	2.3	-	-	22.5
228	3.4	1.4	-	-	-	-	-	4.1	4.4	1.1	1.1	0.5	0.9	5.2	-	22.0
232	3.4	1.4	-	-	-	-	-	4.1	4.4	1.1	1.1	0.5	0.9	5.2	-	22.0
233	3.4	1.4	-	-	-	-	-	4.1	4.4	1.1	1.1	0.5	0.9	5.2	-	22.0
227	3.4	1.4	-	-	-	-	-	4.1	4.4	1.1	1.1	0.5	0.9	5.2	-	22.0
229	3.4	1.4	-	-	-	-	-	4.1	4.4	1.1	1.1	0.5	0.9	5.2	-	22.0
77	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
78	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2
79	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2
80	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2
81	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2
82	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2
83	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2
301	1.7	0.7	-	-	-	0.05	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
302	1.7	0.7	-	-	-	0.05	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
303	1.7	0.7	-	-	-	0.05	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
304	1.7	0.7	-	-	-	0.05	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
305	1.7	0.7	-	-	-	0.05	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
306	1.7	0.7	-	-	-	0.05	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
307	1.7	0.7	-	-	-	0.05	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
308	1.7	0.7	-	-	-	0.05	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
10	0.5	4.5	-	5.0	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	20.5
9	0.5	4.5	-	5.0	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	20.5
397	5.1	2.5	-	-	-	0.2	-	5.9	4.7	0.7	-	1.2	-	-	-	20.3
399	5.1	2.5	-	-	-	0.2	-	5.9	4.7	0.7	-	1.2	-	-	-	20.3
395	5.1	2.5	-	-	-	0.2	-	5.9	4.7	0.7	-	1.2	-	-	-	20.3
396	5.1	2.5	-	-	-	0.2	-	5.9	4.7	0.7	-	1.2	-	-	-	20.3
398	5.1	2.5	-	-	-	0.2	-	5.9	4.7	0.7	-	1.2	-	-	-	20.3
400	5.1	2.5	-	-	-	0.2	-	5.9	4.7	0.7	-	1.2	-	-	-	20.3
401	5.1	2.5	-	-	-	0.2	-	5.9	4.7	0.7	-	1.2	-	-	-	20.3
402	5.1	2.5	-	-	-	0.2	-	5.9	4.7	0.7	-	1.2	-	-	-	20.3
347	4.1	5.4	-	-	-	-	-	-	7.2	-	-	2.9	-	-	-	19.5
348	4.1	5.4	-	-	-	-	-	-	7.2	-	-	2.9	-	-	-	19.5
59	2.4	1.9	-	-	-	0.3	-	3.6	2.9	1.1	-	0.6	0.4	4.6	1.8	19.5
55	2.4	1.9	-	-	-	0.3	-	3.6	2.9	1.1	-	0.6	0.4	4.6	1.8	19.5
56	2.4	1.9	-	-	-	0.3	-	3.6	2.9	1.1	-	0.6	0.4	4.6	1.8	19.5
58	2.4	1.9	-	-	-	0.3	-	3.6	2.9	1.1	-	0.6	0.4	4.6	1.8	19.5
60	2.4	1.9	-	-	-	0.3	-	3.6	2.9	1.1	-	0.6	0.4	4.6	1.8	19.5
57	2.4	1.9	-	-	-	0.3	-	3.6	2.9	1.1	-	0.6	0.4	4.6	1.8	19.5

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
3	1.8	1.8	-	-	-	-	-	3.6	8.6	2.9	0.2	-	0.3	-	-	19.0
5	1.8	1.8	-	-	-	-	-	3.6	8.6	2.9	0.2	-	0.3	-	-	19.0
7	1.8	1.8	-	-	-	-	-	3.6	8.6	2.9	0.2	-	0.3	-	-	19.0
8	1.8	1.8	-	-	-	-	-	3.6	8.6	2.9	0.2	-	0.3	-	-	19.0
4	1.8	1.8	-	-	-	-	-	3.6	8.6	2.9	0.2	-	0.3	-	-	19.0
6	1.8	1.8	-	-	-	-	-	3.6	8.6	2.9	0.2	-	0.3	-	-	19.0
452	-	-	-	-	-	-	-	-	5.4	-	-	-	-	13.6	-	19.0
453	-	-	-	-	-	-	-	-	5.4	-	-	-	-	13.6	-	19.0
454	-	-	-	-	-	-	-	-	5.4	-	-	-	-	13.6	-	19.0
455	-	-	-	-	-	-	-	-	5.4	-	-	-	-	13.6	-	19.0
209	-	-	-	-	1.2	-	-	-	16.5	-	-	-	1.0	-	-	18.7
210	-	-	-	-	1.2	-	-	-	16.5	-	-	-	1.0	-	-	18.7
217	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
218	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
219	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
220	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
221	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
222	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
223	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
224	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
225	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
226	3.2	-	-	-	-	-	-	1.1	6.9	-	-	-	1.0	6.5	-	18.7
385	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5
386	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5
387	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5
388	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5
389	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5
390	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5
391	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5
392	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5
393	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5
394	2.0	4.1	-	-	-	-	-	4.1	2.6	1.6	-	-	0.5	-	2.6	17.5

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
167	4.5	-	-	-	-	-	-	-	7.2	-	-	-	-	-	5.4	17.1
168	4.5	-	-	-	-	-	-	-	7.2	-	-	-	-	-	5.4	17.1
169	4.5	-	-	-	-	-	-	-	7.2	-	-	-	-	-	5.4	17.1
170	4.5	-	-	-	-	-	-	-	7.2	-	-	-	-	-	5.4	17.1
171	4.5	-	-	-	-	-	-	-	7.2	-	-	-	-	-	5.4	17.1
172	4.5	-	-	-	-	-	-	-	7.2	-	-	-	-	-	5.4	17.1
106	4.1	1.1	-	-	-	-	-	2.3	6.3	2.7	-	-	0.5	-	-	17.0
107	4.1	1.1	-	-	-	-	-	2.3	6.3	2.7	-	-	0.5	-	-	17.0
108	4.1	1.1	-	-	-	-	-	2.3	6.3	2.7	-	-	0.5	-	-	17.0
313	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
314	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
315	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
316	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
317	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
318	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
319	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
320	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
325	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
765	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
766	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
767	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
768	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
769	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
770	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
771	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
772	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
773	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
774	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
775	6.0	-	-	-	-	-	-	3.3	2.7	-	-	-	-	-	4.0	16.0
432	3.4	-	-	-	-	-	-	2.1	9.3	-	-	0.9	-	-	-	15.7
434	3.4	-	-	-	-	-	-	2.1	9.3	-	-	0.9	-	-	-	15.7
435	3.4	-	-	-	-	-	-	2.1	9.3	-	-	0.9	-	-	-	15.7

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
436	3.4	-	-	-	-	-	-	2.1	9.3	-	-	0.9	-	-	-	15.7
438	3.4	-	-	-	-	-	-	2.1	9.3	-	-	0.9	-	-	-	15.7
437	3.4	-	-	-	-	-	-	2.1	9.3	-	-	0.9	-	-	-	15.7
284	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
285	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
287	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
289	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
290	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
282	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
283	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
286	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
288	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
292	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
293	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
294	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
295	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
256	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
257	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
258	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
259	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
260	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
261	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
262	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
263	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
264	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
265	4.5	0.9	-	-	-	-	-	4.5	5.0	-	0.4	-	-	-	-	15.3
238	-	1.8	-	-	-	0.8	-	-	6.6	-	-	-	-	5.4	-	14.6
239	-	1.8	-	-	-	0.8	-	-	6.6	-	-	-	-	5.4	-	14.6
242	-	1.8	-	-	-	0.8	-	-	6.6	-	-	-	-	5.4	-	14.6
237	-	1.8	-	-	-	0.8	-	-	6.6	-	-	-	-	5.4	-	14.6
240	-	1.8	-	-	-	0.8	-	-	6.6	-	-	-	-	5.4	-	14.6
241	-	1.8	-	-	-	0.8	-	-	6.6	-	-	-	-	5.4	-	14.6

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
199	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
204	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
206	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
202	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
203	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
205	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
200	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
201	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
19	4.5	1.7	-	-	-	-	-	-	6.8	-	-	-	-	-	-	13.0
20	4.5	1.7	-	-	-	-	-	-	6.8	-	-	-	-	-	-	13.0
442	-	-	-	2.4	-	-	-	4.0	6.4	-	-	-	-	-	-	12.8
444	-	-	-	2.4	-	-	-	4.0	6.4	-	-	-	-	-	-	12.8
445	-	-	-	2.4	-	-	-	4.0	6.4	-	-	-	-	-	-	12.8
446	-	-	-	2.4	-	-	-	4.0	6.4	-	-	-	-	-	-	12.8
447	-	-	-	2.4	-	-	-	4.0	6.4	-	-	-	-	-	-	12.8
448	-	-	-	2.4	-	-	-	4.0	6.4	-	-	-	-	-	-	12.8
449	-	-	-	2.4	-	-	-	4.0	6.4	-	-	-	-	-	-	12.8
420	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
421	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
422	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
423	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
424	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
425	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
426	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
427	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
428	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
429	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
430	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
96	1.5	1.1	0.2	0.4	-	0.2	-	-	4.5	1.2	0.4	0.6	0.5	-	0.9	11.4
99	1.5	1.1	0.2	0.4	-	0.2	-	-	4.5	1.2	0.4	0.6	0.5	-	0.9	11.4
95	1.5	1.1	0.2	0.4	-	0.2	-	-	4.5	1.2	0.4	0.6	0.5	-	0.9	11.4
98	1.5	1.1	0.2	0.4	-	0.2	-	-	4.5	1.2	0.4	0.6	0.5	-	0.9	11.4

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
759	-	-	-	-	-	-	-	3.3	3.9	3.9	-	-	-	-	-	11.1
760	-	-	-	-	-	-	-	3.3	3.9	3.9	-	-	-	-	-	11.1
761	-	-	-	-	-	-	-	3.3	3.9	3.9	-	-	-	-	-	11.1
762	-	-	-	-	-	-	-	3.3	3.9	3.9	-	-	-	-	-	11.1
763	-	-	-	-	-	-	-	3.3	3.9	3.9	-	-	-	-	-	11.1
11	0.5	-	-	-	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	10.9
12	0.5	-	-	-	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	10.9
15	0.5	-	-	-	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	10.9
16	0.5	-	-	-	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	10.9
17	0.5	-	-	-	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	10.9
18	0.5	-	-	-	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	10.9
476	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
469	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
470	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
471	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
472	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
473	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
474	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
475	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
477	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
139	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
140	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
144	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
146	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
148	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
150	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
151	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
152	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
153	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
154	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
155	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
157	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
158	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
159	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
142	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
143	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
145	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
147	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
149	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
156	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
138	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
40	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
41	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
42	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
43	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
44	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
45	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
46	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
47	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
48	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
49	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
50	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
51	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
52	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
53	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
54	2.7	0.9	-	-	-	-	-	-	5.4	-	-	-	-	-	1.1	10.1
247	-	2.7	-	-	-	-	-	0.9	3.2	2.2	1.1	-	-	-	-	10.1
248	-	2.7	-	-	-	-	-	0.9	3.2	2.2	1.1	-	-	-	-	10.1
291	2.8	-	-	-	-	0.3	-	1.9	-	-	-	0.7	-	2.8	1.7	10.0
21	1.1	1.1	-	-	-	0.3	-	1.0	4.5	-	1.1	-	0.1	-	0.7	10.0
22	1.1	1.1	-	-	-	0.3	-	1.0	4.5	-	1.1	-	0.1	-	0.7	10.0
24	1.1	1.1	-	-	-	0.3	-	1.0	4.5	-	1.1	-	0.1	-	0.7	10.0
26	1.1	1.1	-	-	-	0.3	-	1.0	4.5	-	1.1	-	0.1	-	0.7	10.0
27	1.1	1.1	-	-	-	0.3	-	1.0	4.5	-	1.1	-	0.1	-	0.7	10.0

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
28	1.1	1.1	-	-	-	0.3	-	1.0	4.5	-	1.1	-	0.1	-	0.7	10.0
23	1.1	1.1	-	-	-	0.3	-	1.0	4.5	-	1.1	-	0.1	-	0.7	10.0
25	1.1	1.1	-	-	-	0.3	-	1.0	4.5	-	1.1	-	0.1	-	0.7	10.0
211	-	-	-	-	0.7	-	-	-	8.8	-	-	-	0.5	-	-	10.0
212	-	-	-	-	0.7	-	-	-	8.8	-	-	-	0.5	-	-	10.0
122	1.6	1.1	-	-	-	-	-	-	3.5	0.4	-	-	-	3.3	-	9.9
123	1.6	1.1	-	-	-	-	-	-	3.5	0.4	-	-	-	3.3	-	9.9
124	1.6	1.1	-	-	-	-	-	-	3.5	0.4	-	-	-	3.3	-	9.9
125	1.6	1.1	-	-	-	-	-	-	3.5	0.4	-	-	-	3.3	-	9.9
126	1.6	1.1	-	-	-	-	-	-	3.5	0.4	-	-	-	3.3	-	9.9
127	1.6	1.1	-	-	-	-	-	-	3.5	0.4	-	-	-	3.3	-	9.9
367	1.5	1.5	-	-	-	0.4	-	-	4.2	-	-	-	0.3	-	1.8	9.8
368	1.5	1.5	-	-	-	0.4	-	-	4.2	-	-	-	0.3	-	1.8	9.8
373	1.5	1.5	-	-	-	0.4	-	-	4.2	-	-	-	0.3	-	1.8	9.8
374	1.5	1.5	-	-	-	0.4	-	-	4.2	-	-	-	0.3	-	1.8	9.8
366	1.5	1.5	-	-	-	0.4	-	-	4.2	-	-	-	0.3	-	1.8	9.8
369	1.5	1.5	-	-	-	0.4	-	-	4.2	-	-	-	0.3	-	1.8	9.8
370	1.5	1.5	-	-	-	0.4	-	-	4.2	-	-	-	0.3	-	1.8	9.8
371	1.5	1.5	-	-	-	0.4	-	-	4.2	-	-	-	0.3	-	1.8	9.8
411	-	-	-	-	-	-	-	4.1	5.5	-	-	-	-	-	-	9.6
412	-	-	-	-	-	-	-	4.1	5.5	-	-	-	-	-	-	9.6
413	-	-	-	-	-	-	-	4.1	5.5	-	-	-	-	-	-	9.6
414	-	-	-	-	-	-	-	4.1	5.5	-	-	-	-	-	-	9.6
132	-	2.7	-	-	-	-	-	0.4	2.2	-	-	1.9	-	-	-	7.1
133	-	2.7	-	-	-	-	-	0.4	2.2	-	-	1.9	-	-	-	7.1
134	-	2.7	-	-	-	-	-	0.4	2.2	-	-	1.9	-	-	-	7.1
135	-	2.7	-	-	-	-	-	0.4	2.2	-	-	1.9	-	-	-	7.1
136	-	2.7	-	-	-	-	-	0.4	2.2	-	-	1.9	-	-	-	7.1
137	-	2.7	-	-	-	-	-	0.4	2.2	-	-	1.9	-	-	-	7.1
252	-	1.8	-	-	-	-	-	0.6	2.2	1.4	0.7	-	-	-	-	6.7
253	-	1.8	-	-	-	-	-	0.6	2.2	1.4	0.7	-	-	-	-	6.7
254	-	1.8	-	-	-	-	-	0.6	2.2	1.4	0.7	-	-	-	-	6.7

