

Cefas contract report C2848

# Radiological Habits Survey: Hinkley Point, 2010

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Final report

# Radiological Habits Survey: Hinkley Point, 2010

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Peer reviewed by G.J. Hunt

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2011

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## SUMMARY

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This report presents the results of a survey conducted in 2010 to determine the habits and consumption patterns of people living, working and pursuing recreational activities in the vicinity of the Hinkley Point nuclear site. There are two separate nuclear power stations at Hinkley Point, the A station (currently being decommissioned) and the B station, and for the purpose of this survey they were considered together as one site. The site discharges gaseous radioactive wastes via stacks to the atmosphere, liquid radioactive wastes into the Bristol Channel and contains sources of direct radiation. Areas likely to be most affected by the discharges and sources of radiation were defined as the aquatic survey area for liquid discharges, the terrestrial survey area for gaseous discharges, and the direct radiation survey area for ionising radiation emanating directly from the site and exposure to gases discharged from the site to the atmosphere.

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 use of seaweed as a fertiliser or animal feed
- The consumption of food from the terrestrial survey area
- The use and destination of produce originating from the survey areas
- The consumption and use of groundwater and surface water in the terrestrial survey area
- The transfer of contamination off-site by wildlife
- Activities and occupancy within the direct radiation survey area
- Any new or unusual exposure pathways

Interviews were conducted with members of the public and data collected for 363 individuals are presented and discussed. High rates of consumption, intertidal occupancy and handling are identified using established methods comprising (a) a 'cut off' to define the high-rate group and (b) 97.5<sup>th</sup> percentiles. The rates so identified 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 was defined as the intertidal areas along the Somerset coast between Brean Down and Blue Anchor, and the adjacent area of sea up to 9 km offshore. The tidal estuary of the River Parrett as far upstream as Bridgwater and the tidal estuary of the River Brue as far upstream as the New Clyce Bridge were also included. Foods from the aquatic survey area were consumed from the following food groups: fish; crustaceans; molluscs; wildfowl; marine plants/algae; salt marsh grazed sheep meat. The predominant species consumed by the high-rate group for fish were bass, grey mullet, Dover sole, thornback ray, European eel and cod. The only crustacean species

consumed by the high-rate group was brown shrimps and the only mollusc species consumed by the high-rate group was whelks. The predominant species of wildfowl consumed by the high-rate group were mallard, pintail and wigeon. The predominant species of marine plants/algae consumed by the high-rate group were samphire, *Porphyra umbilicalis* and sea beet. The mean consumption rate for the adult high-rate group for fish was 14 kg y<sup>-1</sup>, for crustaceans was 13 kg y<sup>-1</sup>, for molluscs was 0.8 kg y<sup>-1</sup>, for wildfowl was 11 kg y<sup>-1</sup>, for marine plants/algae was 0.7 kg y<sup>-1</sup> and for salt marsh grazed sheep meat was 5.7 kg y<sup>-1</sup>. The mean consumption rate for the adult high-rate group exceeded the generic 97.5<sup>th</sup> percentile rate for crustaceans but not for fish or molluscs. Generic consumption rates have not been determined for wildfowl, marine plants/algae or salt marsh grazed sheep meat. Thirteen people were identified that consumed produce grown on land where seaweed had been used as a fertiliser. The activities undertaken by adults in the high-rate groups for intertidal occupancy included: attending nets; search and rescue duties; angling; bait digging; beachcombing; dog walking; bird watching; collecting samphire, seaweed and whelks; tending livestock; operating a small business; horse riding; beach warden duties; playing; walking; undertaking boat maintenance. Gamma dose rate measurements were taken at most locations in the aquatic survey area where activities were occurring. The only activity in the adult high-rate group for handling fishing gear was handling nets. The activities undertaken by the adults in the high-rate group for handling sediment were fixing moorings, bait digging and wildfowling. People were undertaking the following water-based activities: swimming; living on a houseboat; boat angling; sailing; canoeing; dredging; boat maintenance; search and rescue duties. The use of seaweed as animal feed was not identified.

The terrestrial survey area was defined as the land, watercourses and lakes within 5 km of the centre of the Hinkley Point site. Twenty-two farms were identified that produced beef, lamb, milk, pork, chicken eggs, chickens and arable crops. Farmers and their families consumed produce from their farms. One allotment site with 12 plots was identified where the allotment holders grew a variety of fruit and vegetables. One allotment holder kept chickens for eggs on the site. Numerous residents in the survey area grew fruit and vegetables in their gardens and five residents were noted to keep chickens for eggs. Two beekeepers were identified who kept hives within the survey area and honey was being consumed. Angling took place on a freshwater lake stocked with rainbow trout and it was reported that trout were being consumed. Foods from the terrestrial survey area were consumed from the following food groups: green vegetables; other vegetables; root vegetables; potato; domestic fruit; milk; cattle meat; pig meat; sheep meat; poultry; eggs; wild/free foods; rabbits/hares; honey; wild fungi; venison. No mean consumption rates for the high-rate groups were found to be greater than the generic 97.5<sup>th</sup> percentile consumption rates. Ten mean consumption rates for the high-rate groups exceeded the generic mean consumption rates. These were for green vegetables, other vegetables, root vegetables, potato, domestic fruit, milk, cattle meat, pig meat, sheep meat and eggs. The consumption of cereals was not identified and although the consumption of freshwater fish was reported, no quantitative data could be obtained. The consumption of borehole water by humans and livestock was identified and livestock also had access to stream and ditch water. Control measures taken by the Hinkley Point site in order to limit the possibility that contamination is transferred off-site

by wildlife included periodically culling rabbits and occasionally using a falconer to scare pigeons and seagulls.

The direct radiation survey area was defined as the land and sea within 1.1 km of the Hinkley Point nuclear licensed site boundary. The direct radiation survey area was sparsely populated, and, therefore, the area was extended to include residences bordering the 1 km area usually used in habits surveys. Occupancy rates were obtained for residents, farmers, anglers, a bird watcher and a beachcomber. The Hinkley Point nature trail was located within the nuclear licensed site area and occupancy rates were obtained for one person undertaking nature conservation activities in this area. The occupancy rates were analysed in zones according to the distance from the nuclear licensed site boundary. The highest outdoor, indoor and total occupancy rates were for residents in the >0.5 – 1.1 km zone. Gamma dose rate measurements were taken indoors and outdoors at all properties where interviews were conducted in the direct radiation survey area. Background readings were taken at distances beyond 5 km of the Hinkley Point site centre.

Comparisons were made with the results from a previous habits survey undertaken around the Hinkley Point site in 2006. Reasons for significant changes in the consumption, occupancy and handling rates were identified for certain pathways and these are provided in Section 8 of this report.

In the aquatic survey area in 2010, compared with 2006, there were increases in the mean consumption rates for the adult high-rate groups for crustaceans from 12 kg y<sup>-1</sup> to 13 kg y<sup>-1</sup> and for wildfowl from 6.4 kg y<sup>-1</sup> to 11 kg y<sup>-1</sup>. In 2010 there were decreases in the mean consumption rates for the adult high-rate group for fish from 40 kg y<sup>-1</sup> to 14 kg y<sup>-1</sup>, for molluscs from 1.9 kg y<sup>-1</sup> to 0.8 kg y<sup>-1</sup>, for marine plants/algae from 2.0 kg y<sup>-1</sup> to 0.7 kg y<sup>-1</sup> and for salt marsh grazed sheep meat from 20 kg y<sup>-1</sup> to 5.7 kg y<sup>-1</sup>. The mean intertidal occupancy rates for the adult high-rate groups increased in 2010 compared to 2006 over the following substrates: mud, sand and stones, from 130 h y<sup>-1</sup> to 360 h y<sup>-1</sup>; rock, from 74 h y<sup>-1</sup> to 330 h y<sup>-1</sup>; sand, from 540 h y<sup>-1</sup> to 690 h y<sup>-1</sup>; stones from nil to 240 h y<sup>-1</sup>. There were decreases in 2010 compared to 2006 over the following substrates: mud, from 1300 h y<sup>-1</sup> to 1000 h y<sup>-1</sup>; mud and sand, from 1200 h y<sup>-1</sup> to 110 h y<sup>-1</sup>; salt marsh, from 380 h y<sup>-1</sup> to 300 h y<sup>-1</sup>; sand and stones from 670 h y<sup>-1</sup> to 110 h y<sup>-1</sup>. Occupancy on a boat which was resting on mud decreased from 3700 h y<sup>-1</sup> in 2006 to 370 h y<sup>-1</sup> in 2010. The mean handling rates for the adult high-rate groups for fishing gear decreased from 1400 h y<sup>-1</sup> in 2006 to 990 h y<sup>-1</sup> in 2010 and for sediment decreased from 780 h y<sup>-1</sup> in 2006 to 73 h y<sup>-1</sup> in 2010.

In the terrestrial survey area in 2010, compared with 2006, there were relatively large increases in the mean consumption rates for the adult high-rate groups for the following food groups: milk, from 140 l y<sup>-1</sup> to 220 l y<sup>-1</sup>; sheep meat, from 8.1 kg y<sup>-1</sup> to 15 kg y<sup>-1</sup>; rabbits/hares, from 1.4 kg y<sup>-1</sup> to 2.2 kg y<sup>-1</sup>; venison, from 10 kg y<sup>-1</sup> to 15 kg y<sup>-1</sup>. There were relatively large decreases in the mean consumption rates for the adult high-rate groups for the following food groups: green vegetables, from 45 kg y<sup>-1</sup> to 23 kg y<sup>-1</sup>; other vegetables, from 67 kg y<sup>-1</sup> to 25 kg y<sup>-1</sup>; root vegetables, from 34 kg y<sup>-1</sup> to

26 kg y<sup>-1</sup>; honey, from 3.8 kg y<sup>-1</sup> to 1.9 kg y<sup>-1</sup>; freshwater fish from 1.2 kg y<sup>-1</sup> to nil. There were small increases in the mean consumption rates for the adult high-rate groups for potato, cattle meat and eggs and small decreases for domestic fruit, pig meat, poultry, wild/free foods and wild fungi. The consumption of cereals was not identified in either survey.