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
255	-	1.8	-	-	-	-	-	0.6	2.2	1.4	0.7	-	-	-	-	6.7
31	1.1	-	-	-	-	-	-	-	3.6	0.5	-	-	0.3	-	0.7	6.1
32	1.1	-	-	-	-	-	-	-	3.6	0.5	-	-	0.3	-	0.7	6.1
33	1.1	-	-	-	-	-	-	-	3.6	0.5	-	-	0.3	-	0.7	6.1
34	1.1	-	-	-	-	-	-	-	3.6	0.5	-	-	0.3	-	0.7	6.1
35	1.1	-	-	-	-	-	-	-	3.6	0.5	-	-	0.3	-	0.7	6.1
36	1.1	-	-	-	-	-	-	-	3.6	0.5	-	-	0.3	-	0.7	6.1
173	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
174	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
175	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
176	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
177	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
178	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
179	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
180	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
181	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
182	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
183	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
184	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
185	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
186	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
187	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
188	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
189	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
190	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
191	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
192	-	-	-	-	-	0.4	-	2.7	2.2	-	-	-	-	-	-	5.3
327	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
328	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
329	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
330	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
331	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0

Table 25. Adults' consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
332	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
333	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
457	1.3	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	1.8
458	1.3	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	1.8
459	1.3	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	1.8
460	1.3	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	1.8
461	1.3	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	1.8
462	1.3	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	1.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables based on the 232 high-rate adult consumers is 21.5 kg y⁻¹

The observed 97.5th percentile rate based on 392 observations is 34.3 kg y⁻¹

Table 26. Adults' consumption rates of potato in the Hartlepool area (kg y⁻¹)

Observation number	Potato
29	81.9
30	81.9
19	64.8
20	64.8
349	61.4
350	61.4
111	48.0
130	47.6
280	41.0
281	41.0
375	40.4
378	40.4
379	40.4
380	40.4
381	40.4
382	40.4
214	38.8
215	38.8
216	38.8
237	38.2
238	38.2
239	38.2
240	38.2
241	38.2
242	38.2
88	32.8
89	32.8
132	32.8
133	32.8
134	32.8
135	32.8
136	32.8
137	32.8
1	32.4
2	32.4
411	31.9
412	31.9
413	31.9
414	31.9
114	30.6
115	30.6
116	30.6
117	30.6
118	30.6
119	30.6
104	27.3
105	27.3
415	27.3
416	27.3
55	23.4
56	23.4
57	23.4
58	23.4

Table 26. Adults' consumption rates of potato in the Hartlepool area (kg y⁻¹)

Observation number	Potato
59	23.4
60	23.4
452	22.8
453	22.8
454	22.8
455	22.8
347	21.8
348	21.8
3	21.6
4	21.6
5	21.6
6	21.6
7	21.6
8	21.6
442	20.2
444	20.2
445	20.2
446	20.2
447	20.2
448	20.2
449	20.2
420	20.0
421	20.0
422	20.0
423	20.0
424	20.0
425	20.0
426	20.0
427	20.0
428	20.0
429	20.0
430	20.0
759	19.9
760	19.9
761	19.9
762	19.9
763	19.9
122	19.7
123	19.7
124	19.7
125	19.7
126	19.7
127	19.7
465	19.3
466	19.3
467	19.3
468	19.3
403	18.4
404	18.4
405	18.4
406	18.4
407	18.4
408	18.4

Table 26. Adults' consumption rates of potato in the Hartlepool area (kg y⁻¹)

Observation number	Potato
409	18.4
410	18.4
417	18.2
418	18.2
419	18.2
209	18.2
210	18.2
93	18.0
94	18.0
40	16.4
41	16.4
42	16.4
43	16.4
44	16.4
45	16.4
46	16.4
47	16.4
48	16.4
49	16.4
50	16.4
51	16.4
52	16.4
53	16.4
54	16.4
193	16.4
194	16.4
195	16.4
196	16.4
256	16.4
257	16.4
258	16.4
259	16.4
260	16.4
261	16.4
262	16.4
263	16.4
264	16.4
265	16.4
21	15.9
22	15.9
23	15.9
24	15.9
25	15.9
26	15.9
27	15.9
28	15.9
395	15.4
396	15.4
397	15.4
398	15.4
399	15.4
400	15.4
401	15.4

Table 26. Adults' consumption rates of potato in the Hartlepool area (kg y⁻¹)

Observation number	Potato
402	15.4
227	13.8
228	13.8
229	13.8
232	13.8
233	13.8
106	13.7
107	13.7
108	13.7
271	13.7
272	13.7
351	13.7
352	13.7
353	13.7
354	13.7
765	13.4
766	13.4
767	13.4
768	13.4
769	13.4
770	13.4
771	13.4
772	13.4
773	13.4
774	13.4
775	13.4
128	13.3
129	13.3
131	13.3
138	11.9
139	11.9
140	11.9
142	11.9
143	11.9
144	11.9
145	11.9
146	11.9
147	11.9
148	11.9
149	11.9
150	11.9
151	11.9
152	11.9
153	11.9
154	11.9
155	11.9
156	11.9
157	11.9
158	11.9
159	11.9
313	11.7
314	11.7
315	11.7

Table 26. Adults' consumption rates of potato in the Hartlepool area (kg y⁻¹)

Observation number	Potato
316	11.7
317	11.7
318	11.7
319	11.7
320	11.7
325	11.7
199	11.5
200	11.5
201	11.5
202	11.5
203	11.5
204	11.5
205	11.5
206	11.5
74	11.4
75	11.4
76	11.4
273	11.2
274	11.2
275	11.2
276	11.2
277	11.2
247	10.9
248	10.9
65	10.2
66	10.2
67	10.2
68	10.2
69	10.2
364	10.1
365	10.1
77	9.8
78	9.8
79	9.8
80	9.8
81	9.8
82	9.8
83	9.8
211	9.7
212	9.7
31	9.1
32	9.1
33	9.1
34	9.1
35	9.1
36	9.1
95	9.0
96	9.0
98	9.0
99	9.0
301	9.0
302	9.0
303	9.0

Table 26. Adults' consumption rates of potato in the Hartlepool area (kg y⁻¹)

Observation number	Potato
304	9.0
305	9.0
306	9.0
307	9.0
308	9.0
173	7.3
174	7.3
175	7.3
176	7.3
177	7.3
178	7.3
179	7.3
180	7.3
181	7.3
182	7.3
183	7.3
184	7.3
185	7.3
186	7.3
187	7.3
188	7.3
189	7.3
190	7.3
191	7.3
192	7.3
252	7.3
253	7.3
254	7.3
255	7.3
355	7.3
357	7.3
358	7.3
360	7.3
361	7.3
9	7.3
10	7.3
11	7.3
12	7.3
15	7.3
16	7.3
17	7.3
18	7.3
327	6.5
328	6.5
329	6.5
330	6.5
331	6.5
332	6.5
333	6.5
457	6.5
458	6.5
459	6.5
460	6.5

Table 26. Adults' consumption rates of potato in the Hartlepool area (kg y⁻¹)

Observation number	Potato
461	6.5
462	6.5
282	5.6
283	5.6
284	5.6
285	5.6
286	5.6
287	5.6
288	5.6
289	5.6
290	5.6
291	5.6
292	5.6
293	5.6
294	5.6
295	5.6
469	4.2
470	4.2
471	4.2
472	4.2
473	4.2
474	4.2
475	4.2
476	4.2
477	4.2
385	2.7
386	2.7
387	2.7
388	2.7
389	2.7
390	2.7
391	2.7
392	2.7
393	2.7
394	2.7
366	0.8
367	0.8
368	0.8
369	0.8
370	0.8
371	0.8
373	0.8
374	0.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of potato based on the 49 high-rate adult consumers is 39.4 kg y⁻¹

The observed 97.5th percentile rate based on 361 observations is 41.0 kg y⁻¹

Table 27. Adults' consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

Observation number	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Fig	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
19	2.3	1.1	5.6	-	-	-	3.1	1.1	-	-	-	1.1	1.7	1.0	-	3.4	8.5	-	29.0
20	2.3	1.1	5.6	-	-	-	3.1	1.1	-	-	-	1.1	1.7	1.0	-	3.4	8.5	-	29.0
29	-	-	3.4	-	0.9	-	1.7	-	-	-	-	0.9	0.9	0.5	3.4	5.1	7.1	-	23.8
30	-	-	3.4	-	0.9	-	1.7	-	-	-	-	0.9	0.9	0.5	3.4	5.1	7.1	-	23.8
280	-	2.7	0.1	-	-	-	-	-	-	3.6	-	-	-	1.4	0.1	3.4	9.5	-	20.9
281	-	2.7	0.1	-	-	-	-	-	-	3.6	-	-	-	1.4	0.1	3.4	9.5	-	20.9
88	-	-	2.3	0.7	-	-	1.6	-	3.2	-	-	-	-	0.4	-	3.6	9.0	-	20.8
89	-	-	2.3	0.7	-	-	1.6	-	3.2	-	-	-	-	0.4	-	3.6	9.0	-	20.8
130	-	2.0	8.5	-	-	-	-	-	-	-	-	-	-	5.1	3.4	-	-	-	19.1
111	0.9	-	4.5	0.7	0.2	-	-	-	-	-	-	-	-	4.5	-	-	6.3	-	17.1
21	-	1.1	5.0	-	-	-	1.0	3.2	-	0.7	0.1	-	-	0.1	-	1.7	2.1	-	15.0
22	-	1.1	5.0	-	-	-	1.0	3.2	-	0.7	0.1	-	-	0.1	-	1.7	2.1	-	15.0
23	-	1.1	5.0	-	-	-	1.0	3.2	-	0.7	0.1	-	-	0.1	-	1.7	2.1	-	15.0
27	-	1.1	5.0	-	-	-	1.0	3.2	-	0.7	0.1	-	-	0.1	-	1.7	2.1	-	15.0
24	-	1.1	5.0	-	-	-	1.0	3.2	-	0.7	0.1	-	-	0.1	-	1.7	2.1	-	15.0
25	-	1.1	5.0	-	-	-	1.0	3.2	-	0.7	0.1	-	-	0.1	-	1.7	2.1	-	15.0
28	-	1.1	5.0	-	-	-	1.0	3.2	-	0.7	0.1	-	-	0.1	-	1.7	2.1	-	15.0
26	-	1.1	5.0	-	-	-	1.0	3.2	-	0.7	0.1	-	-	0.1	-	1.7	2.1	-	15.0
114	-	2.8	-	1.8	-	-	1.6	-	-	-	-	-	4.5	0.6	0.6	-	1.6	1.1	14.7
115	-	2.8	-	1.8	-	-	1.6	-	-	-	-	-	4.5	0.6	0.6	-	1.6	1.1	14.7
116	-	2.1	-	1.8	-	-	1.6	-	-	-	-	-	4.5	0.6	0.6	-	1.6	1.1	14.0
119	-	2.1	-	1.8	-	-	1.6	-	-	-	-	-	4.5	0.6	0.6	-	1.6	1.1	14.0
117	-	2.1	-	1.8	-	-	1.6	-	-	-	-	-	4.5	0.6	0.6	-	1.6	1.1	14.0
118	-	2.1	-	1.8	-	-	1.6	-	-	-	-	-	4.5	0.6	0.6	-	1.6	1.1	14.0
375	-	-	3.2	-	-	-	2.3	-	-	-	-	-	-	0.4	2.5	2.0	2.5	-	12.9
378	-	-	3.2	-	-	-	2.3	-	-	-	-	-	-	0.4	2.5	2.0	2.5	-	12.9
380	-	-	3.2	-	-	-	2.3	-	-	-	-	-	-	0.4	2.5	2.0	2.5	-	12.9
381	-	-	3.2	-	-	-	2.3	-	-	-	-	-	-	0.4	2.5	2.0	2.5	-	12.9
382	-	-	3.2	-	-	-	2.3	-	-	-	-	-	-	0.4	2.5	2.0	2.5	-	12.9
379	-	-	3.2	-	-	-	2.3	-	-	-	-	-	-	0.4	2.5	2.0	2.5	-	12.9
415	4.5	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	6.8	-	-	12.6
416	4.5	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	6.8	-	-	12.6
457	1.3	1.3	-	-	-	-	7.0	-	-	-	-	-	0.6	1.2	-	-	-	-	11.4
459	1.3	1.3	-	-	-	-	7.0	-	-	-	-	-	0.6	1.2	-	-	-	-	11.4

Table 27. Adults' consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

Observation number	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Fig	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
461	1.3	1.3	-	-	-	-	7.0	-	-	-	-	-	0.6	1.2	-	-	-	-	11.4
458	1.3	1.3	-	-	-	-	7.0	-	-	-	-	-	0.6	1.2	-	-	-	-	11.4
460	1.3	1.3	-	-	-	-	7.0	-	-	-	-	-	0.6	1.2	-	-	-	-	11.4
462	1.3	1.3	-	-	-	-	7.0	-	-	-	-	-	0.6	1.2	-	-	-	-	11.4
349	-	-	-	-	-	-	2.0	-	-	-	-	-	-	-	-	9.1	-	-	11.1
350	-	-	-	-	-	-	2.0	-	-	-	-	-	-	-	-	9.1	-	-	11.1
58	3.8	-	-	-	-	-	0.9	-	-	-	-	1.9	1.4	0.4	-	1.4	0.9	-	10.7
59	3.8	-	-	-	-	-	0.9	-	-	-	-	1.9	1.4	0.4	-	1.4	0.9	-	10.7
60	3.8	-	-	-	-	-	0.9	-	-	-	-	1.9	1.4	0.4	-	1.4	0.9	-	10.7
55	3.8	-	-	-	-	-	0.9	-	-	-	-	1.9	1.4	0.4	-	1.4	0.9	-	10.7
56	3.8	-	-	-	-	-	0.9	-	-	-	-	1.9	1.4	0.4	-	1.4	0.9	-	10.7
57	3.8	-	-	-	-	-	0.9	-	-	-	-	1.9	1.4	0.4	-	1.4	0.9	-	10.7
442	-	2.0	-	-	-	-	4.5	-	-	-	-	-	-	3.0	-	-	-	-	9.6
444	-	2.0	-	-	-	-	4.5	-	-	-	-	-	-	3.0	-	-	-	-	9.6
445	-	2.0	-	-	-	-	4.5	-	-	-	-	-	-	3.0	-	-	-	-	9.6
446	-	2.0	-	-	-	-	4.5	-	-	-	-	-	-	3.0	-	-	-	-	9.6
447	-	2.0	-	-	-	-	4.5	-	-	-	-	-	-	3.0	-	-	-	-	9.6
448	-	2.0	-	-	-	-	4.5	-	-	-	-	-	-	3.0	-	-	-	-	9.6
449	-	2.0	-	-	-	-	4.5	-	-	-	-	-	-	3.0	-	-	-	-	9.6
10	0.5	-	0.5	-	-	1.4	-	-	-	2.7	-	0.5	0.5	-	-	2.3	1.4	-	9.5
9	0.5	-	0.5	-	-	1.4	-	-	-	2.7	-	0.5	0.5	-	-	2.3	1.4	-	9.5
128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	7.6	-	9.1
129	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	7.6	-	9.1
131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	7.6	-	9.1
139	3.4	-	1.1	-	-	-	-	-	-	-	-	-	-	1.8	-	0.7	1.1	-	8.1
138	3.4	-	1.1	-	-	-	-	-	-	-	-	-	-	1.8	-	0.7	1.1	-	8.1
140	3.4	-	1.1	-	-	-	-	-	-	-	-	-	-	1.8	-	0.7	1.1	-	8.1
271	-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	-	4.5	-	-	7.9
272	-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	-	4.5	-	-	7.9
237	-	-	-	-	-	-	-	-	-	1.0	-	-	-	-	-	-	6.1	-	7.2
238	-	-	-	-	-	-	-	-	-	1.0	-	-	-	-	-	-	6.1	-	7.2
239	-	-	-	-	-	-	-	-	-	1.0	-	-	-	-	-	-	6.1	-	7.2
240	-	-	-	-	-	-	-	-	-	1.0	-	-	-	-	-	-	6.1	-	7.2
241	-	-	-	-	-	-	-	-	-	1.0	-	-	-	-	-	-	6.1	-	7.2

Table 27. Adults' consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

Observation number	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Fig	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
242	-	-	-	-	-	-	-	-	-	1.0	-	-	-	-	-	-	6.1	-	7.2
104	0.9	0.5	-	-	-	-	-	-	-	-	-	0.5	-	-	-	5.1	-	-	6.9
105	0.9	0.5	-	-	-	-	-	-	-	-	-	0.5	-	-	-	5.1	-	-	6.9
193	-	-	1.9	-	-	-	2.0	-	-	-	-	-	-	-	1.5	-	1.4	-	6.8
194	-	-	1.9	-	-	-	2.0	-	-	-	-	-	-	-	1.5	-	1.4	-	6.8
195	-	-	1.9	-	-	-	2.0	-	-	-	-	-	-	-	1.5	-	1.4	-	6.8
196	-	-	1.9	-	-	-	2.0	-	-	-	-	-	-	-	1.5	-	1.4	-	6.8
209	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.1	1.8	-	5.9
210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.1	1.8	-	5.9
411	-	-	2.8	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-	-	5.4
412	-	-	2.8	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-	-	5.4
413	-	-	2.8	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-	-	5.4
414	-	-	2.8	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-	-	5.4
214	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-	-	5.3
215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-	-	5.3
216	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-	-	5.3
401	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	1.7	1.7	-	4.7
402	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	1.7	1.7	-	4.7
395	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	1.7	1.7	-	4.7
396	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	1.7	1.7	-	4.7
397	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	1.7	1.7	-	4.7
398	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	1.7	1.7	-	4.7
399	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	1.7	1.7	-	4.7
400	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	1.7	1.7	-	4.7
364	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5
365	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5
432	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	1.9	-	-	4.5
434	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	1.9	-	-	4.5
435	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	1.9	-	-	4.5
436	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	1.9	-	-	4.5
437	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	1.9	-	-	4.5
438	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	1.9	-	-	4.5
303	-	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2
305	-	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2

Table 27. Adults' consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

Observation number	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Fig	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
306	-	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2
301	-	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2
302	-	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2
304	-	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2
307	-	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2
308	-	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2
2	-	-	1.9	0.1	-	-	-	-	-	-	-	0.3	0.3	-	-	1.5	-	-	4.1
1	-	-	1.9	0.1	-	-	-	-	-	-	-	0.3	0.3	-	-	1.5	-	-	4.1
106	0.5	0.2	-	-	-	-	-	-	-	-	-	0.2	-	-	-	2.6	-	-	3.5
107	0.5	0.2	-	-	-	-	-	-	-	-	-	0.2	-	-	-	2.6	-	-	3.5
108	0.5	0.2	-	-	-	-	-	-	-	-	-	0.2	-	-	-	2.6	-	-	3.5
93	-	-	-	0.1	-	-	0.1	-	-	-	-	-	0.1	-	-	3.0	-	-	3.4
94	-	-	-	0.1	-	-	0.1	-	-	-	-	-	0.1	-	-	3.0	-	-	3.4
74	-	0.4	-	-	-	-	-	-	-	-	-	-	-	0.7	-	1.5	0.7	-	3.3
75	-	0.4	-	-	-	-	-	-	-	-	-	-	-	0.7	-	1.5	0.7	-	3.3
76	-	0.4	-	-	-	-	-	-	-	-	-	-	-	0.7	-	1.5	0.7	-	3.3
211	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	1.0	-	3.2
212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	1.0	-	3.2
31	-	-	0.4	-	0.1	-	0.2	-	-	-	-	0.1	0.1	0.1	0.4	0.6	1.2	-	3.0
32	-	-	0.4	-	0.1	-	0.2	-	-	-	-	0.1	0.1	0.1	0.4	0.6	1.2	-	3.0
33	-	-	0.4	-	0.1	-	0.2	-	-	-	-	0.1	0.1	0.1	0.4	0.6	1.2	-	3.0
34	-	-	0.4	-	0.1	-	0.2	-	-	-	-	0.1	0.1	0.1	0.4	0.6	1.2	-	3.0
35	-	-	0.4	-	0.1	-	0.2	-	-	-	-	0.1	0.1	0.1	0.4	0.6	1.2	-	3.0
36	-	-	0.4	-	0.1	-	0.2	-	-	-	-	0.1	0.1	0.1	0.4	0.6	1.2	-	3.0
420	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
421	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
422	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
423	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
424	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
425	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
426	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
427	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
428	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
429	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0

Table 27. Adults' consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

Observation number	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Fig	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
430	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
77	-	0.3	-	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
78	-	0.3	-	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
79	-	0.3	-	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
80	-	0.3	-	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
81	-	0.3	-	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
82	-	0.3	-	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
83	-	0.3	-	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
3	-	-	1.2	0.1	-	-	-	-	-	-	-	0.2	0.2	-	-	1.0	-	-	2.7
5	-	-	1.2	0.1	-	-	-	-	-	-	-	0.2	0.2	-	-	1.0	-	-	2.7
8	-	-	1.2	0.1	-	-	-	-	-	-	-	0.2	0.2	-	-	1.0	-	-	2.7
4	-	-	1.2	0.1	-	-	-	-	-	-	-	0.2	0.2	-	-	1.0	-	-	2.7
6	-	-	1.2	0.1	-	-	-	-	-	-	-	0.2	0.2	-	-	1.0	-	-	2.7
7	-	-	1.2	0.1	-	-	-	-	-	-	-	0.2	0.2	-	-	1.0	-	-	2.7
347	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	-	2.7
348	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	-	2.7
759	-	-	0.8	-	-	-	-	-	-	-	-	-	-	0.5	0.8	-	0.5	-	2.6
760	-	-	0.8	-	-	-	-	-	-	-	-	-	-	0.5	0.8	-	0.5	-	2.6
761	-	-	0.8	-	-	-	-	-	-	-	-	-	-	0.5	0.8	-	0.5	-	2.6
762	-	-	0.8	-	-	-	-	-	-	-	-	-	-	0.5	0.8	-	0.5	-	2.6
763	-	-	0.8	-	-	-	-	-	-	-	-	-	-	0.5	0.8	-	0.5	-	2.6
273	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	-	2.1
274	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	-	2.1
275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	-	2.1
276	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	-	2.1
277	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	-	2.1
313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
317	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
318	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
319	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9

Table 27. Adults' consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

Observation number	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Fig	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
327	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
328	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
329	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
332	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
333	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
202	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
203	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
204	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
146	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
148	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
149	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
151	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
153	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
154	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
156	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
157	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
158	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8

Table 27. Adults' consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

Observation number	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Fig	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
469	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
470	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
471	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
472	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
473	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
474	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
475	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
476	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
477	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit based on the 46 high-rate adult consumers is 15.0 kg y⁻¹

The observed 97.5th percentile rate based on 281 observations is 20.8 kg y⁻¹

Table 28. Adults' consumption rates of cattle meat in the Hartlepool area (kg y⁻¹)

Observation number	Beef
759	9.5
760	9.5
761	9.5
762	9.5
763	9.5

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of cattle meat based on the 5 high-rate adult consumers is 9.5 kg y⁻¹

The observed 97.5th percentile rate based on 5 observations is 9.5 kg y⁻¹

Table 29. Adults' consumption rates of sheep meat in the Hartlepool area (kg y⁻¹)

Observation number	Lamb/mutton
759	6.8
760	6.8
761	6.8
762	6.8
763	6.8
749	3.8
750	3.8
751	3.8
752	3.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of sheep meat based on the 9 high-rate adult consumers is 5.4 kg y⁻¹

The observed 97.5th percentile rate based on 9 observations is 6.8 kg y⁻¹

Table 30. Adults' consumption rates of poultry in the Hartlepool area (kg y⁻¹)

Observation number	Chicken	Goose	Partridge	Pheasant	Pigeon	Total
759	1.8	0.9	0.1	0.9	-	3.7
760	1.8	0.9	0.1	0.9	-	3.7
761	1.8	0.9	0.1	0.9	-	3.7
762	1.8	0.9	0.1	0.9	-	3.7
763	1.8	0.9	0.1	0.9	-	3.7
1	-	-	-	-	0.2	0.2
2	-	-	-	-	0.2	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of poultry based on the 5 high-rate adult consumers is 3.7 kg y⁻¹

The observed 97.5th percentile rate based on 7 observations is 3.7 kg y⁻¹

Table 31. Adults' consumption rates of eggs in the Hartlepool area (kg y⁻¹)

Observation number	Chicken egg	Duck egg	Total
165	-	35.3	35.3
166	-	35.3	35.3
199	26.7	-	26.7
200	26.7	-	26.7
256	17.8	-	17.8
257	17.8	-	17.8
375	17.8	-	17.8
378	17.8	-	17.8
227	15.0	-	15.0
228	15.0	-	15.0
229	15.0	-	15.0
232	15.0	-	15.0
233	15.0	-	15.0
381	14.2	-	14.2
382	14.2	-	14.2
201	13.3	-	13.3
202	13.3	-	13.3
203	13.3	-	13.3
204	13.3	-	13.3
205	13.3	-	13.3
206	13.3	-	13.3
759	12.9	-	12.9
760	12.9	-	12.9
761	12.9	-	12.9
762	12.9	-	12.9
763	12.9	-	12.9
273	11.9	-	11.9
274	11.9	-	11.9
275	11.9	-	11.9
301	11.3	-	11.3
302	11.3	-	11.3
303	11.3	-	11.3
304	11.3	-	11.3
305	11.3	-	11.3
306	11.3	-	11.3
307	11.3	-	11.3
308	11.3	-	11.3
9	8.9	1.4	10.2
10	8.9	1.4	10.2
327	9.6	-	9.6
328	9.6	-	9.6
329	9.6	-	9.6
330	9.6	-	9.6
331	9.6	-	9.6
332	9.6	-	9.6
333	9.6	-	9.6
104	8.9	-	8.9
105	8.9	-	8.9
271	8.9	-	8.9
272	8.9	-	8.9
280	8.9	-	8.9
281	8.9	-	8.9

Table 31. Adults' consumption rates of eggs in the Hartlepool area (kg y⁻¹)

Observation number	Chicken egg	Duck egg	Total
364	7.4	-	7.4
365	7.4	-	7.4
65	7.1	-	7.1
66	7.1	-	7.1
67	7.1	-	7.1
68	7.1	-	7.1
69	7.1	-	7.1
452	5.3	-	5.3
453	5.3	-	5.3
454	5.3	-	5.3
455	5.3	-	5.3
351	4.4	-	4.4
352	4.4	-	4.4
353	4.4	-	4.4
354	4.4	-	4.4
209	4.1	-	4.1
210	4.1	-	4.1
282	4.1	-	4.1
283	4.1	-	4.1
284	4.1	-	4.1
285	4.1	-	4.1
286	4.1	-	4.1
287	4.1	-	4.1
288	4.1	-	4.1
289	4.1	-	4.1
290	4.1	-	4.1
291	4.1	-	4.1
292	4.1	-	4.1
293	4.1	-	4.1
294	4.1	-	4.1
295	4.1	-	4.1
211	3.3	-	3.3
212	3.3	-	3.3
74	2.2	1.1	3.3
75	2.2	1.1	3.3
76	2.2	1.1	3.3
765	0.3	-	0.3
766	0.3	-	0.3

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs based on the 29 high-rate adult consumers is 16.5 kg y⁻¹

The observed 97.5th percentile rate based on 90 observations is 26.7 kg y⁻¹

Table 32. Adults' consumption rates of wild/free foods in the Hartlepool area (kg y⁻¹)

Observation number	Blackberry	Elderberry	Sloe	Total
271	4.5	-	-	4.5
272	4.5	-	-	4.5
165	-	3.4	-	3.4
166	-	3.4	-	3.4
1	2.7	-	-	2.7
2	2.7	-	-	2.7
349	1.8	-	-	1.8
350	1.8	-	-	1.8
9	-	-	1.1	1.1
10	-	-	1.1	1.1
199	1.1	-	-	1.1
200	1.1	-	-	1.1
432	1.1	-	-	1.1
434	1.1	-	-	1.1
364	0.5	-	-	0.5
365	0.5	-	-	0.5
749	0.2	-	-	0.2
750	0.2	-	-	0.2
751	0.2	-	-	0.2
752	0.2	-	-	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wild/free foods based on the 8 high-rate adult consumers is 3.1 kg y⁻¹

The observed 97.5th percentile rate based on 20 observations is 4.5 kg y⁻¹

Table 33. Adults' consumption rates of rabbits/hares in the Hartlepool area (kg y⁻¹)

Observation number	Hare	Rabbit	Total
749	4.8	5.4	10.2
199	-	1.4	1.4
200	-	1.4	1.4

Notes

The emboldened observation is the high-rate consumer

The mean consumption rate of rabbits/hares based on the only high-rate adult consumer is 10.2 kg y⁻¹

The observed 97.5th percentile rate based on 3 observations is 9.8 kg y⁻¹

Table 34. Adults' consumption rates of honey in the Hartlepool area (kg y⁻¹)

Observation number	Honey
199	11.3
200	11.3
790	7.7
201	1.1
202	1.1
203	1.1
204	1.1
205	1.1
206	1.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of honey based on the 3 high-rate adult consumers is 10.1 kg y⁻¹