In 2010, one person, who was not an employee of the Hinkley Point site, was identified spending time within the nuclear licensed site boundary with a total occupancy rate of 230 h y<sup>-1</sup>, but in 2006, no occupancy data were obtained for this area. In the direct radiation survey area in 2010 compared with 2006, there was a significant decrease in the highest total occupancy rate in the 0 - 0.25 km zone from 1500 h y<sup>-1</sup> to 240 h y<sup>-1</sup>. No one was identified spending time in the >0.25 - 0.5 km zone in 2006 and two people were identified spending time in this zone in 2010, with the highest total occupancy rate being 63 h y<sup>-1</sup>. There was a decrease in the highest total occupancy rate in the >0.5 – 1.1 km zone in 2010 compared with the highest occupancy rate in the >0.5 – 1.0 km zone in 2006, from 8400 h y<sup>-1</sup> to 8000 h y<sup>-1</sup>. One gamma dose rate measurement taken at the same residence in 2010 and 2006 was compared. At the time of the 2010 survey, much of the land in the western half of the direct radiation survey area, which included farmland and two residences, had been nominated for development for a new nuclear power station.

Suggestions are provided for changes to the current environmental monitoring programmes on the basis of the information collected during the survey. These include: replacing the sample of limpets with a sample of whelks, replacing a sample of lettuce with a sample of cabbage, and adding a sample of beef.

## 1 INTRODUCTION

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The public may be exposed to radiation as a result of the operations of the Hinkley Point nuclear licensed site either through the permitted discharges of liquid or gaseous radioactive wastes into the local environment, or from radiation emanating directly from the site. This report provides information on activities carried out locally by members of the public, 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 notional 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 acceptable 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). The recommendations of the ICRP were updated in 2007 (ICRP, 2007) and, for the public, still include the principle of protecting the individuals most highly exposed to radiation, characterised by the representative person.

### 1.1 Regulatory framework

The Environment Agency regulates the discharges of waste under the Environmental Permitting Regulations (UK Parliament, 2010); prior to 6 April 2010 regulation was under the Radioactive Substances Act 1993 (RSA 93) (UK Parliament, 1993) as amended by the Environment Act 1995 (EA 95) (UK Parliament, 1995). The regulations take account of the European Union (EU) Basic Safety Standards (BSS) Directive 96/29/Euratom (CEC, 1996) which embody the recommendations of the ICRP, particularly ICRP 60 (ICRP, 1991). 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 (NII) of the Health and Safety Executive (subsumed within the Office for Nuclear Regulation (ONR) from 1 April 2011) implements this legislation and is also responsible for regulating, under the Ionising Radiations Regulations (IRR 99) (UK Parliament, 1999), the exposure of the public to direct radiation from the operations occurring on these sites.

Appropriate discharge limits are set by the Environment Agency after wide-ranging consultations that include the Food Standards Agency. The Food Standards Agency has responsibilities for ensuring that any radioactivity present in food does not compromise food safety and that permitted 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 acceptable limits.

### 1.2 Radiological protection framework

Dose standards for the public are embodied in the national policy (UK Parliament, 2009), 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 (CEC, 1996). The public dose standards were incorporated into UK law in IRR 99. In order to implement the BSS Directive in England and Wales, the Environment Agency was issued with a direction by the Department of the Environment, Transport and the Regions in 2000 (DETR, 2000). The requirement to observe the conditions laid down in the Basic Safety Standards (BSS) in England and Wales is now incorporated in the Environmental Permitting Regulations 2010 (UK Parliament, 2010). These require that the environment agencies ensure, wherever applicable, that:

- All public radiation exposures from radioactive waste disposals are kept As Low As Reasonably Achievable (ALARA), social and economic factors being taken into account;
- The sum of all exposures does not exceed the dose limit of 1 mSv a year;
- The dose received from any new source does not exceed 0.3 mSv a year;
- The dose received from any single site does not exceed 0.5 mSv a year.

The dose limit of 1 mSv per year to the public from all anthropogenic sources other than medical applications is also the recommendation made by the ICRP (ICRP, 2007).

The environment agencies are 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. They are 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 the National Dose Assessment Working Group (NDAWG), which consists of representatives of UK Government Bodies and other organisations with responsibilities for dose assessments (EA, SEPA, DoENI, NRPB and FSA, 2002). 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 the 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, NIEA, FSA and SEPA,

2010), as combined habits surveys are completed. NDAWG has also published reports on the collection and use of habits survey data in retrospective and prospective dose assessments (NDAWG, 2005; NDAWG 2009); the principles described in these reports are consistent with those used here.

## 2 THE SURVEY

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### 2.1 Site activity

The Hinkley Point nuclear site is located on the Somerset coast, approximately 12 km north-west of the town of Bridgwater (see Figure 1). There are two separate nuclear power stations, Hinkley Point A and Hinkley Point B, and for the purpose of this survey the two power stations are considered together as a single site. Hinkley Point A has two Magnox reactors and Hinkley Point B has two Advanced Gas Cooled reactors. Hinkley Point A started electricity generation in 1965 and ceased in 2000. This station completed defuelling in 2004 and is undergoing decommissioning. It is estimated that Hinkley Point B will cease power generation by 2016.

The A station is owned by the Nuclear Decommissioning Authority. At the time of the habits survey fieldwork, Magnox South Ltd was the management and operations contractor responsible for decommissioning under contract to the NDA. The B station is owned and operated by EDF Energy. Magnox South Ltd is licensed to operate the A station and British Energy Ltd is licensed to operate the B station under NIA 65, which allows the installation and operation of certain activities. Under the Environmental Permitting Regulations the companies are permitted to discharge gaseous radioactive wastes via stacks to the atmosphere and liquid radioactive wastes via an outfall into the Bristol Channel. Details of the amounts of gaseous and liquid radioactive waste discharged are published in the RIFE reports, for example, EA, FSA, NIEA and SEPA, 2010. At the time of the habits survey, routine decommissioning operations were being undertaken at Hinkley Point A and the reactors at Hinkley Point B were operating normally.

Hinkley Point has been proposed as a site for a new nuclear power station. The habits survey objectives did not include investigations relating to the new build. However, the proposed area for the new build would affect some of the activities that were identified during the survey. Approximately 180 hectares of land adjacent to the existing nuclear site have been nominated for new nuclear building activities ([www.hinkleypoint.edfenergyconsultation.info/](http://www.hinkleypoint.edfenergyconsultation.info/)), which would cover much of the land on the western half of the direct radiation survey area used in this habits survey.

### 2.2 Survey objectives

The Centre for Environment, Fisheries & Aquaculture Science (Cefas) undertook the Hinkley Point habits survey in 2010 on behalf of the Environment Agency, the Food Standards Agency, and the Health and Safety Executive. The aim of the survey was to obtain comprehensive information on the habits of the public that might lead to their exposure to radiation via gaseous discharges, liquid discharges and direct radiation from the Hinkley Point nuclear site.

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 use of seaweed as a fertiliser or animal feed
- The consumption of food from the terrestrial survey area
- The use and destination of produce originating from the survey areas
- The consumption and use of groundwater and surface water in the terrestrial survey area
- The transfer of contamination off-site by wildlife
- Activities and occupancy within the direct radiation survey area
- 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.

### **2.3 Survey areas**

The geographic extent of potential effects from liquid discharges, from deposition from gaseous releases, and from direct radiation are different. Therefore, different survey areas were defined to cover each of these three main possible sources of exposure. These were an aquatic area relating to liquid discharges, a terrestrial area relating to deposition from 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 intertidal areas along the Somerset coast between Brean Down and Blue Anchor, and the adjacent sea area up to 9 km offshore. This area covers approximately twice the mean tidal excursion as derived from Admiralty data close to Hinkley Point, and was taken to represent the predominant area of mixing of discharged radionuclides in seawater. The tidal estuary of the River Parrett as far upstream as Bridgwater and the tidal estuary of the River Brue as far upstream as the New Clyce Bridge were also included.

The terrestrial survey area, shown in Figure 2, covered all land within 5 km of the site centre (National Grid Reference: ST 211 460), to encompass the main areas of potential deposition from gaseous discharges. Watercourses and lakes within the survey area, which potentially contained contamination from the washout of gaseous discharges, are included in the terrestrial section of this report.

The same aquatic and terrestrial survey areas were used in the previous habits survey conducted by Cefas around the Hinkley Point site, which was in 2006 (Clyne *et al.*, 2007).

The direct radiation survey area, which is also shown in Figure 2, was defined as all land and sea within 1.1 km of the nuclear licensed site boundary. Usually the direct radiation survey area used in habits surveys extends to 1 km from the site boundary, but as this area was very sparsely populated, the distance was increased to 1.1 km in order to raise the number of residences included in the survey. In the 2006 survey, the direct radiation survey area was the standard 1 km from the site boundary. The occupancy data collected from the direct radiation survey area is also applicable to inhalation and external exposure pathways arising from gaseous releases from the site.