The observed 97.5th percentile rate based on 9 observations is 11.3 kg y⁻¹

Table 35. Adults' consumption rates of wild fungi in the Hartlepool area (kg y⁻¹)

Observation number	Mushrooms
314	1.4
315	1.4
1	0.5
2	0.5
104	0.5
105	0.5
749	0.4
750	0.4
751	0.4
752	0.4
748	0.3
759	0.3
760	0.3
761	0.3
762	0.3
763	0.3

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wild fungi based on the 6 high-rate adult consumers is 0.8 kg y⁻¹

The observed 97.5th percentile rate based on 16 observations is 1.4 kg y⁻¹

Table 36. Children's consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Lettuce	Spinach	Total
383	15	-	1.1	5.1	3.8	1.1	3.0	1.8	-	2.8	-	-	2.2	-	20.9
14	12	-	1.0	7.3	6.8	-	1.0	-	1.4	-	-	-	3.2	0.2	20.9
61	12	-	-	2.3	8.1	-	3.6	-	-	5.4	-	-	1.1	-	20.4
197	16	-	-	5.5	7.3	-	1.1	-	-	3.4	-	-	2.7	-	20.0
198	14	-	-	5.5	7.3	-	1.1	-	-	3.4	-	-	2.7	-	20.0
323	14	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	19.0
326	12	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	19.0
230	13	-	-	4.8	5.1	3.4	2.3	-	-	-	-	-	3.4	-	18.9
234	12	-	-	4.8	5.1	3.4	2.3	-	-	-	-	-	3.4	-	18.9
478	16	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	1.1	-	15.8
479	14	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	1.1	-	15.8
480	13	-	2.8	1.5	5.7	-	-	-	1.8	2.8	-	-	1.1	-	15.8
100	15	-	-	2.6	8.0	-	1.2	-	-	2.1	-	-	1.0	-	14.9
101	13	-	-	2.6	8.0	-	1.2	-	-	2.1	-	-	1.0	-	14.9
450	14	-	-	-	5.4	-	3.0	-	-	1.9	-	-	2.2	-	12.5
141	13	1.1	0.7	1.1	3.3	-	1.6	-	-	4.0	-	-	0.8	-	12.5
431	13	-	-	3.6	6.1	-	1.5	-	-	-	-	-	0.6	-	11.8
309	12	-	-	1.3	5.3	-	1.6	-	-	1.9	-	-	0.9	0.6	11.6
372	12	-	-	3.0	5.1	-	1.2	-	-	1.4	-	-	-	-	10.8
207	13	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	7.9
441	16	-	-	-	5.8	-	1.4	-	-	-	-	-	0.6	-	7.8
439	13	-	-	-	5.8	-	1.4	-	-	-	-	-	0.6	-	7.8
270	16	-	-	-	6.6	-	-	-	-	-	-	-	-	-	6.6
269	14	-	-	-	6.6	-	-	-	-	-	-	-	-	-	6.6
334	16	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
335	15	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
336	14	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
337	13	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
338	12	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
456	14	-	-	-	6.1	-	-	-	-	-	-	-	-	-	6.1
90	16	-	-	-	3.7	-	-	-	-	-	-	-	-	-	3.7
91	14	-	-	-	3.7	-	-	-	-	-	-	-	-	-	3.7
92	12	-	-	-	3.7	-	-	-	-	-	-	-	-	-	3.7

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables based on the 22 high-rate 15-year-old age group consumers is 15.4 kg y⁻¹

The observed 97.5th percentile rate based on 33 observations is 20.9 kg y⁻¹

Table 36. Children's consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

10-year-old age group

Observation number	Age	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Lettuce	Spinach	Total
384	10	-	1.1	5.1	3.8	1.1	3.0	1.8	-	2.8	-	-	2.2	-	20.9
13	10	-	1.0	7.3	6.8	-	1.0	-	1.4	-	-	-	3.2	0.2	20.9
120	9	1.2	-	5.1	6.8	4.2	2.1	-	-	-	-	-	1.5	-	20.9
113	9	-	4.4	-	1.2	3.0	3.0	-	3.5	2.4	0.2	-	2.0	1.1	20.8
63	7	-	-	2.3	8.1	-	3.6	-	-	5.4	-	-	1.1	-	20.4
62	11	-	-	2.3	8.1	-	3.6	-	-	5.4	-	-	1.1	-	20.4
324	7	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	19.0
321	11	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	19.0
322	9	-	4.9	3.9	2.4	-	2.9	-	-	4.9	-	-	-	-	19.0
231	9	-	-	4.8	5.1	3.4	2.3	-	-	-	-	-	3.4	-	18.9
235	8	-	-	4.8	5.1	3.4	2.3	-	-	-	-	-	3.4	-	18.9
84	9	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	1.0	-	16.9
85	9	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	1.0	-	16.9
86	8	-	1.6	3.9	5.2	-	2.0	-	-	1.8	-	1.4	1.0	-	16.9
97	9	-	-	2.6	8.0	-	1.2	-	-	2.1	-	-	1.0	-	14.9
163	10	1.1	0.7	1.1	3.3	-	1.6	-	-	4.0	-	-	0.8	-	12.5
162	9	1.1	0.7	1.1	3.3	-	1.6	-	-	4.0	-	-	0.8	-	12.5
160	8	1.1	0.7	1.1	3.3	-	1.6	-	-	4.0	-	-	0.8	-	12.5
161	7	1.1	0.7	1.1	3.3	-	1.6	-	-	4.0	-	-	0.8	-	12.5
310	9	-	-	1.3	5.3	-	1.6	-	-	1.9	-	-	0.9	0.6	11.6
278	10	-	4.6	-	3.7	-	2.3	-	-	-	-	-	-	-	10.7
246	7	-	2.2	1.4	1.8	-	1.1	-	1.1	1.3	-	-	-	-	8.9
245	7	-	2.2	1.4	1.8	-	1.1	-	1.1	1.3	-	-	-	-	8.9
764	7	-	1.4	1.7	2.2	-	0.7	-	-	1.5	-	-	0.7	-	8.2
208	10	-	2.7	1.6	2.2	-	1.3	-	-	-	-	-	-	-	7.9
363	11	-	-	-	4.9	-	3.0	-	-	-	-	-	-	-	7.9
362	8	-	-	-	4.9	-	3.0	-	-	-	-	-	-	-	7.9
249	8	-	-	1.6	1.9	-	1.2	-	-	-	-	-	1.8	-	6.6
339	11	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
340	10	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
341	9	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
342	8	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
343	7	-	0.5	0.6	2.0	1.0	1.0	-	-	-	-	-	1.5	-	6.5
296	9	-	-	-	1.9	-	0.8	-	-	1.7	-	-	1.1	-	5.5
297	7	-	-	-	1.9	-	0.8	-	-	1.7	-	-	1.1	-	5.5
440	10	-	-	-	2.9	-	1.4	-	-	-	-	-	0.6	-	4.9

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables based on the 27 high-rate 10-year-old age group consumers is 15.1 kg y⁻¹

The observed 97.5th percentile rate based on 36 observations is 20.9 kg y⁻¹

Table 36. Children's consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

5-year-old age group

Observation number	Age	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Lettuce	Spinach	Total
112	6	-	3.0	-	0.8	2.0	2.0	-	2.4	1.6	0.1	-	1.0	0.6	13.3
64	6	-	-	1.1	4.0	-	1.8	-	-	3.6	-	-	0.5	-	11.1
376	3	-	0.6	2.5	1.9	0.6	1.5	0.9	-	1.4	-	-	1.1	-	10.5
377	3	-	0.6	2.5	1.9	0.6	1.5	0.9	-	1.4	-	-	1.1	-	10.5
121	5	0.6	-	2.5	3.4	2.1	1.0	-	-	-	-	-	0.7	-	10.4
236	4	-	-	2.4	2.5	1.7	1.1	-	-	-	-	-	1.7	-	9.5
443	4	-	-	-	5.4	-	1.5	-	-	0.9	-	-	1.1	-	9.0
87	6	-	0.8	2.0	2.6	-	1.0	-	-	0.9	-	0.7	0.5	-	8.4
102	6	-	-	1.1	4.0	-	0.6	-	-	1.1	-	-	0.5	-	7.3
103	3	-	-	1.1	4.0	-	0.6	-	-	1.1	-	-	0.5	-	7.3
109	6	-	-	2.3	1.5	-	-	-	-	2.1	-	-	0.8	-	6.7
110	4	-	-	2.3	1.5	-	-	-	-	2.1	-	-	0.8	-	6.7
164	4	0.5	-	0.5	1.7	-	0.8	-	-	2.0	-	-	0.4	-	5.9
311	5	-	-	0.7	2.7	-	0.8	-	-	0.9	-	-	0.4	0.3	5.8
312	3	-	-	0.7	2.7	-	0.8	-	-	0.9	-	-	0.4	0.3	5.8
279	3	-	2.3	-	1.9	-	1.2	-	-	-	-	-	-	-	5.3
213	2	-	-	1.2	1.4	-	1.1	-	-	1.7	-	-	-	-	5.3
451	2	-	-	-	1.4	-	1.5	-	-	0.9	-	-	1.1	-	4.9
243	5	-	1.1	0.7	0.9	-	0.6	-	0.6	0.6	-	-	-	-	4.5
244	5	-	1.1	0.7	0.9	-	0.6	-	0.6	0.6	-	-	-	-	4.5
356	3	-	-	-	2.4	-	1.5	-	-	-	-	-	-	-	3.9
433	6	-	-	-	2.9	-	0.7	-	-	-	-	-	0.3	-	3.9
250	6	-	-	0.8	1.0	-	0.6	-	-	-	-	-	0.9	-	3.3
251	3	-	-	0.8	1.0	-	0.6	-	-	-	-	-	0.9	-	3.3
344	5	-	0.2	0.3	1.0	0.5	0.5	-	-	-	-	-	0.7	-	3.2
345	3	-	0.2	0.3	1.0	0.5	0.5	-	-	-	-	-	0.7	-	3.2
298	2	-	-	-	0.9	-	0.4	-	-	0.9	-	-	0.6	-	2.8
299	2	-	-	-	0.9	-	0.4	-	-	0.9	-	-	0.6	-	2.8
463	5	-	-	-	-	-	-	-	-	-	-	-	0.4	-	0.4
464	2	-	-	-	-	-	-	-	-	-	-	-	0.4	-	0.4

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables based on the 20 high-rate 5-year-old age group consumers is 7.6 kg y⁻¹

The observed 97.5th percentile rate based on 30 observations is 11.7 kg y⁻¹

Table 36. Children's consumption rates of green vegetables in the Hartlepool area (kg y⁻¹)

1-year-old age group

Observation number	Age	Asparagus	Broccoli	Brussels sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Lettuce	Spinach	Total
346	1	-	0.2	0.3	1.0	0.5	0.5	-	-	-	-	-	0.7	-	3.2
300	1	-	-	-	0.9	-	0.4	-	-	0.9	-	-	0.6	-	2.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables based on the 2 high-rate 1-year-old age group consumers is 3.0 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 3.2 kg y⁻¹

Table 37. Children's consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
383	15	-	3.7	-	3.6	-	-	1.1	-	-	0.5	1.0	6.0	16.0
141	13	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
480	13	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
478	16	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
479	14	1.0	-	-	-	-	2.3	-	-	5.4	-	0.5	3.6	12.8
323	14	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
326	12	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
309	12	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
372	12	-	-	-	1.4	-	-	0.2	-	4.5	-	-	5.0	11.2
450	14	-	-	-	-	-	4.0	0.2	-	-	-	-	5.6	9.8
230	13	-	-	-	-	-	3.4	0.8	-	-	-	0.2	4.5	9.0
234	12	-	-	-	-	-	3.4	0.8	-	-	-	0.2	4.5	9.0
431	13	-	1.8	-	-	-	1.8	-	-	-	-	-	3.6	7.2
100	15	-	1.5	0.1	-	-	1.5	0.3	-	0.5	-	-	3.0	6.9
101	13	-	1.5	0.1	-	-	1.5	0.3	-	0.5	-	-	3.0	6.9
441	16	-	3.8	-	1.0	-	1.9	-	-	-	-	-	-	6.7
439	13	-	3.8	-	1.0	-	1.9	-	-	-	-	-	-	6.7
197	16	-	2.7	-	-	-	2.7	-	-	-	-	-	-	5.4
198	14	-	2.7	-	-	-	2.7	-	-	-	-	-	-	5.4
334	16	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
335	15	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
336	14	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
337	13	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
338	12	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
456	14	-	-	-	-	-	4.5	-	-	-	-	-	-	4.5
61	12	-	-	-	0.1	-	0.8	-	-	0.6	-	-	2.8	4.4
90	16	-	-	-	-	-	-	-	-	-	-	-	4.3	4.3
91	14	-	-	-	-	-	-	-	-	-	-	-	4.3	4.3
92	12	-	-	-	-	-	-	-	-	-	-	-	4.3	4.3
207	13	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
14	12	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables based on the 19 high-rate 15-year-old age group consumers is 9.9 kg y⁻¹

The observed 97.5th percentile rate based on 31 observations is 14.6 kg y⁻¹

Table 37. Children's consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

10-year-old age group

Observation number	Age	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
384	10	-	3.7	-	3.6	-	-	1.1	-	-	0.5	1.0	6.0	16.0
160	8	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
163	10	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
162	9	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
161	7	1.2	0.7	-	0.4	1.2	1.1	-	-	2.1	-	0.4	7.1	14.2
120	9	0.8	5.1	-	-	-	2.5	0.3	-	-	-	-	5.3	14.0
84	9	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
85	9	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
86	8	-	1.5	-	-	-	2.9	0.1	-	2.9	-	-	6.4	13.8
321	11	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
322	9	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
324	7	-	-	-	-	-	2.4	2.1	-	-	-	-	7.7	12.2
310	9	-	-	-	-	-	2.0	-	1.1	-	-	-	8.6	11.7
113	9	-	-	-	-	-	1.5	2.0	-	-	-	-	5.8	9.2
231	9	-	-	-	-	-	3.4	0.8	-	-	-	0.2	4.5	9.0
235	8	-	-	-	-	-	3.4	0.8	-	-	-	0.2	4.5	9.0
764	7	-	-	-	-	-	1.6	-	-	4.9	-	-	1.6	8.2
249	8	-	2.7	-	1.6	2.7	-	-	-	-	-	0.7	-	7.8
363	11	-	-	-	-	-	-	-	-	7.3	-	-	-	7.3
362	8	-	-	-	-	-	-	-	-	7.3	-	-	-	7.3
97	9	-	1.5	0.1	-	-	1.5	0.3	-	0.5	-	-	3.0	6.9
440	10	-	3.8	-	1.0	-	1.9	-	-	-	-	-	-	6.7
296	9	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
297	7	-	-	-	-	-	-	1.5	-	-	-	0.4	4.8	6.7
339	11	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
340	10	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
341	9	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
342	8	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
343	7	-	-	-	-	-	0.6	0.1	-	1.8	-	-	2.5	5.0
245	7	-	-	-	-	-	0.9	-	-	-	0.1	0.2	3.2	4.4
246	7	-	-	-	-	-	0.9	-	-	-	0.1	0.2	3.2	4.4
62	11	-	-	-	0.1	-	0.8	-	-	0.6	-	-	2.8	4.4
63	7	-	-	-	0.1	-	0.8	-	-	0.6	-	-	2.8	4.4
208	10	-	-	-	1.0	-	0.8	-	-	-	-	0.5	-	2.2
13	10	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables based on the 24 high-rate 10-year-old age group consumers is 10.9 kg y⁻¹