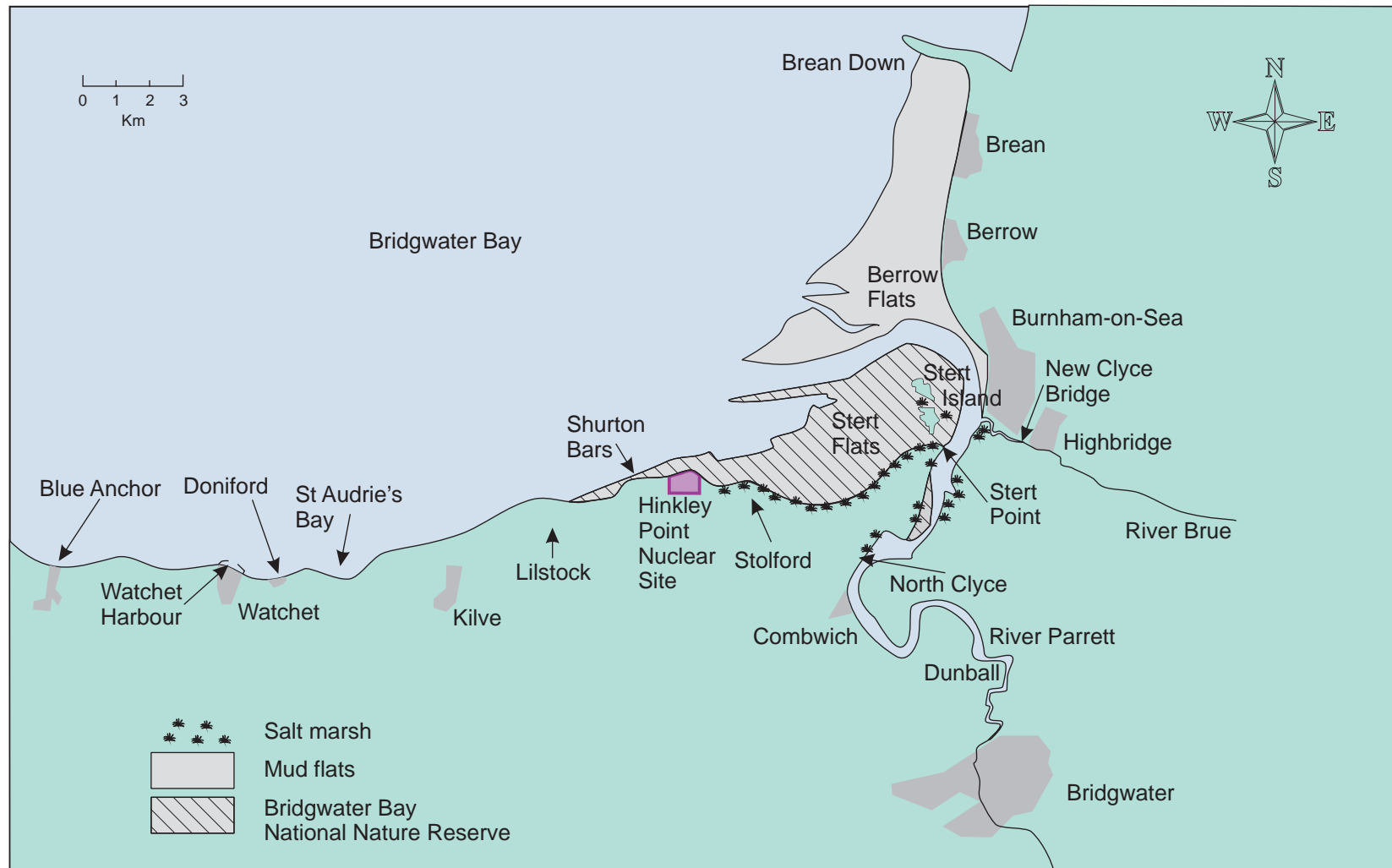


Figure 1. The Hinkley Point aquatic survey area



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

- The Hinkley Point site centre
- Stogursey Allotments

## 2.4 Conduct of the survey

As part of the pre-survey preparation, the Environment Agency, the Food Standards Agency and the Health and Safety Executive were contacted to identify any additional site-specific requirements. Information relating to the activities of people in the aquatic and terrestrial survey areas was obtained from Internet searches, Ordnance Survey maps and from previous habits surveys undertaken around the Hinkley Point site. People with local knowledge of the survey area were contacted for information relevant to the various exposure pathways. These included representatives from parish councils who provided information on allotment sites and the Marine Management Organisation who provided information on commercial fishing.

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

The fieldwork was carried out from 14<sup>th</sup> to the 24<sup>th</sup> September 2010 by a survey team of four people, according to techniques described by Leonard *et al.* (1982). During the fieldwork a meeting was held between the members of the survey team and representatives from the Hinkley Point A and B sites. This discussion provided details about current site activities, local information, potential exposure pathways and activities in the area, and the potential for transfer of contamination off-site by wildlife.

The following information was obtained during the meeting:

- Routine decommissioning operations were being undertaken at Hinkley Point A at the time of the survey.
- At Hinkley Point B, the reactors were operating normally at the time of the survey. The power output had been reduced since the last habits survey, which was undertaken in 2006.
- Information about potential exposure pathways and activities in the area included anglers and bird watchers spending time on the shore at Hinkley Point, walkers spending time on the coastal path in front of the site and visitors spending time at the nature trail located within the Hinkley Point nuclear licensed site boundary.
- Control measures taken by the Hinkley Point site against wildlife found on site included periodically culling rabbits that were found in the outer area of the site and occasionally using a falconer to scare pigeons and seagulls. No regular monitoring of wildlife for radioactivity was carried out by the site.
- Land to the west of the current Hinkley Point site had been bought up in preparation for the proposed new Hinkley Point C nuclear power station.

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, fishermen, anglers, sailors, people carrying out activities on intertidal areas, farmers, gardeners, beekeepers and people living, working and undertaking recreational activities close to the site. Interviews were used to

establish individuals' consumption, occupancy and handling rates relevant to the aquatic, terrestrial and direct radiation survey areas. Any other information of possible use to the survey was also obtained. Gamma dose rate measurements were taken over intertidal substrates in the aquatic area, and indoors and outdoors at all properties in the direct radiation survey area where interviews were conducted. Background gamma dose rates were taken at a distance beyond 5 km from the site centre.

For practical and resource reasons, the survey did not involve the whole population in the vicinity of the Hinkley Point site, 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 have been people not interviewed during 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 (where it was possible to make such an estimate) 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. 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 because it is difficult to quantify visitors from outside the area or occasional visitors during the year. Based on UK Office of National Statistics residential data for electoral wards ([www.statistics.gov.uk](http://www.statistics.gov.uk)) there were approximately 1900 people living in the terrestrial survey area, although information was obtained for a significantly smaller number than this. It should be noted that the survey did not include employees or contractors at the Hinkley Point nuclear site while they were at work. This is because dose criteria applicable to these people whilst at work and the dose assessment methods are different from those for members of the public. However, data were collected for these people's habits outside work if they 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 or produced 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 groups such as the search and rescue crew it was not possible to collect data for all pathways (for example consumption of local foods) for each person. In these cases, the data were limited to those relating to the primary reason for the interview, for example, in the case of the search and rescue crew, the occupancy rates for the crew members within the aquatic survey area. In Annexes 1 and 2, these individuals only have data for the pathways of primary interest.

### 3 METHODS FOR DATA ANALYSIS

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#### 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 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.

The results of the individuals' consumption, occupancy and handling rates collected during the survey were grouped and presented in tables with the high-rate group members indicated in bold and with the calculated mean rates for the high-rate group and 97.5<sup>th</sup> percentile rates. The consumption rates, occupancy rates and handling rates for all groups are presented in Annexes 1 and 2 for adults and children respectively with the high-rate group members indicated in bold.

Where quantifiable data cannot be obtained from interviews but pathways are believed to exist, it is sometimes necessary to provide quantitative or estimated habits data for use in dose assessments. In this series of habits survey reports, such data is usually presented in Annex 3. It was not necessary to estimate data for the Hinkley Point survey, but Annex 3 is included in this report to maintain consistency of presentation through the series of reports.

#### 3.2 Data conversion

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 ( $\text{kg y}^{-1}$  for food and  $\text{l y}^{-1}$  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.

#### 3.3 Rounding and grouping of data

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 presented to one decimal place. Occasionally, this rounding process causes the computed values (row totals, mean rates and 97.5<sup>th</sup> percentiles), which are based on un-rounded data, to appear slightly erroneous. Consumption rates less than 0.05 kg y<sup>-1</sup> are presented to two decimal places in order to avoid the value of 0.0 kg y<sup>-1</sup>. External exposure data are quoted as integer numbers of hours per year.

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.

Data were 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 International Commission on Radiological Protection (ICRP) has changed its recommendations for the age groupings to be used in radiological assessments. These recommendations have been adopted in this report and consequently the age ranges used differ from those used in previous habits survey reports produced by Cefas. The new age ranges and the names used for the age groups, based on the recommendations in ICRP 101 (ICRP, 2007), are listed below, together with those used in previous reports, for comparison.

<b>Age ranges adopted in this report</b>		<b>Age ranges used in previous reports</b>	
<b>Name of age group</b>	<b>Age range in group</b>	<b>Name of age group</b>	<b>Age range in group</b>
• 1-year-old	0 to 5-year-old	• 3-month-old	Under 1-year
• 10-year-old	6-year-old to 15-year-old	• 1-year-old	1-year-old
• Adult	16-year-old and over	• 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

Since there are fewer age groups for children in the new regime, there should, in general, be more observations in each group, resulting in greater robustness in the data. However, current and future data for children will not be directly comparable with historic child data, since the age ranges in the age groups will be different.

For direct radiation pathways, the data were grouped into distance zones from the nuclear licensed site boundary as a coarse indication of the potential dose rate distribution due to this source of

exposure. The bands used in this report were: 0 – 0.25 km, >0.25 – 0.5 km and >0.5 – 1.1 km. These distance bands are also useful when assessing exposure to gaseous discharges.

### 3.4 Approaches for the identification of high rates

The habits data have been analysed to provide high rates of consumption, occupancy and handling, which can be used in radiological assessments. 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 pathway 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 and all observations above this were included in the high-rate group.

Secondly, the 97.5<sup>th</sup> percentile rate was calculated for each group by using the *Microsoft Excel* mathematical function for calculating percentiles. The use of percentiles accords with precedents used in risk assessments of the safety of food consumption. It should be noted that the interviewees in this study are often selected and, therefore, the calculated percentiles are not based on random data.

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 97.5<sup>th</sup> percentile consumption rates for adults based on national statistics have been derived by the Ministry of Agriculture, Fisheries and Food (MAFF) (now a part of the Department for Environment, Food and Rural Affairs, 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.

The mean rates for the high-rate groups for children for consumption, intertidal occupancy and handling pathways, have been calculated. However, in cases where few child observations were identified, an alternative approach that may be used for assessments is to estimate the mean rates for the high-rate groups for children by applying scaling ratios to the mean rates for the high-rate groups

for adults. Ratios for this purpose for the consumption and intertidal occupancy pathways, based on generic 97.5<sup>th</sup> percentile rates, are provided in Annex 4. The age ranges within the age groups in Annex 4 do not correspond exactly with the age ranges within the age groups used throughout the rest of this report, but these ratios are the best available data for estimating child rates from adult rates. Adult to child ratios are not available for handling pathways.

For use in assessments of foetal dose, consumption and occupancy rates are provided in Annex 5 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](http://www.statistics.gov.uk)).

For the direct radiation pathway, mean occupancy rates and 97.5<sup>th</sup> 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.

### **3.5 Data quality**

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 radiological consultant.
- 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.

## 4 AQUATIC RADIATION PATHWAYS

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### 4.1 Aquatic survey area

The aquatic survey area (shown in Figure 1) covered the intertidal areas along the Somerset coast between Brean Down and Blue Anchor, and the adjacent sea area up to 9 km offshore. The tidal estuary of the River Parrett as far upstream as Bridgwater and the tidal estuary of the River Brue as far upstream as the New Clyce Bridge were also included.

The intertidal area between Brean Down and Burnham-on-Sea was sand on the upper shore and mud and sand on the lower shore. Between Burnham-on-Sea and Doniford the shore was predominantly mud and sand with areas of stones and rocky reefs. The beach at Blue Anchor was predominantly sand with a mud and sand lower shore. The area has a large tidal range, resulting in fast running water and large areas of mud and sand exposed at low tide. Activities were restricted at some locations due to the strong tides and the soft mud and sand. The Bridgwater Bay National Nature Reserve (NNR), managed by English Nature, covers the intertidal area from Burnham-on-Sea to Lilstock, including the lower reaches of the River Parrett.

#### ***Brean Down, Brean and Berrow***

At the northernmost part of the aquatic survey area, Brean Down is a rocky headland with steep cliffs that extend 2 km offshore. One angler was identified fishing from the rocks at the base of the cliffs and families were observed playing on the sandy beach near the headland (see Figure 3). From Brean Down the continuous sandy beach extends south for approximately 11 km, encompassing the areas of Brean, Berrow and Burnham-on-Sea. The beaches at Brean and Berrow were firm sand on the mid to upper shore and at low tide there was an area of soft mud and sand called Berrow Flats which extends several kilometres offshore. A coastal road runs parallel with the shore from Brean to Berrow and this was lined with holiday camps and caravan sites. The beaches at Brean and Berrow were easily accessed and were popular with tourists and locals who were angling, bait digging, dog walking, playing, horse riding and swimming. Several people operated small businesses on the beach such as pony rides and a mobile café. Beach wardens patrolled the beaches between May and September.



**Figure 3. Brean Down**

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### ***Burnham-on-Sea***

South of Berrow is Burnham-on-Sea, a popular seaside town with good road access and parking. The beach was sandy on the upper shore and mud and sand on the mid to lower shore (see Figure 4). The beach was divided into three areas known locally as the north beach, the main beach and the south beach. Activities included bait digging, angling, walking, dog walking and families playing, although dog walking was not permitted on the main beach all year round and was not permitted on the north and south beach in the summer months. Although it was reported that donkey rides and children's entertainment was offered on the main beach during the summer months, this was not observed during the survey. The RNLI, the Coastguard and a hovercraft search and rescue centre were based in the vicinity of a public slipway which people used to launch small boats, dinghies and jet skis.



**Figure 4. Burnham-on-Sea beach**

### ***River Brue and River Parrett***

The River Brue enters Bridgwater Bay to the south of Burnham-on-Sea and is tidal up to the sluices at New Clyce Bridge in Highbridge. The river has a large tidal range and steep, soft mud banks with areas of salt marsh. There was a public footpath along the river bank from Burnham-on-Sea to Highbridge although the footpath was not tide washed. A sailing club had moorings near the mouth of the River Brue and other yachts and angling boats were moored in the river upstream as far as New Clyce Bridge. The sailing club had approximately 120 members, some of whom raced regularly on the River Parrett and between Burnham-on-Sea and Watchet. Just downstream from New Clyce Bridge there was a boat yard which had a private slipway.

The River Brue joins the River Parrett before entering Bridgwater Bay and from this confluence the River Parrett is tidal for approximately 40 km inland. There was a public footpath that ran along the eastern bank of the River Parrett from Burnham-on-Sea to Dunball and a footpath along the western bank of the river from North Clyce to Bridgwater; these paths were not tide washed. Approximately 3 km from the mouth of the River Parrett there were areas of salt marsh on the east and west banks where two wildfowling clubs had the rights to shoot. Small amounts of samphire were collected from the salt marsh and were consumed. Further upriver, a sailing club with approximately 40 members was based at the village of Comwich and the club members' sailboats were moored in an inlet off the River Parrett. The inlet had soft mud banks and the sail boats were resting on mud for a considerable amount of time. One person whose sail boat was moored in the inlet was fixing moorings in the mud and another person spent a significant amount of time undertaking boat maintenance on the boat

while it was resting on mud. Seasonal elver fishing took place from the banks of the River Parrett at places where freshwater flowed into the tidal water and the most popular area was in and around Bridgwater due to the convenient access to the river banks.

### ***Stert and Stolford***

Stert Point is located at the tip of a peninsula on the western bank of the mouth of the River Parrett. Although this was a popular area for bird watchers, there were no bird hides on the intertidal areas. A farmer grazed sheep and lambs on the salt marsh at Stert Point, although the salt marsh was only tide washed on very high tides. To the north and west of Stert Point, a vast expanse of mud and sand flats called Stert Flats was exposed at low tide. The upper shore around Stert Flats was predominantly sand and patches of mud, sand and stones, which was backed by salt marsh. Activities identified in this area included walking, dog walking, bird watching, beachcombing, collecting small amounts of samphire and sea beet for human consumption, and collecting seaweed to use as a soil fertiliser on vegetable gardens.

The shore at Stolford was mud, sand and stones with rocky outcrops and areas of salt marsh (see Figure 5). This area was popular with walkers, dog walkers and anglers. However, many people were walking along the coastal path which was on a raised bank at the top of the beach and was not tide washed. One commercial fisherman operated fixed nets offshore of Stolford on Stert Flats. A small amount of whelks, *Porphyra umbilicalis* and sea lettuce were collected and consumed from the Stolford area. Large amounts of seaweed periodically washed up on the shore at Stolford and several people were noted to be collecting seaweed to use as a fertiliser on their fruit and vegetable gardens. This was reported to be a popular activity at Stolford.



**Figure 5. Stolford beach**

***Hinkley Point, Shurton Bars and Lilstock***

There was public access to the shore at Hinkley Point via a coastal footpath. Large sea defence boulders lined the upper shore at Hinkley Point, which for the most part hindered access to the beach from the path. The beach was predominantly sand and stones with areas of mud and sand, and rocky reefs on the lower shore. The rocks near the power station caisson were popular with anglers, particularly fishing for cod in the winter months. Several anglers and a bird watcher were noted on the shore at the time of the survey.

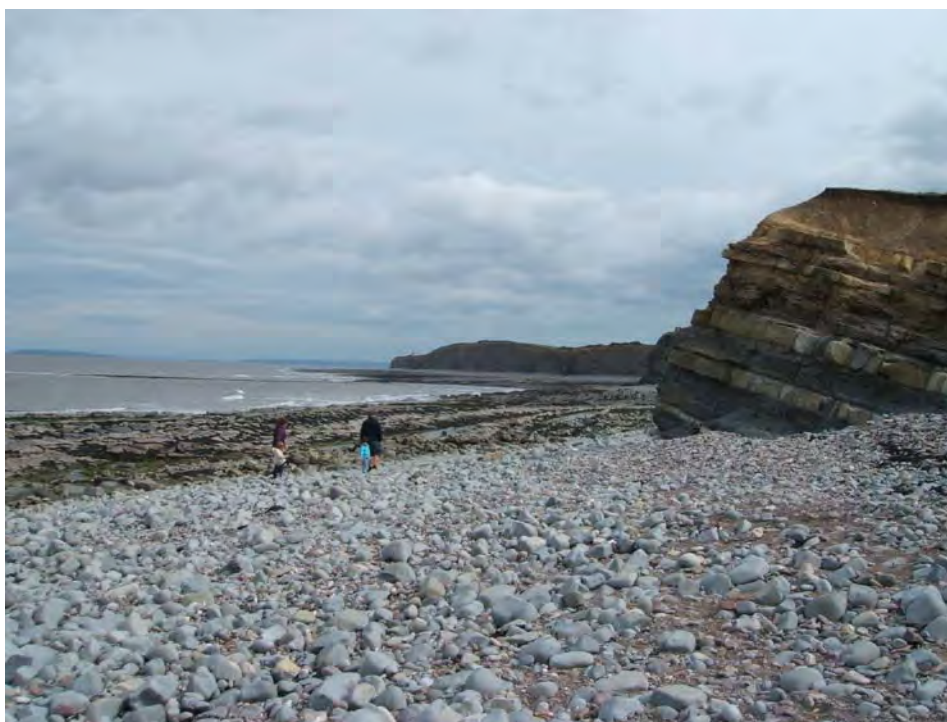
The shore between Hinkley Point and Lilstock was predominantly rocky reefs with areas of mud, sand and stones, backed by cliffs. To the west of Hinkley Point the beach is known locally as Shurton Bars and this was accessed by farm tracks or by the coastal footpath. The beach was particularly popular with locals who were angling and dog walking. Lilstock was predominantly stones on the upper shore and rock, mud and sand on the lower shore. There was road access and a car park approximately 200 meters from the beach and activities included angling, walking and dog walking.

***Kilve, St Audrie's Bay and Doniford***

The shore from Lilstock to Kilve was backed by shale and limestone cliffs and was a well-known location for collecting fossils. There was road access to Kilve and parking not far from the beach. The upper shore was stones and the lower shore was rocky reefs with areas of mud and sand (see Figure 6). The area was popular with fossil collectors and anglers. Walkers and dog walkers were also observed at Kilve but they were using the coastal path along the top of the cliff which was not tide washed.

St Audrie's Bay had a large sandy beach with rocky reefs and cliffs on the east and west sides of the bay. The beach was only accessible through a holiday park, and, therefore, it was predominantly used by people from the holiday park.

The car park at Doniford beach was difficult to find since it was concealed from the road by bushes. There was also a steep descent from the car park to the beach and people who were interviewed at Doniford reported that the beach was not well used for these reasons. The shore was mud, sand and stones with rocky reefs on the lower shore. People using the beach were predominantly locals who were dog walking, playing, rock pooling and swimming.



**Figure 6. Kilve beach**

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### ***Watchet Harbour and Blue Anchor***

Watchet is located to the west of Doniford. The beaches to the east and to the west of Watchet Harbour comprised sand, mud, stones and rock, and no one was observed on the beaches at the time of the survey. The harbour at Watchet has an inner and an outer basin, the latter of which is tidal and dries out at low tide leaving a large area of exposed mud. There is a public slipway in the outer harbour which was used to launch small boats. A marina with approximately 200 berths occupied by angling boats, sail boats and houseboats is located in the inner harbour. A sea gate is used to maintain a permanent water level in this area and the berths were dredged annually to prevent silt from building up in the harbour. The Watchet Coastguard was based at the harbour and operated along the coast between Blue Anchor and Stert. Angling was reported to be popular from the harbour wall but no one was observed during the survey.

To the west of Watchet, the substrate changed at Blue Anchor to predominantly sand with a strip of stones on the upper shore, and mud and sand on the lower shore (see Figure 7). A road runs parallel with the beach and the landward side of the road was lined with caravan parks. Due to the easy access, the beach was popular with dog walkers, walkers, families playing on the beach and two hobby fishermen operated fixed nets on the lower shore.



**Figure 7. Blue Anchor beach**

#### **4.2 Commercial fisheries**

Only one commercial fisherman was identified operating in the survey area, which was on Stert Flats off Stolford. The fisherman was using two types of fixed nets, which were gill nets and an ancient and unique method of fishing using conical shrimp nets on stakes. The catch included brown shrimps, bass, grey mullet, Dover sole, thornback ray, flounder, eel, cod, whiting and sprats. There were six commercial fixed net fishermen operating in the area at the time of the last habits survey in 2006 and the significant decrease in the number of fishermen was attributed to a decline in catches and fishermen retiring from the industry.