The observed 97.5th percentile rate based on 35 observations is 14.5 kg y⁻¹

Table 37. Children's consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

5-year-old age group

Observation number	Age	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
87	6	-	1.5	-	-	-	1.4	0.1	-	1.5	-	-	3.2	7.7
376	3	-	1.9	-	1.5	-	-	0.5	-	-	0.3	0.5	2.5	7.2
377	3	-	1.9	-	1.5	-	-	0.5	-	-	0.3	0.5	2.5	7.2
164	4	0.6	0.4	-	0.2	0.6	0.5	-	-	1.1	-	0.2	3.5	7.1
121	5	0.4	2.5	-	-	-	1.3	0.1	-	-	-	-	2.7	7.0
311	5	-	-	-	-	-	1.0	-	0.5	-	-	-	4.3	5.8
312	3	-	-	-	-	-	1.0	-	0.5	-	-	-	4.3	5.8
463	5	-	-	-	-	-	1.3	-	-	3.9	-	-	-	5.2
464	2	-	-	-	-	-	1.3	-	-	3.9	-	-	-	5.2
236	4	-	-	-	-	-	1.7	0.4	-	-	-	0.1	2.8	5.1
443	4	-	-	-	-	-	2.0	0.1	-	-	-	-	2.8	4.9
451	2	-	-	-	-	-	2.0	0.1	-	-	-	-	2.8	4.9
213	2	1.0	-	-	-	-	1.2	0.6	-	-	-	-	1.9	4.7
112	6	-	-	-	-	-	0.7	1.0	-	-	-	-	2.9	4.6
109	6	-	1.1	-	-	-	1.1	-	-	-	-	-	1.8	4.1
110	4	-	1.1	-	-	-	1.1	-	-	-	-	-	1.8	4.1
250	6	-	1.4	-	0.8	1.4	-	-	-	-	-	0.3	-	3.9
251	3	-	1.4	-	0.8	1.4	-	-	-	-	-	0.3	-	3.9
102	6	-	0.8	0.1	-	-	0.7	0.2	-	0.3	-	-	1.7	3.7
103	3	-	0.8	0.1	-	-	0.7	0.2	-	0.3	-	-	1.7	3.7
356	3	-	-	-	-	-	-	-	-	3.6	-	-	-	3.6
64	6	-	-	-	0.1	-	0.4	-	-	0.3	-	-	2.8	3.6
433	6	-	1.9	-	0.5	-	0.9	-	-	-	-	-	-	3.4
298	2	-	-	-	-	-	-	0.8	-	-	-	0.2	2.4	3.4
299	2	-	-	-	-	-	-	0.8	-	-	-	0.2	2.4	3.4
344	5	-	-	-	-	-	0.3	0.1	-	0.9	-	-	1.3	2.5
345	3	-	-	-	-	-	0.3	0.1	-	0.9	-	-	1.3	2.5
244	5	-	-	-	-	-	0.5	-	-	-	0.03	0.1	1.6	2.2
243	5	-	-	-	-	-	0.5	-	-	-	0.03	0.1	1.6	2.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables based on the 25 high-rate 5-year-old age group consumers is 4.9 kg y⁻¹

The observed 97.5th percentile rate based on 29 observations is 7.3 kg y⁻¹

Table 37. Children's consumption rates of other vegetables in the Hartlepool area (kg y⁻¹)

1-year-old age group

Observation number	Age	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
300	1	-	-	-	-	-	-	0.8	-	-	-	0.2	2.4	3.4
346	1	-	-	-	-	-	0.3	0.1	-	0.9	-	-	0.6	1.9

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables based on the 2 high-rate 1-year-old age group consumers is 2.6 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 3.3 kg y⁻¹

Table 38. Children's consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
90	16	2.7	2.7	-	-	-	2.4	-	2.7	7.6	2.2	-	-	0.6	8.2	-	29.0
91	14	2.7	2.7	-	-	-	2.4	-	2.7	7.6	2.2	-	-	0.6	8.2	-	29.0
92	12	2.7	2.7	-	-	-	2.4	-	2.7	7.6	2.2	-	-	0.6	8.2	-	29.0
198	14	4.9	2.7	-	-	-	0.4	-	6.8	5.4	-	-	1.0	0.6	4.1	1.6	27.4
270	16	9.7	-	-	-	-	-	-	-	13.0	-	-	-	-	-	3.9	26.6
269	14	9.7	-	-	-	-	-	-	-	13.0	-	-	-	-	-	3.9	26.6
383	15	5.0	-	-	2.3	-	1.8	-	1.8	7.3	2.0	-	3.3	-	-	-	23.5
230	13	3.4	1.4	-	-	-	-	-	4.1	4.4	1.1	1.1	0.5	0.9	5.2	-	22.0
234	12	3.4	1.4	-	-	-	-	-	4.1	4.4	1.1	1.1	0.5	0.9	5.2	-	22.0
309	12	1.7	0.7	-	-	-	0.0	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
197	16	4.9	2.7	-	-	-	0.4	-	-	5.4	-	-	1.0	0.6	4.1	1.6	20.7
61	12	2.4	1.9	-	-	-	0.3	-	3.6	2.9	1.1	-	0.6	0.4	4.6	1.8	19.5
323	14	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
326	12	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
207	13	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
431	13	1.8	2.3	-	-	-	-	-	-	1.4	1.4	-	-	-	5.4	-	12.4
456	14	-	-	-	-	-	-	-	-	5.4	-	-	-	-	6.8	-	12.2
100	15	1.5	1.1	0.2	0.4	-	0.2	-	-	4.5	1.2	0.4	0.6	0.5	-	0.9	11.4
101	13	1.5	1.1	0.2	0.4	-	0.2	-	-	4.5	1.2	0.4	0.6	0.5	-	0.9	11.4
441	16	3.4	-	-	-	-	-	-	2.1	4.6	-	-	0.9	-	-	-	11.1
14	12	0.5	-	-	-	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	10.9
478	16	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
479	14	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
480	13	1.0	0.6	-	-	-	-	-	0.3	6.8	-	-	0.6	0.3	-	1.0	10.6
141	13	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
439	13	3.4	-	-	-	-	-	-	2.1	4.6	-	-	-	-	-	-	10.1
372	12	1.5	1.5	-	-	-	0.4	-	-	4.2	-	-	-	0.3	-	1.8	9.8
450	14	-	-	-	2.4	-	-	-	4.0	3.2	-	-	-	-	-	-	9.6
334	16	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
335	15	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
336	14	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
337	13	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
338	12	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables based on the 27 high-rate 15-year-old age group consumers is 17.6 kg y⁻¹

The observed 97.5th percentile rate based on 33 observations is 29.0 kg y⁻¹

Table 38. Children's consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

10-year-old age group

Observation number	Age	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
120	9	4.6	-	-	-	-	-	-	5.0	6.0	2.0	-	1.8	1.1	7.6	-	28.2
384	10	5.0	-	-	2.3	-	1.8	-	1.8	7.3	2.0	-	3.3	-	-	-	23.5
235	8	3.4	1.4	-	-	-	-	-	4.1	4.4	1.1	1.1	0.5	0.9	5.2	-	22.0
231	9	3.4	1.4	-	-	-	-	-	4.1	4.4	1.1	1.1	0.5	0.9	5.2	-	22.0
84	9	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2
85	9	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2
86	8	3.9	1.4	-	1.2	-	-	-	1.4	5.8	0.8	0.2	-	0.4	4.4	1.7	21.2
310	9	1.7	0.7	-	-	-	0.0	-	7.3	7.6	0.5	-	-	-	3.2	-	21.0
62	11	2.4	1.9	-	-	-	0.3	-	3.6	2.9	1.1	-	0.6	0.4	4.6	1.8	19.5
63	7	2.4	1.9	-	-	-	0.3	-	3.6	2.9	1.1	-	0.6	0.4	4.6	1.8	19.5
278	10	2.8	-	-	-	-	-	-	2.8	5.5	-	0.6	-	0.6	4.2	-	16.4
321	11	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
322	9	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
324	7	1.3	1.9	-	1.2	-	-	-	1.6	6.9	1.5	-	-	-	-	1.9	16.4
363	11	-	1.2	-	-	-	-	-	6.0	4.3	4.8	-	-	-	-	-	16.3
362	8	-	1.2	-	-	-	-	-	6.0	4.3	4.8	-	-	-	-	-	16.3
113	9	1.5	3.0	-	-	-	0.4	-	-	4.8	4.8	0.6	-	0.7	-	-	15.6
296	9	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
297	7	2.8	-	-	-	-	0.3	-	1.9	5.4	-	-	0.7	-	2.8	1.7	15.4
208	10	4.1	-	-	0.8	-	-	-	-	3.9	-	-	-	-	-	4.9	13.6
97	9	1.5	1.1	0.2	0.4	-	0.2	-	-	4.5	1.2	0.4	0.6	0.5	-	0.9	11.4
440	10	3.4	-	-	-	-	-	-	2.1	4.6	-	-	0.9	-	-	-	11.1
13	10	0.5	-	-	-	-	0.1	-	1.0	2.9	0.7	0.9	-	0.5	3.3	1.1	10.9
162	9	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
160	8	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
161	7	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
163	10	1.2	0.7	-	-	0.5	-	0.2	1.6	2.6	-	0.4	0.3	0.4	1.8	0.8	10.4
249	8	-	2.7	-	-	-	-	-	0.9	3.2	2.2	1.1	-	-	-	-	10.1
246	7	-	0.9	-	-	-	0.4	-	-	3.3	-	-	-	-	2.7	-	7.3
245	7	-	0.9	-	-	-	0.4	-	-	3.3	-	-	-	-	2.7	-	7.3
764	7	-	-	-	-	-	-	-	1.6	2.0	2.0	-	-	-	-	-	5.6
339	11	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
340	10	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
341	9	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
343	7	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0
342	8	0.6	0.6	-	-	-	0.5	-	-	1.9	-	0.1	0.2	0.1	-	-	4.0

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables based on the 28 high-rate 10-year-old age group consumers is 16.5 kg y⁻¹

The observed 97.5th percentile rate based on 36 observations is 24.1 kg y⁻¹

Table 38. Children's consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

5-year-old age group

Observation number	Age	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
121	5	1.3	-	-	-	-	-	-	2.5	3.0	1.0	-	0.9	0.6	3.8	-	13.1
236	4	1.7	0.7	-	-	-	-	-	2.0	2.2	0.5	0.5	0.2	0.5	2.6	-	11.0
87	6	1.9	0.7	-	0.6	-	-	-	0.7	2.9	0.4	0.1	-	0.2	2.2	0.9	10.6
312	3	0.9	0.4	-	-	-	0.0	-	3.6	3.8	0.3	-	-	-	1.6	-	10.5
311	5	0.9	0.4	-	-	-	0.0	-	3.6	3.8	0.3	-	-	-	1.6	-	10.5
64	6	1.2	0.9	-	-	-	0.1	-	1.8	1.5	0.5	-	0.3	0.2	2.3	0.9	9.7
112	6	1.4	1.5	-	-	-	0.2	-	-	2.4	2.4	0.3	-	0.3	-	-	8.4
279	3	1.4	-	-	-	-	-	-	1.4	2.8	-	0.3	-	0.3	2.1	-	8.2
356	3	-	0.6	-	-	-	-	-	3.0	2.2	2.4	-	-	-	-	-	8.2
376	3	1.3	-	-	1.2	-	-	-	0.9	1.8	1.0	-	1.7	-	-	-	7.8
377	3	1.3	-	-	1.2	-	-	-	0.9	1.8	1.0	-	1.7	-	-	-	7.8
109	6	1.1	0.6	-	-	-	-	-	1.1	3.2	1.4	-	-	0.3	-	-	7.6
110	4	1.1	0.6	-	-	-	-	-	1.1	3.2	1.4	-	-	0.3	-	-	7.6
299	2	1.4	-	-	-	-	-	-	0.9	2.7	-	-	0.3	-	1.4	-	6.7
298	2	1.4	-	-	-	-	-	-	0.9	2.7	-	-	0.3	-	1.4	-	6.7
443	4	-	-	-	1.2	-	-	-	2.0	3.2	-	-	-	-	-	-	6.4
102	6	0.7	0.6	0.1	0.2	-	0.1	-	-	2.2	0.6	0.2	0.3	0.2	-	0.4	5.7
103	3	0.7	0.6	0.1	0.2	-	0.1	-	-	2.2	0.6	0.2	0.3	0.2	-	0.4	5.7
433	6	1.7	-	-	-	-	-	-	1.1	2.3	-	-	0.5	-	-	-	5.5
164	4	0.6	0.3	-	-	0.3	-	0.1	0.8	1.3	-	0.2	0.1	0.2	0.9	0.4	5.2
250	6	-	1.4	-	-	-	-	-	0.5	1.6	1.1	0.5	-	-	-	-	5.0
251	3	-	1.4	-	-	-	-	-	0.5	1.6	1.1	0.5	-	-	-	-	5.0
451	2	-	-	-	1.2	-	-	-	2.0	1.6	-	-	-	-	-	-	4.8
243	5	-	0.5	-	-	-	-	-	-	1.6	-	-	-	-	1.4	-	3.5
244	5	-	0.5	-	-	-	-	-	-	1.6	-	-	-	-	1.4	-	3.5
213	2	-	-	-	-	0.3	-	-	-	2.2	-	-	-	0.3	-	-	2.8
344	5	0.3	0.3	-	-	-	0.3	-	-	0.9	-	0.1	0.1	0.1	-	-	2.0
345	3	0.3	0.3	-	-	-	0.3	-	-	0.9	-	0.1	0.1	0.1	-	-	2.0
463	5	0.6	-	-	-	-	-	-	-	-	-	0.3	-	-	-	-	0.9
464	2	0.6	-	-	-	-	-	-	-	-	-	0.3	-	-	-	-	0.9

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables based on the 23 high-rate 5-year-old age group consumers is 7.7 kg y⁻¹

The observed 97.5th percentile rate based on 30 observations is 11.6 kg y⁻¹

Table 38. Children's consumption rates of root vegetables in the Hartlepool area (kg y⁻¹)

1-year-old age group

Observation number	Age	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Kohl rabi	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
300	1	1.4	-	-	-	-	-	-	0.9	0.5	-	-	0.3	-	1.4	-	4.6
346	1	0.3	0.3	-	-	-	-	-	-	0.9	-	0.1	0.1	0.1	-	-	1.7

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables based on the 2 high-rate 1-year-old age group consumers is 3.2 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 4.5 kg y⁻¹

Table 39. Children's consumption rates of potato in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Potato
90	16	32.8
91	14	32.8
92	12	32.8
383	15	30.3
61	12	23.4
456	14	22.8
450	14	20.2
431	13	20.0
197	16	16.4
198	14	16.4
230	13	13.8
234	12	13.8
141	13	11.9
323	14	11.7
326	12	11.7
207	13	11.5
100	15	9.0
101	13	9.0
309	12	9.0
14	12	7.3
334	16	6.5
335	15	6.5
336	14	6.5
337	13	6.5
338	12	6.5
478	16	4.2
479	14	4.2
480	13	4.2
372	12	0.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of potato based on the 16 high-rate 15-year-old age group consumers is 20.1 kg y⁻¹

The observed 97.5th percentile rate based on 29 observations is 32.8 kg y⁻¹

Table 39. Children's consumption rates of potato in the Hartlepool area (kg y⁻¹)

10-year-old age group

Observation number	Age	Potato
120	9	30.6
384	10	30.3
113	9	24.0
62	11	23.4
63	7	23.4
245	7	19.1
246	7	19.1
231	9	13.8
235	8	13.8
163	10	11.9
162	9	11.9
160	8	11.9
161	7	11.9
321	11	11.7
322	9	11.7
324	7	11.7
208	10	11.5
278	10	11.2
249	8	10.9
764	7	9.9
84	9	9.8
85	9	9.8
86	8	9.8
97	9	9.0
310	9	9.0
363	11	7.3
362	8	7.3
13	10	7.3
339	11	6.5
340	10	6.5
341	9	6.5
342	8	6.5
343	7	6.5
296	9	5.6
297	7	5.6

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of potato based on the 19 high-rate 10-year-old age group consumers is 16.5 kg y⁻¹

The observed 97.5th percentile rate based on 35 observations is 30.4 kg y⁻¹

Table 39. Children's consumption rates of potato in the Hartlepool area (kg y⁻¹)

5-year-old age group

Observation number	Age	Potato
121	5	15.3
112	6	12.0
64	6	11.7
443	4	10.1
376	3	10.1
377	3	10.1
451	2	10.1
243	5	9.6
244	5	9.6
236	4	6.9
109	6	6.8
110	4	6.8
164	4	5.9
279	3	5.6
250	6	5.5
251	3	5.5
87	6	4.9
213	2	4.8
102	6	4.5
103	3	4.5
311	5	4.5
312	3	4.5
356	3	3.6
344	5	3.2
345	3	3.2
463	5	3.2
464	2	3.2
298	2	2.8
299	2	2.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of potato based on the 16 high-rate 5-year-old age group consumers is 8.8 kg y⁻¹

The observed 97.5th percentile rate based on 29 observations is 13.0 kg y⁻¹

1-year-old age group

Observation number	Age	Potato
346	1	3.2
300	1	2.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of potato based on the 2 high-rate 1-year-old age group consumers is 3.0 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 3.2 kg y⁻¹

Table 40. Children's consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
92	12	-	-	2.3	0.7	-	1.6	-	3.2	-	-	-	-	0.4	-	1.8	6.8	-	16.8
90	16	-	-	2.3	0.7	-	1.6	-	3.2	-	-	-	-	0.4	-	1.8	6.8	-	16.8
91	14	-	-	2.3	0.7	-	1.6	-	3.2	-	-	-	-	0.4	-	1.8	6.8	-	16.8
383	15	-	-	3.2	-	-	2.3	-	-	-	-	-	-	0.4	2.5	2.0	2.5	-	12.9
61	12	3.8	-	-	-	-	0.9	-	-	-	-	1.9	1.4	0.4	-	1.4	0.9	-	10.7
450	14	-	2.0	-	-	-	4.5	-	-	-	-	-	-	3.0	-	-	-	-	9.6
141	13	3.4	-	1.1	-	-	-	-	-	-	-	-	-	1.8	-	0.7	1.1	-	8.1
197	16	-	-	1.9	-	-	2.0	-	-	-	-	-	-	-	1.5	-	1.4	-	6.8
198	14	-	-	1.9	-	-	2.0	-	-	-	-	-	-	-	1.5	-	1.4	-	6.8
441	16	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	1.9	-	-	4.5
439	13	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	1.9	-	-	4.5
309	12	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2
431	13	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	1.3	-	-	3.0
323	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
326	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
334	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
335	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
336	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
337	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
338	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
207	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
100	15	-	-	-	0.1	-	0.1	-	-	-	-	-	0.1	-	-	1.5	-	-	1.7
101	13	-	-	-	0.1	-	0.1	-	-	-	-	-	0.1	-	-	1.5	-	-	1.7
372	12	-	0.3	-	-	-	-	-	-	-	-	-	-	0.2	-	0.8	-	-	1.3
478	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
479	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2
480	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit based on the 9 high-rate 15-year-old age group consumers is 11.7 kg y⁻¹

The observed 97.5th percentile rate based on 27 observations is 16.8 kg y⁻¹

Table 40. Children's consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

10-year-old age group

Observation number	Age	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
120	9	-	2.1	-	1.8	-	1.6	-	-	-	-	-	4.5	0.6	0.6	-	1.6	1.1	14.0
384	10	-	-	3.2	-	-	2.3	-	-	-	-	-	-	0.4	2.5	2.0	2.5	-	12.9
62	11	3.8	-	-	-	-	0.9	-	-	-	-	1.9	1.4	0.4	-	1.4	0.9	-	10.7
63	7	3.8	-	-	-	-	0.9	-	-	-	-	1.9	1.4	0.4	-	1.4	0.9	-	10.7
113	9	0.5	-	2.3	0.4	0.1	-	-	-	-	-	-	-	2.2	-	-	3.1	-	8.6
440	10	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	1.9	-	-	4.5
310	9	-	-	-	-	-	-	3.3	-	-	0.2	-	-	-	-	-	0.7	-	4.2
245	7	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	3.1	-	3.6
246	7	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	3.1	-	3.6
84	9	-	0.3	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
85	9	-	0.3	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
86	8	-	0.3	-	-	-	-	-	-	-	-	-	-	0.6	-	1.3	0.6	-	2.8
278	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	-	2.1
321	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
322	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
324	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
339	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
340	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
341	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
342	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
343	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
208	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
163	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
162	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
160	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
161	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.1	-	1.8
97	9	-	-	-	0.1	-	0.1	-	-	-	-	-	0.1	-	-	1.5	-	-	1.7
764	7	-	-	0.4	-	-	-	-	-	-	-	-	-	0.2	0.4	-	0.2	-	1.3
296	9	0.8	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
297	7	0.8	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
249	8	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit based on the 5 high-rate 10-year-old age group consumers is 11.4 kg y⁻¹

The observed 97.5th percentile rate based on 31 observations is 13.2 kg y⁻¹

Table 40. Children's consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

5-year-old age group

Observation number	Age	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
121	5	-	1.1	0.8	0.9	-	0.8	-	-	-	-	-	2.3	0.3	0.3	-	0.8	0.5	7.8
376	3	-	-	1.6	-	-	1.1	-	-	-	-	-	-	0.2	1.3	1.0	1.3	-	6.4
377	3	-	-	1.6	-	-	1.1	-	-	-	-	-	-	0.2	1.3	1.0	1.3	-	6.4
463	5	0.6	0.6	-	-	-	3.5	-	-	-	-	-	0.3	0.6	-	-	-	-	5.7
464	2	0.6	0.6	-	-	-	3.5	-	-	-	-	-	0.3	0.6	-	-	-	-	5.7
64	6	1.9	-	-	-	-	0.4	-	-	-	-	1.0	0.7	0.2	-	0.7	0.4	-	5.4
443	4	-	1.0	-	-	-	2.3	-	-	-	-	-	-	1.5	-	-	-	-	4.8
451	2	-	1.0	-	-	-	2.3	-	-	-	-	-	-	1.5	-	-	-	-	4.8
112	6	0.2	-	1.1	0.2	0.05	-	-	-	-	-	-	0.1	1.1	-	-	1.6	-	4.4
433	6	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	1.0	-	-	2.2
311	5	-	-	-	-	-	-	1.6	-	-	0.1	-	-	-	-	-	0.3	-	2.1
312	3	-	-	-	-	-	-	1.6	-	-	0.1	-	-	-	-	-	0.3	-	2.1
243	5	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	1.5	-	1.8
244	5	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	-	1.5	-	1.8
110	4	0.2	0.1	-	-	-	-	-	-	-	-	0.1	-	-	-	1.3	-	-	1.7
109	6	0.2	0.1	-	-	-	-	-	-	-	-	0.1	-	-	-	1.3	-	-	1.7
213	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	0.5	-	1.6
87	6	-	0.2	-	-	-	-	-	-	-	-	-	-	0.3	-	0.6	0.3	-	1.4
279	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-	1.0
344	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.9
345	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.9
164	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	0.5	-	0.9
102	6	-	-	-	0.04	-	0.04	-	-	-	-	-	0.04	-	-	0.7	-	-	0.9
103	3	-	-	-	0.04	-	0.04	-	-	-	-	-	0.04	-	-	0.7	-	-	0.9
298	2	0.4	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4
299	2	0.4	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4
250	6	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3
251	3	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit based on the 9 high-rate 5-year-old age group consumers is 5.7 kg y⁻¹

The observed 97.5th percentile rate based on 28 observations is 6.9 kg y⁻¹

Table 40. Children's consumption rates of domestic fruit in the Hartlepool area (kg y⁻¹)

1-year-old age group

Observation number	Age	Apple	Black-berry	Black-currant	Blue-berry	Cherry	Goose-berry	Grape	Logan-berry	Melon	Orange	Pear	Plum	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
346	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.9
300	1	0.4	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit based on the 2 high-rate 1-year-old age group consumers is 0.7 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 0.9 kg y⁻¹

Table 41. Children's consumption rates of sheep meat in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Lamb/mutton
753	16	3.8
754	14	3.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of sheep meat based on the 2 high-rate 15-year-old age group consumers is 3.8 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 3.8 kg y⁻¹

Table 42. Children's consumption rates of eggs in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Chicken egg
230	13	15.0
234	12	15.0
207	13	13.3
309	12	11.3
334	16	9.6
335	15	9.6
336	14	9.6
337	13	9.6
338	12	9.6
456	14	5.3

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs based on the 10 high-rate 15-year-old age group consumers is 10.8 kg y⁻¹

The observed 97.5th percentile rate based on 10 observations is 15.0 kg y⁻¹

Table 42. Children's consumption rates of eggs in the Hartlepool area (kg y⁻¹)

10-year-old age group

Observation number	Age	Chicken egg
231	9	15.0
235	8	15.0
208	10	13.3
310	9	11.3
339	11	9.6
340	10	9.6
341	9	9.6
342	8	9.6
343	7	9.6
764	7	6.5
296	9	4.1
297	7	4.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs based on the 10 high-rate 10-year-old age group consumers is 10.9 kg y⁻¹

The observed 97.5th percentile rate based on 12 observations is 15.0 kg y⁻¹

Table 42. Children's consumption rates of eggs in the Hartlepool area (kg y⁻¹)

5-year-old age group

Observation number	Age	Chicken egg
236	4	7.5
377	3	7.1
311	5	5.7
312	3	5.7
344	5	4.8
345	3	4.8
298	2	2.0
299	2	2.0
213	2	1.6

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs based on the 6 high-rate 5-year-old age group consumers is 5.9 kg y⁻¹

The observed 97.5th percentile rate based on 9 observations is 7.4 kg y⁻¹

1-year-old age group

Observation number	Age	Chicken egg
346	1	4.8
300	1	2.0

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs based on the 2 high-rate 1-year-old age group consumers is 3.4 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 4.7 kg y⁻¹

Table 43. Children's consumption rates of wild/free foods in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Blackberry
753	16	0.2
754	14	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wild/free foods based on the 2 high-rate 15-year-old age group consumers is 0.2 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 0.2 kg y⁻¹

Table 44. Children's consumption rates of rabbits/hares in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Hare	Rabbit	Total
754	14	3.2	3.6	6.8

Notes

The emboldened observation is the high-rate consumer

The mean consumption rate of rabbits/hares based on the only high-rate 15-year-old age group consumer is 6.8 kg y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 45. Children's consumption rates of honey in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Honey
207	13	1.1

Notes

The emboldened observation is the high-rate consumer

The mean consumption rate of honey based on the only high-rate 15-year-old age group consumer is 1.1 kg y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

10-year-old age group

Observation number	Age	Honey
208	10	1.1

Notes

The emboldened observation is the high-rate consumer

The mean consumption rate of honey based on the only high-rate 10-year-old age group consumer is 1.1 kg y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 46. Children's consumption rates of wild fungi in the Hartlepool area (kg y⁻¹)

15-year-old age group

Observation number	Age	Mushrooms
753	16	0.4
754	14	0.4

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wild fungi based on the 2 high-rate 15-year-old age group consumers is 0.4 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 0.4 kg y⁻¹

Table 47. Percentage contribution each food type makes to its terrestrial food group for adults

<p>Green vegetables</p> <p><i>Cabbage</i> 38.2 % Brussel sprout 16.7 % Cucumber 12.1 % Cauliflower 11.9 % Broccoli 8.2 % Lettuce 7.0 % Courgettes 2.1 % Calabrese 2.1 % Asparagus 0.5 % Spinach 0.4 % Artichoke 0.3 % Kale 0.2 % Chard 0.2 % Herbs 0.04 % Leaf beet 0.04 %</p>	<p>Potato</p> <p><i>Potato</i> 100.0 %</p>	<p>Wild/free foods</p> <p><i>Blackberry</i> 72.7 % Elderberry 20.5 % Sloe 6.8 %</p>
	<p>Domestic fruit</p> <p>Rhubarb 23.3 % Strawberry 20.5 % Gooseberry 12.4 % Blackcurrant 9.9 % Raspberry 6.6 % <i>Apple</i> 5.8 % Blackberry 4.9 % Grapes 4.4 % Plum 3.5 % Redcurrants 3.0 % Melon 1.8 % Pear 1.5 % Blueberry 1.0 % Tayberry 0.5 % Loganberry 0.5 % Fig 0.2 % Cherry 0.2 % Orange 0.2 %</p>	<p>Rabbits/hares</p> <p>Rabbit 62.8 % Hare 37.2 %</p>
		<p>Honey</p> <p><i>Honey</i> 100.0 %</p>
<p>Other vegetables</p> <p>Tomato 37.6 % <i>Runner bean</i> 20.1 % Pea 14.8 % Broad bean 13.7 % French bean 7.3 % Pepper 2.5 % Sweetcorn 1.3 % Aubergine 1.2 % Mangetout 0.8 % Chilli pepper 0.4 % Pumpkin 0.2 % Squash 0.1 %</p>	<p>Cattle meat</p> <p>Beef 100.0 %</p>	<p>Wild fungi</p> <p>Mushrooms 100.0 %</p>
	<p>Sheep meat</p> <p>Lamb 100.0 %</p>	
<p>Root vegetables</p> <p>Onion 33.6 % <i>Beetroot</i> 15.1 % Leek 13.9 % Swede 10.9 % Carrot 7.0 % Turnip 6.5 % Parsnip 5.0 % Shallot 2.4 % Spring onion 1.8 % Garlic 1.3 % Celery 1.2 % Radish 1.0 % Fennel 0.2 % Kohl rabi 0.1 % Celeriac 0.02 %</p>	<p>Poultry</p> <p>Chicken 47.5 % Pheasant 23.7 % Goose 23.2 % Partridge 3.2 % Pigeon 2.4 %</p>	
	<p>Eggs</p> <p>Chicken egg 91.3 % Duck egg 8.7 %</p>	

Notes

Food types in emboldened italics were monitored by FSA in 2007 (EA, EHS, FSA and SEPA, 2008).