Elver fishing took place at several locations on the banks of the River Parrett where freshwater entered the tidal river and it was particularly popular on the banks of the river in and around Bridgwater. The fishermen caught elvers using dip nets with long handles while standing on the muddy river banks. Approximately 100 elver fishing licences were issued in 2010 by the Environment Agency for the River Parrett, which had decreased from 140 licences issued at the time of the last habits survey. The elver fishing season was from mid February to late May depending on the environmental conditions, and since the activity was not taking place at the time of the survey, no interviews were conducted with elver fishermen. No consumption of elvers was identified during the survey.

### 4.3 Aquatic food wholesalers and retailers

The commercial fisherman sold his catch direct to the public from his house at Stolford. No fish wholesalers were identified in the survey area. Elvers were predominantly sold in the UK and exported to Europe and the Far East for restocking rivers and for stocking aquaculture farms. A small amount of elvers were believed to be sold to the Far East for consumption. Salt marsh grazed lamb was sold through Taunton Market and to a national meat company.

### 4.4 Hobby fishing, angling, and shellfish collecting

In this report, the term 'hobby fishing' is used to describe recreational fishing on a small scale with nets. Two hobby fishermen were identified who were operating one set net at Blue Anchor. The catches of grey mullet, bass, turbot, flounder and thornback ray were consumed by the fishermen and their families.

Shore angling was very popular and occurred at many locations within the survey area including Berrow, Brean, Burnham-on-Sea, Hinkley Point, Shurton Bars, Lilstock, Kilve, St Audrie's Bay, Doniford and Blue Anchor. Most of the angling took place over rocky reefs, over stones and over sand. It was reported that people were angling from the harbour wall at Watchet but no one was observed during the survey. Boat angling was also popular in the survey area and many private angling boats were kept at Watchet Harbour or were launched from the slipway at Burnham-on-Sea. Two angling charter boats operated out of the harbour at Watchet.

The most abundant fish species caught by anglers in the winter were cod and whiting and in the summer was bass. Species caught and consumed less frequently included thornback ray, flounder, conger eel and Dover sole.

The only non-commercial shellfish collection identified in the survey area was for whelks. Small amounts of whelks were collected on Stert Flats near Stolford and were consumed.

### 4.5 Wildfowling

Two areas were identified where wildfowling took place in the survey area and both were within the Bridgwater Bay National Nature Reserve (NNR). One area was near the mouth of the River Parrett and the other was between Stolford and Lilstock. Natural England issued approximately 100 permits per year to shoot within the Bridgwater Bay NNR but the shore between Stolford and Lilstock was a 'free shooting zone' and permits were not required. Two wildfowling clubs were identified whose members were permitted to shoot on the salt marsh on the banks of the River Parrett south of Stert Point; one club was permitted to shoot on the east bank and the other club was permitted to shoot on

the west bank. One wildfowler was identified shooting on the shore near Hinkley Point. The species being consumed from the survey area were mallard, teal, wigeon, pintail and golden plover.

#### 4.6 Other pathways

Two people were consuming *Prophyra umbilicus* and one of these people was also consuming sea lettuce with both species identified as being collected from Stolford. The consumption of sea beet was identified, which was collected from stones on the upper shore to the west of Stert Point and samphire was collected and consumed from the banks of the River Parrett and from Stert. No one was identified who used seaweed for animal feed.

Three people collected seaweed, mainly bladder wrack, from Stolford and one person collected seaweed from the shore between Stert Point and Stolford to use as a fertiliser on land where fruit and vegetables were grown. Twelve adults and one child were identified consuming produce that had been grown on land fertilised with seaweed. It was reported that seaweed frequently washed up onto the shore at Stolford and that it was collected by numerous people.

One farmer was identified who grazed sheep and lambs in the aquatic survey area on salt marsh near Stert Point. It should be noted that the salt marsh was only tide washed on very high tides. Lambs were sold nationally through a meat company and two people from the survey area were consuming lamb grazed on the salt marsh. It was reported that another farmer grazed beef cattle and sheep on the intertidal area between Stolford and Stert; however, this was not confirmed.

#### 4.7 Food consumption data

Consumption data for aquatic foods are presented in Tables 3 to 8 for adults and in Tables 9 and 10 for children. The tables include the mean consumption rates for the high-rate groups and the observed 97.5<sup>th</sup> percentile rates calculated as described in Section 3.4. Consumption rates of produce that was grown on land that had been fertilised with seaweed for 12 adults and one child are presented in Table 11.

##### ***Adults' consumption rates***

The people consuming the greatest quantities of food from the aquatic survey area were fishermen, anglers, wildfowlers, and the families of these groups of people.

Table A presents a summary of the adults' consumption rates for the following food groups: fish; crustaceans; molluscs; wildfowl; marine plants/algae; salt marsh grazed sheep meat. The table includes the mean consumption rates for the high-rate groups and the observed 97.5<sup>th</sup> percentile rates. For comparison, the table also includes mean consumption rates and 97.5<sup>th</sup> percentile

consumption rates for fish, crustaceans and molluscs based on national data, which are referred to as 'generic' data in this report. No generic rates have been determined for wildfowl, marine plants/algae and salt marsh grazed sheep meat.

**Table A. Summary of adults' consumption rates of foods from the aquatic survey area**

<b>Food group</b>	<b>Number of observations</b>	<b>Number of high-rate consumers</b>	<b>Observed maximum for the high-rate group (kg y<sup>-1</sup>)</b>	<b>Observed minimum for the high-rate group (kg y<sup>-1</sup>)</b>	<b>Observed mean for the high-rate group(kg y<sup>-1</sup>)</b>	<b>Observed 97.5<sup>th</sup> percentile (kg y<sup>-1</sup>)</b>	<b>Generic mean (kg y<sup>-1</sup>)</b>	<b>Generic 97.5<sup>th</sup> percentile (kg y<sup>-1</sup>)</b>
<b>Fish</b>	47	9	23.3	8.3	14.1	18.7	15.0	40.0
<b>Crustaceans</b>	17	3	20.6	8.8	13.3	16.5	3.5	10.0
<b>Molluscs</b>	2	2	0.8	0.8	0.8	0.8	3.5	10.0
<b>Wildfowl</b>	14	2	16.7	5.6	11.2	13.1	Not determined	Not determined
<b>Marine plants/algae</b>	7	7	0.9	0.5	0.7	0.9	Not determined	Not determined
<b>Salt marsh grazed sheep meat</b>	2	2	5.7	5.7	5.7	5.7	Not determined	Not determined

The predominant species of fish consumed by adults were bass, grey mullet, thornback ray, whiting, Dover sole, European eel and cod, with smaller quantities of flounder, sprat, turbot and conger eel. These fish were caught at Berrow, Brean, Burnham-on-Sea, Stolford, Hinkley Point, Lilstock, Kilve and Blue Anchor. Of the fish consumed by the nine people in the high-rate group, the percentage breakdown of species, rounded to the nearest 5% was 20% bass, 15% grey mullet, 15% Dover sole, 15% thornback ray, 10% European eel, 10% cod and approximately 15% of a mix of flounder, turbot, whiting and sprats.

The only species of crustaceans consumed by adults were brown shrimps, which were caught on Stert Flats off Stolford.

The only species of molluscs consumed by adults was whelks, which were caught on Stert Flats off Stolford.

The species of wildfowl consumed by adults were mallard, pintail, teal, wigeon and golden plover, which were shot on the banks of the River Parrett and near Hinkley Point. Mallards were also shot on farmland. Of the wildfowl consumed by the two people in the high-rate group, the percentage breakdown of species, rounded to the nearest 5% was 40% mallard, 25% pintail, 25% wigeon, 5% golden plover and 5% teal.

The species of marine plants/algae consumed by adults were sea beet, which was collected from the upper shore at Stert and *Porphyra umbilicalis*, sea lettuce and samphire, which were collected from the shore at Stolford. Samphire was also collected from the banks of the River Parrett. Of the marine plants/algae consumed by the seven people in the high-rate group, the percentage breakdown of species, rounded to the nearest 5% was 40% samphire, 30% *Porphyra umbilicalis*, 30% sea beet and 5% sea lettuce.

Two people were identified consuming lamb that had been grazed on salt marsh near Stert Point. It should be noted that the salt marsh was only tide washed on particularly high tides.

### **Children's consumption rates**

Table B presents a summary of children's consumption rates of fish and wildfowl from the aquatic survey area. The table includes the mean consumption rates for the high-rate groups and the observed 97.5<sup>th</sup> percentile rates. For the 10-year-old age group, no consumption of crustaceans, molluscs, marine plants/algae or salt marsh grazed sheep meat was identified. For the 1-year-old age group, no consumption of fish, crustaceans, molluscs, marine plants/algae or salt marsh grazed sheep meat was identified. No generic rates have been determined for the 10-year-old and the 1-year-old age groups.

<b>Table B. Summary of children's consumption rates of foods from the aquatic survey area</b>						
<b>Food group</b>	<b>Number of observations</b>	<b>Number of high-rate consumers</b>	<b>Observed maximum for the high-rate group (kg y<sup>-1</sup>)</b>	<b>Observed minimum for the high-rate group (kg y<sup>-1</sup>)</b>	<b>Observed mean for the high-rate group (kg y<sup>-1</sup>)</b>	<b>Observed 97.5<sup>th</sup> percentile (kg y<sup>-1</sup>)</b>
<b>10-year-old age group (6 – 15 years old)</b>						
<b>Fish</b>	5	3	3.6	2.0	2.5	3.5
<b>Wildfowl</b>	1	1	0.6	0.6	0.6	Not applicable
<b>1-year-old age group (0 – 5 years old)</b>						
<b>Wildfowl</b>	1	1	0.6	0.6	0.6	Not applicable

The species of fish consumed by the 10-year-old age group were bass and cod which were caught at Blue Anchor, Stolford and Burnham-on-Sea.

The species of wildfowl consumed by the 10-year-old and 1-year-old age groups were mallard and teal which were shot on farmland.

### ***Consumption of fruit and vegetables grown on land where seaweed has been used as a fertiliser***

Seaweed collected on the shore in the aquatic survey area was used as a fertiliser. Table 11 presents food consumption rates for the fruit and vegetables identified as being grown in soil fertilised with seaweed. It is included in the aquatic section of this report as this is a potential liquid discharge exposure pathway. Twelve adults and one child were identified consuming foods grown using this method. All except two adults were consuming foods grown in the terrestrial survey area and these consumption rates appear in the terrestrial food group tables and in Annex 1.