Milk and wheat were also monitored by FSA in 2007 although no consumption of these was identified within the 5 km area during the survey

Percentages are based on the consumption of all adults in the survey consuming that particular food group.

Table 48. Occupancy rates for adults in the Hartlepool direct radiation survey area (h y⁻¹)

Observation Number	Sex	Age (years)	Indoor occupancy	Outdoor occupancy	Total occupancy
0 to 0.25 km zone					
572	F	40	1057	588	1645
573	F	54	1057	588	1645
578	M	55	540	212	752
574	F	U	390	-	390
579	M	U	-	118	118
755	M	65	-	42	42
756	M	36	-	42	42
757	M	78	-	42	42
>0.25 to 0.5 km zone					
575	M	57	460	1748	2208
592	M	U	1426	414	1840
593	M	U	1426	414	1840
594	M	U	1426	414	1840
595	M	U	1656	184	1840
596	M	U	1656	184	1840
597	M	U	1656	184	1840
598	M	U	1656	184	1840
599	M	U	1656	184	1840
600	M	U	1656	184	1840
601	M	U	1656	184	1840
602	M	U	1656	184	1840
603	M	U	1656	184	1840
604	M	U	1656	184	1840
605	M	U	1656	184	1840
606	M	U	1656	184	1840
607	M	U	1656	184	1840
608	M	U	1656	184	1840
609	M	U	1656	184	1840
610	M	U	1656	184	1840
611	M	U	1656	184	1840
612	M	U	1656	184	1840
613	M	U	1656	184	1840
614	M	U	1656	184	1840
615	M	U	1656	184	1840
616	M	U	1656	184	1840
617	M	U	1656	184	1840
580	F	26	1840	-	1840
581	F	26	1840	-	1840
582	F	26	1840	-	1840
583	F	34	1840	-	1840
584	F	59	1840	-	1840
585	F	31	1840	-	1840
586	F	38	1840	-	1840
587	F	47	1840	-	1840
588	F	48	1840	-	1840
589	F	39	1840	-	1840
590	F	23	1840	-	1840
591	F	30	1840	-	1840
618	M	U	1840	-	1840
619	M	U	1840	-	1840
620	M	U	1840	-	1840

Table 48. Occupancy rates for adults in the Hartlepool direct radiation survey area (h y⁻¹)

Observation Number	Sex	Age (years)	Indoor occupancy	Outdoor occupancy	Total occupancy
621	M	U	1840	-	1840
622	M	U	1840	-	1840
623	M	U	1840	-	1840
624	M	U	1840	-	1840
625	M	U	1840	-	1840
626	M	U	1840	-	1840
627	M	U	1840	-	1840
628	M	U	1840	-	1840
629	M	U	1840	-	1840
630	M	U	1840	-	1840
631	M	U	1840	-	1840
632	M	U	1840	-	1840
633	M	U	1840	-	1840
634	M	U	1840	-	1840
635	M	U	1840	-	1840
636	M	U	1840	-	1840
637	M	U	1840	-	1840
638	M	U	1840	-	1840
639	M	U	1840	-	1840
640	M	U	1840	-	1840
641	M	U	1840	-	1840
642	M	U	1840	-	1840
643	M	U	1840	-	1840
644	M	U	1840	-	1840
645	M	U	1840	-	1840
646	M	U	1840	-	1840
647	M	U	1840	-	1840
648	M	U	1840	-	1840
649	M	U	1840	-	1840
650	F	31	1840	-	1840
651	F	29	1840	-	1840
>0.5 to 1 km zone					
511	F	66	6982	434	7416
512	M	55	6982	434	7416
495	M	U	3334	50	3384
496	M	U	3334	50	3384
497	M	U	3334	50	3384
498	M	U	3334	50	3384
499	M	U	3334	50	3384
500	M	U	3334	50	3384
501	M	U	3334	50	3384
502	M	U	3334	50	3384
513	M	74	2295	-	2295
514	M	32	2295	-	2295
534	M	U	1058	1058	2115
515	M	U	1904	212	2115
525	M	U	2115	-	2115
526	M	U	2115	-	2115
527	M	U	2115	-	2115
528	M	U	2115	-	2115
529	M	U	2115	-	2115
530	M	U	2115	-	2115

Table 48. Occupancy rates for adults in the Hartlepool direct radiation survey area (h y⁻¹)

Observation Number	Sex	Age (years)	Indoor occupancy	Outdoor occupancy	Total occupancy
531	M	U	2115	-	2115
532	M	U	2115	-	2115
533	M	U	2115	-	2115
516	F	U	-	1880	1880
517	F	U	-	1880	1880
509	M	U	1504	376	1880
510	M	U	1504	376	1880
518	M	U	1692	188	1880
519	M	U	1692	188	1880
503	F	U	1830	50	1880
504	U	U	1880	-	1880
505	U	U	1880	-	1880
506	U	U	1880	-	1880
507	U	U	1880	-	1880
508	U	U	1880	-	1880
520	F	49	1880	-	1880
521	F	27	1880	-	1880
522	F	34	1880	-	1880
523	F	47	1880	-	1880
524	F	36	1880	-	1880
535	U	U	564	-	564
481	F	51	-	365	365
577	M	60	-	208	208
758	M	U	-	150	150
576	M	U	-	5	5
482	F	U	-	3	3

Notes

U = Unknown

Table 49. Analysis of occupancy rates in the Hartlepool direct radiation survey area

0 to 0.25 km zone	
Number of hours	Number of observations
8000 to 8760	0
7000 to 8000	0
6000 to 7000	0
5000 to 6000	0
4000 to 5000	0
3000 to 4000	0
2000 to 3000	0
1000 to 2000	2
0 to 1000	6
0 to 8760	8

>0.25 to 0.5 km zone	
Number of hours	Number of observations
8000 to 8760	0
7000 to 8000	0
6000 to 7000	0
5000 to 6000	0
4000 to 5000	0
3000 to 4000	0
2000 to 3000	1
1000 to 2000	72
0 to 1000	0
0 to 8760	73

>0.5 to 1 km zone	
Number of hours	Number of observations
8000 to 8760	0
7000 to 8000	2
6000 to 7000	0
5000 to 6000	0
4000 to 5000	0
3000 to 4000	8
2000 to 3000	13
1000 to 2000	17
0 to 1000	6
0 to 8760	46

Table 50. Gamma dose rate measurements for the Hartlepool direct radiation survey ($\mu\text{Gy h}^{-1}$)

Location	Outdoor substrate	Gamma dose rate at 1 metre ^a	Indoor substrate	Gamma dose rate at 1 metre ^a
Organisation 1	Grass	0.071	Unknown	NM
Organisation 2	Grass	0.076	Unknown	NM
Business 1	Grass	0.063	Concrete	0.055
Business 2	Grass	0.059	Unknown	NM
Business 3	Concrete	0.083	Unknown	NM
Business 4	Grass	0.102	Unknown	NM
Business 5	Grass	0.087	Concrete	0.081
Business 6	Rough grass	0.085	Concrete	0.084
Business 7 (with attached residence)	Concrete	0.084	Concrete	0.097

	Location	NGR	Substrate	Gamma dose rate at 1 metre
Background 1	Near the Tees Barrage	NZ 464 190	Grass	0.080
Background 2	Cliff top car park north west of Marske-by-the-Sea	NZ 633 231	Rough grass	0.064
Background 3	Beside A179, near Throston Grange	NZ 494 346	Rough grass	0.079
Background 4	East of Elwick Village	NZ 461 328	Rough grass	0.080
Background 5	Near picnic site on A689 crossing of Castle Eden walkway	NZ 406 284	Rough grass	0.079

Notes

NM = Not measured

^a These measurements have not been adjusted for natural background dose rates.

Table 51. Combinations of adult pathways for consideration in dose assessments in the Hartlepool area

Combination number	Fish	Crustaceans	Molluscs	Wildfowl	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Cattle meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Intertidal occupancy over Mud	Intertidal occupancy over Mud and sand	Intertidal occupancy over Mud and stones	Intertidal occupancy over Mud, sand and stones	Intertidal occupancy over Rock	Intertidal occupancy over Sand	Intertidal occupancy over Sand and coal	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the licensed site boundary	Outdoor occupancy within 1 km of the licensed site boundary		
1	*	*				*	*	*	*	*			*		*									*									
2	*	*				*	*	*	*	*				*	*										*								
3	*					*	*	*	*	*					*															*			
4						*	*	*	*	*	*	*	*	*	*																		
5	*	*				*	*	*	*	*				*	*	*	*	*	*														
6	*	*	*			*	*	*	*	*				*	*																		
7																															*	*	
8	*																			*			*		*			*					
9																													*	*			
10	*	*																		*			*		*		*	*	*	*	*		
11		*																		*		*				*	*	*	*	*	*		
12	*	*																		*		*		*		*	*	*	*	*	*		
13			*																				*		*		*	*	*	*	*		
14	*	*	*	*																			*		*	*	*	*	*	*	*	*	
15	*	*	*																				*		*	*	*	*	*	*	*	*	
16			*																				*		*	*	*	*	*	*	*	*	
17	*																						*		*	*	*	*	*	*	*	*	
18	*	*	*	*	*																												
19																				*		*		*	*	*	*	*	*	*	*	*	
20	*	*	*																	*		*		*	*	*	*	*	*	*	*	*	
21	*																			*		*		*	*	*	*	*	*	*	*	*	
22											*				*	*			*					*	*	*	*	*	*	*	*	*	
23			*																				*	*	*	*	*	*	*	*	*	*	

Notes

The food groups and external exposure pathways marked with an asterisk are combined for the corresponding combination number. For example, combination number 1 represents an individual (or individuals) from Annex 1 who had positive data in the following pathways; fish, crustaceans, green vegetables, other vegetables, root vegetables, potato, domestic fruit, poultry, wild/free foods, wild fungi, intertidal occupancy over sand and handling sediment.

Annex 1. Adults' consumption rates (kg y⁻¹) and occupancy rates (h y⁻¹) in the Hartlepool area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Wildfowl	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Cattle meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Intertidal occupancy over mud	Intertidal occupancy over mud and sand	Intertidal occupancy over mud and stones	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and coal	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the licensed site boundary	Outdoor occupancy within 1 km of the licensed site boundary	
584	F	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1840	-	
585	F	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1840	-
586	F	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1840	-
587	F	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1840	-
588	F	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1840	-
589	F	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1840	-
590	F	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1840	-
591	F	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1840	-
592	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1426	414
593	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1426	414
594	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1426	414
595	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1656	184
596	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1656	184
597	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1656	184
598	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1656	184
599	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1656	184
600	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1656	184
601	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1656	184
602	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1656	184
603	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1656	184

Annex 1. Adults' consumption rates (kg y⁻¹) and occupancy rates (h y⁻¹) in the Hartlepool area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Wildfowl	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Cattle meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Intertidal occupancy over mud	Intertidal occupancy over mud and sand	Intertidal occupancy over mud and stones	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and coal	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the licensed site boundary	Outdoor occupancy within 1 km of the licensed site boundary	
688	F	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	104	-	-	-	-	-	-	-	-	
689	M	60	17.7	0.8	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	30	-	312	-	-	
690	M	40	6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	-	-	-	24	-	-	-		
691	M	44	7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	74	-	2	24	-	-	-	-	
692	F	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	
693	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	936	-	-	-	-	-	-	-	-	
694	M	38	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1925	-	-	1925	-	-	-	
695	F	47	29.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
696	M	63	30.0	18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1008	-	-	1512	-	-	
697	F	65	30.0	18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
698	M	91	30.0	18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
699	M	75	30.0	18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
700	F	46	30.0	18.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
702	M	45	23.9	6.8	7.9	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	900	6	-	900	-	-	
703	F	40	23.9	6.8	7.9	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
704	M	19	23.9	6.8	7.9	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
705	M	44	20.2	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	-	-	900	-	-	
706	M	55	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
707	M	56	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
708	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1248	-	1248	-	-	-	-	-

Annex 1. Adults' consumption rates (kg y⁻¹) and occupancy rates (h y⁻¹) in the Hartlepool area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Wildfowl	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Cattle meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Intertidal occupancy over mud	Intertidal occupancy over mud and sand	Intertidal occupancy over mud and stones	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and coal	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the licensed site boundary	Outdoor occupancy within 1 km of the licensed site boundary			
709	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	624	-	624	-	-	-	-	-			
710	M	65	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	8	-	-	-	-	-		
711	M	27	15.3	28.6	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	616	546	-	-	40	-	-	-	-	-		
712	F	26	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	546	546	-	-	-	-	-	-	-	-		
713	M	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	-	-	-	-		
714	M	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	525	-	-	-	-	-		
715	F	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	
716	M	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175	-	175	-	-	-	-	-	-	-
717	M	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
718	M	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78	-	-	-	-	-	-	-	-	-	
720	M	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
722	F	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	365	-	-	-	-	-	-	-	-	-	
723	M	28	9.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	-	-	6	-	-	-	32	-	-	-	-	-	-	
724	F	26	9.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	
727	M	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	80	-	-	-	-	-	-	-	-	-	
728	F	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	80	-	-	-	-	-	-	-	-	-	
731	M	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	
732	F	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	
736	M	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	218	-	-	-	50	-	-	-	-	-	
737	F	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	218	-	-	-	50	-	-	-	-	-	

Annex 1. Adults' consumption rates (kg y⁻¹) and occupancy rates (h y⁻¹) in the Hartlepool area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Wildfowl	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Cattle meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Intertidal occupancy over mud	Intertidal occupancy over mud and sand	Intertidal occupancy over mud and stones	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and coal	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the licensed site boundary	Outdoor occupancy within 1 km of the licensed site boundary	
809	M	57	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
810	M	39	-	14.3	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	60	-	-	-	-	-	-	-	-
811	F	39	-	14.3	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
812	M	59	6.6	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
813	F	57	6.6	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
821	M	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-	
822	M	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-	
830	F	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-	
831	F	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-	
832	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-	
833	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-	