### **4.8 Intertidal occupancy**

Intertidal occupancy rates for adults and children are presented in Table 12 and Table 13, respectively. It should be noted that there are often more than one substrate at one named location and that substrates at a given location are liable to change over time. Activities were assigned to the predominant substrate over which they were taking place.

#### ***Adults' intertidal occupancy rates***

Adults were identified undertaking activities over the following eight types of substrate:

- Mud
- Mud and sand
- Mud, sand and stones
- Rock
- Salt marsh
- Sand
- Sand and stones
- Stones

Additionally, one person was spending time on a boat which was resting on mud. Table C presents a summary of the adults' intertidal occupancy rates in the aquatic survey area. The table includes the mean occupancy rates for the high-rate groups and the observed 97.5<sup>th</sup> percentile rates.

<b>Table C. Summary of adults' intertidal occupancy rates</b>					
<b>Intertidal substrate</b>	<b>Number of observations</b>	<b>Number of people in the high-rate group</b>	<b>Maximum of the high-rate group (h y<sup>-1</sup>)</b>	<b>Mean of the high-rate group (h y<sup>-1</sup>)</b>	<b>97.5<sup>th</sup> percentile (h y<sup>-1</sup>)</b>
<b>Mud</b>	25	1	995	995	458
<b>Mud and sand</b>	26	24	216	107	216
<b>Mud, sand and stones</b>	6	5	365	356	365
<b>Rock</b>	8	2	364	326	351
<b>Salt marsh</b>	4	2	420	301	402
<b>Sand</b>	86	16	1231	688	859
<b>Sand and stones</b>	22	8	156	110	156
<b>Stones</b>	22	5	335	243	335
<b>Boat on mud</b>	1	1	365	365	Not applicable

The following activities were undertaken by people in the adult high-rate groups for occupancy over intertidal substrates. For mud, the main activity was attending nets, which occurred on Stert Flats off Stolford and the individual concerned also spent a small amount of time collecting whelks and seaweed. For mud and sand, the activities were attending nets at Blue Anchor, dog walking and bird watching at Stert, and search and rescue duties from Brean Down to Stert Island. For mud, sand and stones, the only activity was dog walking at Stert. For rock, the only activity was angling which took place at Brean Down, Kilve, Shurton Bars and Hinkley Point. For salt marsh, the activities comprised dog walking, bird watching, collecting samphire and tending livestock at Stert. For sand, the activities comprised beach warden duties, horse riding, operating a small business, angling and bait digging at Berrow and Brean, and dog walking at Burnham-on-Sea and Brean. For sand and stones, the activities comprised angling at Hinkley Point, dog walking at Stolford and Stert, bird watching at Stert, and playing and walking at Stolford. For stones, the activities comprised beachcombing at Stert, angling at Lilstock, Kilve and Doniford, and dog walking at Lilstock. The person identified spending time on a boat that was resting on mud was undertaking boat maintenance at Comwich.

#### **Children's intertidal occupancy rates**

Children in the 10-year-old age group were identified undertaking activities over the following four types of intertidal substrate:

- Mud, sand and stones
- Rock
- Sand
- Stones

Children in the 1-year-old age group were identified undertaking activities over the following three types of intertidal substrate:

- Sand
- Sand and stones
- Stones

Table D presents a summary of the children's intertidal occupancy rates in the aquatic survey area. The table includes the mean occupancy rates for the high-rate groups and the observed 97.5<sup>th</sup> percentile rates.

<b>Table D. Summary of children's intertidal occupancy rates</b>					
<b>Intertidal substrate</b>	<b>Number of observations</b>	<b>Number of people in the high-rate group</b>	<b>Maximum of the high-rate group (h y<sup>-1</sup>)</b>	<b>Mean of the high-rate group (h y<sup>-1</sup>)</b>	<b>97.5<sup>th</sup> percentile (h y<sup>-1</sup>)</b>
<b>10-year-old age group (6 – 15 years old)</b>					
<b>Mud, sand and stones</b>	1	1	24	24	Not applicable
<b>Rock</b>	1	1	40	40	Not applicable
<b>Sand</b>	15	7	122	71	105
<b>Stones</b>	8	6	122	64	110
<b>1-year-old age group (0 – 5 years old)</b>					
<b>Sand</b>	8	4	84	54	82
<b>Sand and stones</b>	1	1	96	96	Not applicable
<b>Stones</b>	1	1	216	216	Not applicable

The following activities were undertaken by children in the 10-year-old age group high-rate groups for occupancy over intertidal substrates. For mud, sand and stones, the only activity was rock pooling which occurred at Doniford. For rock, the only activity was angling at Shurton Bars. For sand, the activities comprised angling at St Audrie's Bay, Blue Anchor, Burnham-on-Sea and Stolford, bait digging at Burnham-on-Sea, and playing at Brean and Doniford. For stones, the activities comprised dog walking at Lilstock and angling at Lilstock, Kilve, Doniford and Stolford.

The following activities were undertaken by children in the 1-year-old age group high-rate groups for occupancy over intertidal substrates. For sand, the only activity was playing at Blue Anchor and Brean. For sand and stones, the only activity was playing at Stolford. For stones, the only activity was playing at Lilstock and Stolford.

#### 4.9 Gamma dose rate measurements

Gamma dose rate measurements were taken over three intertidal substrates. All measurements were taken at a height of 1 metre above the substrate. The results are presented in Table 14 and are summarised below.

- One measurement taken over mud was  $0.064 \mu\text{Gy h}^{-1}$
- One measurement taken over mud and sand was  $0.066 \mu\text{Gy h}^{-1}$
- Seven measurements taken over sand ranged from  $0.047 \mu\text{Gy h}^{-1}$  to  $0.063 \mu\text{Gy h}^{-1}$

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 over salt marsh are expected. A value of  $0.06 \mu\text{Gy h}^{-1}$  is expected for all other natural substrate types (EA, FSA, NIEA and SEPA, 2010).

#### 4.10 Handling of fishing gear and sediment

Handling fishing gear that has become entrained with fine sediment particles, or handling sediment while undertaking activities such as bait digging or mollusc collecting, 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).

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

Table 15 presents the adult handling rates of fishing gear and sediment recorded during the survey and Table 16 presents the child handling rates of sediment.

**Adults' handling rates of fishing gear and sediment**

Table E presents a summary of the handling rates of fishing gear and sediment for adults. The table includes the mean handling rates for the high-rate groups and the observed 97.5<sup>th</sup> percentile rates.

Handling activity	Number of observations	Number of people in the high-rate group	Maximum of the high-rate group (h y <sup>-1</sup> )	Mean of the high-rate group (h y <sup>-1</sup> )	97.5 <sup>th</sup> percentile (h y <sup>-1</sup> )
Handling fishing gear	3	1	990	990	950
Handling sediment	11	3	106	73	97

The person in the high-rate group for handling fishing gear was attending nets on Stert Flats off Stolford. The activities undertaken by the people in the high-rate group for handling sediment were fixing moorings at Comwich, wildfowling on the banks of the River Parrett and near Hinkley Point, and bait digging near Shurton Bars, at Burnham-on-Sea and Berrow.

**Children's handling rates of fishing gear and sediment**

Table F presents a summary of the handling rates of sediment for children. The table includes the mean handling rate for the high-rate group. No children were identified handling fishing gear.

Handling activity	Number of observations	Number of people in the high-rate group	Maximum of the high-rate group (h y <sup>-1</sup> )	Mean of the high-rate group (h y <sup>-1</sup> )	97.5 <sup>th</sup> percentile (h y <sup>-1</sup> )
<b>10-year-old age group (6 – 15 years old)</b>					
Handling sediment	1	1	12	12	Not applicable

The only child identified handling sediment was in the 10-year-old age group and was bait digging at Burnham-on-Sea. No children were identified handling fishing gear during the survey.

**4.11 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, relevant data have been collected for consideration in dose assessments. Mean occupancy rates for the high-rate groups and 97.5<sup>th</sup> percentile rates have not been calculated.

Activities where there is a high likelihood of the individual's face submerging under water have been classified as activities 'in water', as they are more likely to lead to ingestion of water. All other activities have been classified as activities 'on water'.

Occupancy rates for activities taking place 'in water' and 'on water' in the survey area for adults and children in the 10-year-old age group are presented in Table 17 and Table 18, respectively. Data for members of a children's activity group and for a search and rescue crew were gained through interviews with representatives of the groups. No children in the 1-year-old age group were identified spending time in the water or on the water.

#### ***Activities in the water***

The only activity identified taking place in the water during the survey was swimming. One adult observation was recorded for a person who was swimming for 70 h y<sup>-1</sup> at Brean and two child observations were recorded for children in the 10-year-old age group who were swimming for 6 h y<sup>-1</sup> at Doniford.

#### ***Activities on the water***

Activities taking place on the water included living on a houseboat, boat maintenance, sailing, dredging, angling, canoeing, and search and rescue duties. Forty-six observations were recorded for adults and 34 observations were recorded for children in the 10-year-old age group. The highest occupancy rate for adults was 7300 h y<sup>-1</sup> for two people who were living on a houseboat in Watchet Harbour. The highest occupancy rate for children in the 10-year-old age group was 240 h y<sup>-1</sup> for 34 children who were sailing and canoeing.

### 5 TERRESTRIAL RADIATION PATHWAYS

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#### 5.1 Terrestrial survey area

The terrestrial survey area (shown in Figure 2) covered all land, watercourses and lakes within 5 km of the Hinkley Point site centre (National Grid Reference: ST 211 460).

The land around the Hinkley Point site was predominantly agricultural. Within the survey area, the village of Stolford is located to the east of the site, the villages of Stockland Bristol, Otterhampton and Coultings are located to the south-east and the villages of Stogursey, Burton, Shurton and Knighton are located to the south-west.

Twenty-two working farms were identified in the Hinkley Point terrestrial survey area. Of these:

- One produced milk
- Three produced milk and arable crops
- Four produced milk, beef and arable crops
- One produced milk, beef, pork and arable crops
- Two produced beef
- Two produced beef and arable crops
- Two produced beef, lamb and arable crops,
- One produced beef, chicken eggs and arable crops
- One produced pork and arable crops
- One produced lamb
- Two produced broiler chickens (kept in sheds)
- Two produced arable crops

Beef cattle and lambs were sold through livestock auction markets near Bridgwater and beef cattle, lambs and pigs were sold to abattoirs. Small amounts of beef were also sold directly to the public from one farm. Milk was mainly sold to a national dairy and a small amount of milk was sold to a creamery located just outside the survey area for the production of cheese and cream. Chickens were sent for processing and were distributed nationally to supermarkets. Chicken eggs were sold directly to the public from one farm. The arable crops produced in the survey area comprised wheat, maize, barley, silage, field beans, oil seed rape and linseed. Wheat, maize, barley and silage were used mainly as livestock feed on the farms on which they were produced. Grain, oil seed rape, linseed and field beans were sold to a merchant located within the survey area and were sold on for animal feed.

Farmers and their families were consuming, milk, beef, lamb, pork and eggs produced on their own farms. One farmer kept pigs and several farmers kept chickens for eggs solely for their own and their family's consumption.

One allotment site with 12 plots was identified in Stogursey. The allotment holders grew a wide variety of fruit and vegetables and one person kept chickens for eggs on their plot. Twelve residents in the area were identified who grew a range of fruit and vegetables in their gardens, five of which kept chickens for eggs for the household's consumption. One gardener used well water to irrigate their vegetable garden and several of the gardeners collected seaweed from the aquatic survey area to use as a soil fertiliser.

Two beekeepers were identified in the survey area; one beekeeper had four hives located near Wick and one had 10 hives located near Coultings. The honey produced per hive ranged from 5 kg y<sup>-1</sup> to 36 kg y<sup>-1</sup>. The latter was produced by hives used for commercial honey production. Honey was sold to a health food shop outside the survey area, sold directly from the door, consumed by the beekeepers and their families and given to friends. It was reported that two other beekeepers had hives on farmland in the survey area but they could not be contacted.

Mushrooms, blackberries, crab apples, elderberries, hazel nuts and sloes were growing wild in the survey area and these were collected and consumed. Rough shooting took place on many of the farms within the survey area and the shooters and their families and friends consumed the shot partridge, pheasants, pigeons, rabbits and venison. Private game shoots took place on three farms in the survey area.

There was one freshwater trout fishery in the survey area, located to the south-west of the site. The trout lake was stocked every 6 – 8 weeks with rainbow trout, which could be caught and taken. It was estimated that 30 – 40 rainbow trout per week were taken by 80 – 100 anglers. It was not possible to interview anglers at the fishery, and therefore no consumption rates for freshwater fish were obtained.

The consumption of groundwater by humans and livestock was identified. Five households used borehole water as their domestic supply and livestock were supplied with borehole water at 11 farms. At several other farms the livestock were supplied with mains water for drinking but also had access to stream and ditch water in the fields.

## 5.2 Terrestrial food wholesalers and retailers

Retailers and wholesalers located inside and outside the survey area were interviewed to establish whether they were selling produce from within the survey area. They included: a creamery (which also had a farm shop); five village shops; one butcher's shop; a grain wholesaler. The butcher was selling beef and lamb from farms in the survey area and the grain wholesaler was selling grain from farms in the survey area for animal feed. The creamery was selling cheese and cream, a small amount of which was made using milk from the survey area.

## 5.3 The transfer of contamination off-site by wildlife

Representatives from the Hinkley Point site reported that control measures taken in order to limit the possibility that contamination is transferred off-site by wildlife included periodically culling rabbits and occasionally using a falconer to scare pigeons and seagulls. The site did not undertake regular monitoring of wildlife for radioactivity.

## 5.4 Food consumption data

Consumption data for locally produced foodstuffs potentially affected by gaseous discharges are presented in Tables 19 to 34 for adults and Tables 35 to 49 for children.

In order to provide information relevant to monitoring and assessments studies, the consumption rate data collected during the survey were analysed to indicate the percentage that each food type contributed to each food group. The data are summarised in Table 50 and the foods sampled as part of the 2009 Food Standards Agency monitoring programme (EA, FSA, NIEA and SEPA, 2010) are identified by emboldened italics in the table.

### ***Adults' consumption rates***

Consumption of locally produced foods was identified in the following 16 food groups: green vegetables; other vegetables; root vegetables; potato; domestic fruit; milk; cattle meat; pig meat; sheep meat; poultry; eggs; wild/free foods; rabbits/hares; honey; wild fungi; venison. No consumption of cereals was identified and although the consumption of freshwater fish was reported, no quantitative data could be obtained.

Table G presents a summary of the adults' consumption rates for the foods consumed from the terrestrial survey area. The table includes the mean consumption rates for the high-rate groups and the observed 97.5<sup>th</sup> percentile rates calculated as in Section 3.4. For comparison, the table also includes mean consumption rates and 97.5<sup>th</sup> percentile consumption rates based on national data,

which are referred to as 'generic' data in this report. No generic data have been determined for venison.

**Table G. Summary of adults' consumption rates of foods from the terrestrial area**

Food group	Number of observations	Number of high-rate consumers	Observed maximum for the high-rate group (kg y <sup>-1</sup> or l y <sup>-1</sup> )	Observed minimum for the high-rate group (kg y <sup>-1</sup> or l y <sup>-1</sup> )	Observed mean for the high-rate group (kg y <sup>-1</sup> or l y <sup>-1</sup> )	Observed 97.5 <sup>th</sup> percentile (kg y <sup>-1</sup> or l y <sup>-1</sup> )	Generic mean (kg y <sup>-1</sup> or l y <sup>-1</sup> )	Generic 97.5 <sup>th</sup> percentile (kg y <sup>-1</sup> or l y <sup>-1</sup> )
Green vegetables	72	28	40.9	13.8	22.6	40.9	15.0	45.0
Other vegetables	82	43	49.6	17.0	24.8	40.4	20.0	50.0
Root vegetables	77	15	42.6	15.9	25.6	33.8	10.0	40.0
Potato	52	16	100.0	36.4	65.7	100.0	50.0	120.0
Domestic fruit	84	21	81.0	29.9	40.6	50.7	20.0	75.0
Milk	19	9	365.0	141.2	220.4	365.0	95.0	240.0
Cattle meat	16	14	73.3	26.0	44.5	73.3	15.0	45.0
Pig meat	15	13	18.1	14.5	16.4	18.1	15.0	40.0
Sheep meat	3	3	15.1	15.1	15.1	15.1	8.0	25.0
Poultry	30	15	11.0	4.1	6.3	11.0	10.0	30.0
Eggs	36	10	35.6	11.9	19.5	24.9	8.5	25.0
Wild/free foods	61	25	5.4	1.8	2.7	5.0	7.0	25.0
Rabbits/hares	11	4	2.6	0.9	2.2	2.6	6.0	15.0
Honey	14	2	2.5	1.4	1.9	2.1	2.5	9.5
Wild fungi	33	18	1.3	0.5	0.9	1.3	3.0	10.0
Venison	11	5	25.0	8.7	15.2	25.0	ND	ND

**Notes**

ND - Not determined

No mean consumption rates for the high-rate groups were found to be greater than the generic 97.5<sup>th</sup> percentile consumption rates. Ten mean consumption rates for the high-rate groups exceeded the generic mean consumption rates. These were for green vegetables, other vegetables, root vegetables, potato, domestic fruit, milk, cattle meat, pig meat, sheep meat and eggs. Two observed 97.5<sup>th</sup> percentile consumption rates exceeded the generic 97.5<sup>th</sup> percentile consumption rates. These were for milk and cattle meat.

**Children's consumption rates**

Eighteen children in the 10-year-old age group and four children in the 1-year-old age group were identified consuming foods from the terrestrial survey area. Table H presents a summary of children's consumption rates. The table includes the mean consumption rates for the high-rate groups and the observed 97.5<sup>th</sup> percentile rates. No generic data have been determined for the 10-year-old and the 1-year-old age groups. In the 10-year-old age group, no consumption of foods from the following food groups was identified: sheep meat; cereals; freshwater fish. In the 1-year-old age group, no

consumption of foods from the following food groups was identified: cattle meat; pig meat; sheep meat; eggs; rabbits/hares; wild fungi; cereals; freshwater fish.

**Table H. Summary of children's consumption rates of foods from the terrestrial survey area**

Food group	Number of observations	Number of high-rate consumers	Observed maximum for the high-rate group (kg y <sup>-1</sup> or l y <sup>-1</sup> )	Observed minimum for the high-rate group (kg y <sup>-1</sup> or l y <sup>-1</sup> )	Observed mean for the high-rate group (kg y <sup>-1</sup> or l y <sup>-1</sup> )	Observed 97.5 <sup>th</sup> percentile (kg y <sup>-1</sup> or l y <sup>-1</sup> )
<b>10-year-old age group (6 - 15 years old)</b>						
Green vegetables	11	5	5.5	2.7	4.5	5.5
Other vegetables	14	6	26.5	12.3	21.8	26.5
Root vegetables	9	2	27.6	9.6	18.6	24.0
Potato	10	5	35.7	16.4	24.1	35.7
Domestic fruit	15	5	29.9	13.5	23.6	29.9
Milk	4	4	112.0	91.3	101.6	112.0
Cattle meat	4	3	26.0	13.5	17.7	25.1
Pig meat	2	2	7.2	7.2	7.2	7.2
Poultry	3	3	3.4	1.8	2.3	3.3
Eggs	5	5	6.4	4.4	5.6	6.4
Wild/free foods	10	5	2.0	0.8	1.2	1.8
Rabbits/hares	2	2	0.4	0.4	0.4	0.4
Honey	1	1	0.1	0.1	0.1	NA
Wild fungi	4	4	0.2	0.1	0.1	0.2
Venison	1	1	2.8	2.8	2.8	NA
<b>1-year-old age group (0 - 5 years old)</b>						
Green vegetables	2	1	2.8	2.8	2.8	2.8
Other vegetables	3	3	3.6	2.1	2.9	3.6
Root vegetables	3	1	4.0	4.0	4.0	3.9
Potato	2	2	4.6	4.0	4.3	4.5
Domestic fruit	3	1	13.5	13.5	13.5	12.8
Milk	2	2	91.3	56.0	73.6	90.4
Poultry	1	1	3.4	3.4	3.4	NA
Wild/free foods	2	1	1.4	1.4	1.4	1.3
Honey	1	1	0.1	0.1	0.1	NA
Venison	1	1	2.8	2.8	2.8	NA

**Notes**

NA - Not applicable

## 6 DIRECT RADIATION PATHWAYS

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### 6.1 Direct radiation survey area

The direct radiation survey area (shown in Figure 2) covered all land and sea within 1.1 km of the Hinkley Point licensed site boundary, which delineates the external boundary of the Hinkley Point A and B licensed sites. The direct radiation survey area was sparsely populated, and therefore to increase the number of observations, the survey area was extended from the 1 km area usually used in direct radiation surveys. The occupancy data collected from the direct radiation area is also applicable to the direct exposure arising from gaseous releases from the site.