Notes

Emboldened observations are the high-rate individuals

U = Unknown

Annex 2. Children's consumption rates (kg y⁻¹) and occupancy rates (h y⁻¹) in the Hartlepool area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Sheep meat	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and coal	Handling sediment	Occupancy in water	Occupancy on water
164	F	4	-	-	-	5.9	7.1	5.2	5.9	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-
213	M	2	-	-	-	5.3	4.7	2.8	4.8	1.6	-	1.6	-	-	-	-	-	-	-	-	-	-	-
236	M	4	-	-	-	9.5	5.1	11.0	6.9	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-
243	M	5	0.8	-	-	4.5	2.2	3.5	9.6	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-
244	F	5	0.8	-	-	4.5	2.2	3.5	9.6	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-
250	M	6	-	-	-	3.3	3.9	5.0	5.5	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
251	F	3	-	-	-	3.3	3.9	5.0	5.5	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-
279	M	3	-	-	-	5.3	-	8.2	5.6	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
298	F	2	-	-	-	2.8	3.4	6.7	2.8	0.4	-	2.0	-	-	-	-	-	-	-	-	-	-	-
299	F	2	-	-	-	2.8	3.4	6.7	2.8	0.4	-	2.0	-	-	-	-	-	-	-	-	-	-	-
311	F	5	-	-	-	5.8	5.8	10.5	4.5	2.1	-	5.7	-	-	-	-	-	-	-	-	-	-	-
312	M	3	-	-	-	5.8	5.8	10.5	4.5	2.1	-	5.7	-	-	-	-	-	-	-	-	-	-	-
344	U	5	-	-	-	3.2	2.5	2.0	3.2	0.9	-	4.8	-	-	-	-	-	-	-	-	-	-	-
345	U	3	-	-	-	3.2	2.5	2.0	3.2	0.9	-	4.8	-	-	-	-	-	-	-	-	-	-	-
356	M	3	-	-	-	3.9	3.6	8.2	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
376	F	3	-	-	-	10.5	7.2	7.8	10.1	6.4	-	-	-	-	-	-	-	-	-	-	-	-	-
377	M	3	-	-	-	10.5	7.2	7.8	10.1	6.4	-	7.1	-	-	-	-	-	-	-	-	-	-	-
433	M	6	-	-	-	3.9	3.4	5.5	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-
443	F	4	-	-	-	9.0	4.9	6.4	10.1	4.8	-	-	-	-	-	-	-	-	-	-	-	-	-
451	M	2	-	-	-	4.9	4.9	4.8	10.1	4.8	-	-	-	-	-	-	-	-	-	-	-	-	-
463	F	5	-	-	-	0.4	5.2	0.9	3.2	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-
464	M	2	-	-	-	0.4	5.2	0.9	3.2	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-
562	M	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78	-	-	-	-	-

Annex 2. Children's consumption rates (kg y⁻¹) and occupancy rates (h y⁻¹) in the Hartlepool area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Sheep meat	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and coal	Handling sediment	Occupancy in water	Occupancy on water
665	U	6	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
733	M	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	-
734	M	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	-
735	F	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	-
788	F	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	40	52	-	-
1-year-old age group																							
300	F	1	-	-	-	2.8	3.4	4.6	2.8	0.4	-	2.0	-	-	-	-	-	-	-	-	-	-	-
346	U	1	-	-	-	3.2	1.9	1.7	3.2	0.9	-	4.8	-	-	-	-	-	-	-	-	-	-	-

Notes

U=Unknown

Emboldened observations are the high-rate individuals

Annex 3. Qualitative and estimated data for use in dose assessment

Details of activity	Exposure pathways involved	Estimated rate
Commercial collection of peeler crabs	Intertidal occupancy over mud and sand	455 h y ⁻¹

Annex 4. Ratios for determining consumption and occupancy rates for children

Group	Ratio child/adult ^a	
	1-year-old	10-year-old
Fish ^b	0.050	0.200
Crustaceans ^b	0.050	0.250
Molluscs ^b	0.050	0.250
Green vegetables	0.222	0.444
Other vegetables	0.200	0.500
Root vegetables	0.375	0.500
Potatoes	0.292	0.708
Domestic fruit	0.467	0.667
Milk	1.333	1.000
Cattle meat	0.222	0.667
Pig meat	0.138	0.625
Sheep meat	0.120	0.400
Poultry	0.183	0.500
Eggs	0.600	0.800
Wild/free foods ^c	0.110	0.490
Game ^d	0.140	0.500
Honey	0.789	0.789
Wild fungi	0.150	0.450
Freshwater fish ^b	0.050	0.250
Direct radiation	1.000	1.000
External exposure	0.030	0.500
Plume	1.000	1.000

Notes

^aThe age groups suggested for assessment in this table are those relating to dose coefficients representing 1 to 2 year olds (labelled 1-year-old) and 7 to 12 year olds (labelled 10-year-old). Excepting notes b and c, consumption ratios were derived from Byrom et al., (1995) for 1-year-old (6 to 12 months) and 10-year-old children (10 to 11 years)

^bRatios were derived from Smith and Jones, (2003) which presented data for infants and children.

^cRatios were derived from FSA data for wild fruit and nuts for infants and 10-yr-old children.

^dGame includes rabbits/hares and venison.

Annex 5. Summary of adults' profiled consumption data (kg y⁻¹) and occupancy data (h y⁻¹) in the Hartlepool area

Profile Name	Number of individuals	Pathway Name																						
		Crustaceans	Direct ^a	Eggs	Fish	Fruit - Domestic	Fruit and nuts - Wild	Gamma ext - Sediment ^b	Honey	Marine plants/algae	Meat - Cow	Meat - Game ^c	Meat - Poultry	Meat - Sheep	Molluscs	Mushrooms	Occupancy IN water	Occupancy ON water	Plume (IN; 0-0.25km) ^d	Plume (MID; >0.25-0.5km) ^d	Plume (OUT; >0.5-1km) ^d	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes
		kg	-	kg	kg	kg	kg	h	kg	kg	kg	kg	kg	kg	kg	h	h	h	h	h	kg	kg	kg	kg
Crustacean consumers	14	19.3	-	-	25.5	-	-	90	-	-	-	-	-	0.2	-	-	210	-	-	-	-	-	-	-
Occupants for direct radiation	127	-	1	-	-	-	-	20	-	-	-	-	-	-	-	-	-	40	1060	810	-	-	-	-
Egg consumers	29	0.2	-	16.5	0.6	3	0.3	-	1	-	1.6	0.1	0.6	1.2	-	-	-	-	-	-	16.2	9	16.8	18.2
Fish consumers	25	9.6	-	-	27.9	0.3	0.2	40	-	-	-	-	-	1	-	-	240	-	-	-	2.9	1.9	2.6	2.3
Domestic fruit consumers	46	-	-	1.8	0.2	15	0.1	10	-	-	-	-	-	-	-	-	-	-	-	-	21.8	16.2	31.5	21.1
Wild fruit and nut consumers	8	1	-	11	9.7	5.9	3.1	20	-	-	-	-	0.1	-	0.2	0.1	-	-	-	-	21.3	13.9	26.9	30.6
Occupants for exposure - sediment	14	2.9	0.2	-	5	-	-	860	-	-	-	-	-	-	0.3	-	-	240	160	-	-	-	-	-
Honey consumers	3	0.8	-	17.8	3.9	1.2	0.8	-	10.1	-	-	0.9	-	-	-	-	-	-	-	-	5.2	1.5	7.6	9.1
Marine plants/algae consumers	1	2.3	-	-	4.5	-	-	-	-	0.2	-	6.3	-	-	1.3	-	-	-	-	-	-	-	-	-
Cattle meat consumers	5	-	-	12.9	-	2.6	-	-	-	-	9.5	-	3.7	6.8	-	0.3	-	-	-	-	16.4	16.4	19.9	11.1
Game meat consumers	3	0.8	-	-	3	-	0.1	-	-	0.1	-	7.6	-	1.3	0.4	0.1	-	-	-	-	-	-	-	-
Poultry meat consumers	5	-	-	12.9	-	2.6	-	-	-	-	9.5	-	3.7	6.8	-	0.3	-	-	-	-	16.4	16.4	19.9	11.1
Sheep meat consumers	9	-	-	7.2	-	1.5	0.1	-	-	-	5.3	1.1	2.1	5.4	-	0.3	-	-	-	-	9.1	9.1	11	6.2
Mollusc consumers	7	2.9	-	-	14.8	-	-	140	-	-	-	0.1	-	-	5.8	-	180	-	-	-	-	-	-	-
Mushroom consumers	6	0.6	-	3	7.8	4.3	0.9	20	-	-	-	-	0.1	-	-	0.8	-	-	-	-	27.2	17.5	23.8	25.1
Occupancy IN water	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	680	-	-	-	-	-	-	-
Occupancy ON water	14	1.7	-	-	4.1	-	-	30	-	-	-	-	-	0.2	-	-	1900	-	-	-	-	-	-	-
Occupants for plume pathways (inner area)	3	-	1	-	-	-	-	400	-	-	-	-	-	-	-	-	-	1350	-	-	-	-	-	-
Occupants for plume pathways (mid area)	73	-	1	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	1850	-	-	-	-	-
Occupants for plume pathways (outer area)	10	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4190	-	-	-	-
Green vegetable consumers	132	0.1	-	2.6	0.7	5.4	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	25.9	14.8	18.3	20.4
Other domestic vegetable consumers	185	0.1	-	1.5	0.5	4.2	0.1	-	-	-	0.3	-	0.1	0.2	-	-	-	-	-	-	19.1	17.6	16.9	17.2
Potato consumers	49	0.1	-	2	1.6	11	0.2	10	-	-	-	-	-	-	-	-	-	-	-	-	25.6	16.4	39.4	23
Root vegetable consumers	232	0.1	-	3.2	0.6	3.7	0.1	-	0.1	-	-	-	-	-	-	-	-	-	-	-	18.2	12.6	15.6	21.5

Notes

^aDirect radiation is expressed as a proportion of the group who are present within 1km of the site

^bGamma ext - sediment includes occupancy over mud; mud and sand; mud and stones; mud, sand and stones; sand; and sand and coal

^cGame meat includes rabbits/hares and wildfowl

^dPlume times are the sums of individuals' indoor and outdoor times

The means of the high-rate groups are determined by the 'cut-off' method and are highlighted on the diagonal

Annex 6. Female consumption rates (kg y⁻¹) and occupancy rates (h y⁻¹) in the Hartlepool area, for use in foetal dose assessments

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Wildfowl	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Sheep meat	Eggs	Wild/free foods	Honey	Wild fungi	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and coal	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the licensed site boundary	Outdoor occupancy within 1 km of the licensed site boundary
383	F	15	-	-	-	-	20.9	16.0	23.5	30.3	12.9	-	-	-	-	-	-	-	-	-	-	-	-	-
828	F	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-
478	F	16	-	-	-	-	15.8	12.8	10.6	4.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-
753	F	16	-	-	-	-	-	-	-	-	-	3.8	-	0.2	-	0.4	-	-	-	-	-	-	-	-
785	F	16	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
829	F	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-
449	F	17	-	-	-	-	18.0	9.8	12.8	20.2	9.6	-	-	-	-	-	-	-	-	-	-	-	-	-
455	F	17	-	-	-	-	12.2	9.0	19.0	22.8	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-
784	F	17	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
830	F	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-
126	F	18	-	-	-	-	7.4	4.3	9.9	19.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
268	F	18	-	-	-	-	6.6	-	26.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
371	F	18	-	-	-	-	10.8	11.2	9.8	0.8	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-
430	F	18	-	-	-	-	11.8	7.2	12.4	20.0	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-
831	F	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-
76	F	19	-	-	-	-	19.7	16.1	22.7	11.4	3.3	-	3.3	-	-	-	-	-	-	-	-	-	-	-
737	F	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	218	-	-	50	-	-	-
752	F	19	-	-	-	-	-	-	-	-	-	3.8	-	0.2	-	0.4	-	-	-	-	-	-	-	-
131	F	21	-	-	-	-	41.1	7.3	24.3	13.3	9.1	-	-	-	-	-	-	-	-	-	-	-	-	-
292	F	21	-	-	-	-	8.2	6.7	15.4	5.6	0.9	-	4.1	-	-	-	-	-	-	-	-	-	-	-
370	F	21	-	-	-	-	10.8	11.2	9.8	0.8	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-
715	F	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-

Annex 6. Female consumption rates (kg y⁻¹) and occupancy rates (h y⁻¹) in the Hartlepool area, for use in foetal dose assessments

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Wildfowl	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Sheep meat	Eggs	Wild/free foods	Honey	Wild fungi	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and coal	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the licensed site boundary	Outdoor occupancy within 1 km of the licensed site boundary
516	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1880
517	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1880
564	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	260	-	-	-	-	-	-
574	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390	-
667	F	U	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
675	F	U	15.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
680	F	U	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
768	F	U	-	-	-	-	18.4	23.5	16.0	13.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
769	F	U	-	-	-	-	18.4	23.5	16.0	13.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
771	F	U	-	-	-	-	18.4	23.5	16.0	13.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
772	F	U	-	-	-	-	18.4	23.5	16.0	13.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
773	F	U	-	-	-	-	18.4	23.5	16.0	13.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
775	F	U	-	-	-	-	18.4	23.5	16.0	13.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
801	F	U	2.5	1.7	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
803	F	U	2.5	1.7	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
805	F	U	2.5	2.5	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
833	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	900	-	-

Notes

U=Unknown

About us

Cefas is a multi-disciplinary scientific research and consultancy centre providing a comprehensive range of services in fisheries management, environmental monitoring and assessment, and aquaculture to a large number of clients worldwide.

We have more than 500 staff based in 2 laboratories, our own ocean-going research vessel, and over 100 years of fisheries experience.

We have a long and successful track record in delivering high-quality services to clients in a confidential and impartial manner.
(www.cefas.co.uk)

Cefas Technology Limited (CTL) is a wholly owned subsidiary of Cefas specialising in the application of Cefas technology to specific customer needs in a cost-effective and focussed manner.

CTL systems and services are developed by teams that are experienced in fisheries, environmental management and aquaculture, and in working closely with clients to ensure that their needs are fully met.
(www.cefastechnology.co.uk)

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Customer focus

With our unique facilities and our breadth of expertise in environmental and fisheries management, we can rapidly put together a multi-disciplinary team of experienced specialists, fully supported by our comprehensive in-house resources.

Our existing customers are drawn from a broad spectrum with wide ranging interests. Clients include:

- international and UK government departments
- the European Commission
- the World Bank
- Food and Agriculture Organisation of the United Nations (FAO)
- oil, water, chemical, pharmaceutical, agro-chemical, aggregate and marine industries
- non-governmental and environmental organisations
- regulators and enforcement agencies
- local authorities and other public bodies

We also work successfully in partnership with other organisations, operate in international consortia and have several joint ventures commercialising our intellectual property.