A public footpath ran along the coast through the direct radiation survey area, past the north of the site. The beach could be accessed from the coastal path through gaps in the sea defence boulders that backed the upper shore. The upper shore was sand and stones and at low tide there were large areas of mud, sand and exposed rocky reefs. The shore, particularly on the rocky reefs, was popular with anglers, mainly fishing for cod in the winter months.

The land to the east, south and west of the site was agricultural. No farm houses were located within the direct radiation survey area but one farm worker was identified who lived and worked in the area.

Residences were located near the outer edge of the survey area to the east and to the south. There was limited road access to the survey area but there were numerous footpaths across the farm fields.

Hinkley Point has been nominated as a potential site for a new nuclear power station. The proposed Hinkley Point C nuclear site development area covers nearly all the land in the western half of the current direct radiation survey area ([www.hinkleypoint.edfenergyconsultation.info/](http://www.hinkleypoint.edfenergyconsultation.info/)). At the time of the survey this area was working farmland and two residential properties were located in the south-east of this farmland. It was reported that the properties could be purchased for the new development. It was also reported that the coastal path on the northern side of the Hinkley Point site would be closed as part of the proposed development but that it would re-open once construction had been completed.

### 6.2 Residential activities

The direct radiation survey area was sparsely populated; 13 residences were identified, one of which was unoccupied. Interviews were conducted at six residences and included one family with children. All six residences were within the >0.5 – 1.1 km zone; two were located to the east of the power station and four were located to the south.

### 6.3 Leisure activities

The Hinkley Point nature trail was located within the Hinkley Point nuclear licensed site boundary and was open to the public. It was estimated that approximately 100 people visit the site per year and spend approximately 1 hour per time walking along the trail. One person undertook nature conservation activities for a significant amount of time in the area around the nature trail.

Angling was popular from the rocky reefs in front of the Hinkley Point site, particularly near the caisson which provides cooling water for the site. Angling was also noted to take place from the sand and stone shore in front of the Hinkley Point power station. People were observed walking along the coastal path, bird watching on the shore to the east of the site and beachcombing on the shore to the west of the site.

### 6.4 Commercial activities

The only commercial activity within the direct radiation survey area was farming. Three farmers and two farm workers were identified who farmed the fields to the south-east, south and south-west of the site. One of the farm workers also lived in the direct radiation survey area.

The activities of Hinkley Point site employees and contractors while at work were not considered in the direct radiation survey, as radiation workers are subject to different radiation protection criteria.

### 6.5 Occupancy rates

Table 51 presents indoor, outdoor and total occupancy data for adults and children. An analysis of the data by distance zones and occupancy rates is shown in Table 52. A summary of occupancy rates in the direct radiation survey area is presented in Table I.

<b>Table I. Summary of direct radiation occupancy rates</b>				
<b>Zone</b>	<b>Number of observations</b>	<b>Highest indoor occupancy (h y<sup>-1</sup>)</b>	<b>Highest outdoor occupancy (h y<sup>-1</sup>)</b>	<b>Highest total occupancy (h y<sup>-1</sup>)</b>
Within the nuclear licensed site area	1	-	234	234
0 – 0.25 km	5	-	240	240
>0.25 – 0.5 km	2	-	63	63
>0.5 – 1.1 km	17	7676	1750	7988

***Within the nuclear licensed site area***

Occupancy data were collected for one person spending time within the nuclear licensed site area who was undertaking nature conservation activities and was not a site employee.

***0 - 0.25 km from the nuclear licensed site boundary***

Occupancy data were collected for five individuals in the 0 - 0.25 km zone. The observations were for two anglers fishing from the rocks at Hinkley Point, a farmer and a farm worker farming fields to the south of the site, and a beachcomber spending time on the beach to the west of the site. One angler had the highest outdoor and highest total occupancy rate. No indoor occupancy rates were recorded in this zone.

***>0.25 – 0.5 km from the nuclear licensed site boundary***

Occupancy data was collected for two individuals in the >0.25 to 0.5 km zone. The observations were for a farmer working in the fields to the south-east of the site and a bird watcher on the shore to the east of the site. The farmer had the highest outdoor occupancy rate and the highest total occupancy rate. No indoor occupancy rates were recorded in this zone.

***>0.5 – 1.1 km from the nuclear licensed site boundary***

Occupancy data were collected for 17 people in the >0.5 - 1.1 km zone. Thirteen observations were for residents, one of whom was also a farm worker, one observation was for a farmer and three observations were for anglers. One resident had the highest indoor and the highest total occupancy rate and another resident had the highest outdoor occupancy rate.

**6.6 Gamma dose rate measurements**

Table 53 presents gamma dose rate measurements for the Hinkley Point direct radiation survey area. Gamma dose rate measurements were taken indoors and outdoors of all properties 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 the indoor and outdoor measurements have not been adjusted for natural background dose rates.

### ***Indoor measurements***

- Two indoor measurements taken over wood ranged from 0.056  $\mu\text{Gy h}^{-1}$  to 0.061  $\mu\text{Gy h}^{-1}$
- Four indoor measurements taken over concrete ranged from 0.054  $\mu\text{Gy h}^{-1}$  to 0.081  $\mu\text{Gy h}^{-1}$

### ***Outdoor measurements***

- Six outdoor measurements taken over grass ranged from 0.058  $\mu\text{Gy h}^{-1}$  to 0.083  $\mu\text{Gy h}^{-1}$

### ***Background measurements***

- Three background readings over grass ranged from 0.064  $\mu\text{Gy h}^{-1}$  to 0.079  $\mu\text{Gy h}^{-1}$

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 the 2005 review could be used for comparison with the data collected during this survey.

## **7 USES OF HABITS DATA FOR DOSE ASSESSMENTS**

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### **7.1 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 Annex 1 and Annex 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. The rates for individuals in the high-rate groups are emboldened. 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.

The most extensive combinations of pathways for adult dose assessment are shown in Table 54. Each of the 36 combinations shown in this table represents an actual individual (or individuals) from Annex 1 who has positive data (irrespective of the magnitude), for each pathway marked with a cross. It should be noted that combination numbers in Table 54 do not correlate directly with observation numbers in Annex 1. Other individuals from Annex 1 have combinations that are not listed in Table 54 because they have fewer pathways and a dose assessment for them would be adequately covered by one of the 36 listed combinations.

### **7.2 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 the consumption and occupancy data for women of childbearing age in order to calculate the potential dose to the foetus. Therefore, consumption and occupancy data collected during the Hinkley Point habits survey for females of childbearing age are presented in Annex 5. The Office of National Statistics classifies women to be of childbearing age if they are between 15 – 44 years old ([www.statistics.gov.uk](http://www.statistics.gov.uk)); this age range has been used in Annex 5. 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 5 as they might be women of childbearing age.

### **7.3 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 Hinkley Point adults' profiled habits data is shown in Annex 6. 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 Hinkley Point are made using these profiles and reported in the Radioactivity in Food and the Environment reports (e.g. EA, FSA, NIEA and SEPA, 2010). Additionally, profiles have been created for the 10-year-old and 1-year-old age groups, and for women of childbearing age. These are shown in Annexes 7, 8, and 9 respectively. They are not currently used in the Radioactivity in Food and the Environment reports.

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## 8 COMPARISONS WITH THE PREVIOUS SURVEY

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The results from this 2010 survey can be compared with results from the last combined habits survey undertaken in 2006. The aquatic and terrestrial survey areas in the 2010 survey were the same as those in the 2006 survey. In 2006, the direct radiation survey area was 1 km from the nuclear licensed site boundary and in 2010 this was extended to 1.1 km in order to include the residences bordering the outer limit of the 1 km area. All comparisons for consumption, intertidal occupancy, handling and occupancy rates in the direct radiation area are for adults only.

### 8.1 Aquatic survey area

The main species of fish consumed by the adult high-rate group in 2006 were thornback ray, cod, whiting, conger eel and bass, and in 2010 the main species were bass, grey mullet, Dover sole, thornback ray, European eel and cod. In 2010 and 2006, the only species of crustaceans consumed by the adult high-rate group was brown shrimps and the only species of molluscs consumed was whelks. The main species of wildfowl consumed by the adult high-rate group in 2006 were mallard, teal and wigeon and in 2010 were mallard, pintail and wigeon. The main species of marine plants/algae consumed by the adult high-rate group in 2006 were *Porphyra umbilicalis* and sea lettuce, and in 2010 were samphire, *Porphyra* and sea beet.

A comparison between the 2006 and 2010 data for the consumption of aquatic foods is presented in Table J. In 2010, compared with 2006, there was a slight increase in the mean consumption rate of crustaceans from 12 kg y<sup>-1</sup> in 2006 to 13 kg y<sup>-1</sup> in 2010, and a significant increase in the mean consumption rate of wildfowl from 6.4 kg y<sup>-1</sup> in 2006 to 11 kg y<sup>-1</sup> in 2010. The increase in wildfowl consumption was attributed to a wildfowler who spent more time shooting in 2010 than in 2006 resulting in a larger quantity of wildfowl being consumed. There were decreases in the mean consumption rates for the adult high-rate groups for fish from 40 kg y<sup>-1</sup> to 14 kg y<sup>-1</sup>, for molluscs from 1.9 kg y<sup>-1</sup> to 0.8 kg y<sup>-1</sup>, for marine plants/algae from 2.0 kg y<sup>-1</sup> to 0.7 kg y<sup>-1</sup> and for salt marsh grazed sheep meat from 20 kg y<sup>-1</sup> to 5.7 kg y<sup>-1</sup>. The decrease in fish consumption was attributed to the reported decline in fish catches in the area since 2006 and anglers reported that they were more inclined to release fish for conservation reasons rather than to take them for consumption.

**Table J. Comparison between 2006 and 2010 consumption rates of aquatic food groups for adults**

Food group	2006			2010		
	Number in high-rate group	Maximum consumption rate (kg y <sup>-1</sup> )	Mean consumption rate for the high-rate group (kg y <sup>-1</sup> )	Number in high-rate group	Maximum consumption rate (kg y <sup>-1</sup> )	Mean consumption rate for the high-rate group (kg y <sup>-1</sup> )
<b>Fish</b>	15	68.9	39.6	9	23.3	14.1
<b>Crustaceans</b>	3	15.3	12.2	3	20.6	13.3
<b>Molluscs</b>	2	1.9	1.9	2	0.8	0.8
<b>Wildfowl</b>	2	9.7	6.4	2	16.7	11.2
<b>Marine plants/algae</b>	2	2.2	2.0	7	0.9	0.7
<b>Salt marsh grazed sheep meat</b>	2	20.0	20.0	2	5.7	5.7

For intertidal occupancy in 2006, activities were recorded over the following seven substrates: mud; mud and sand; mud, sand and stones; rock; salt marsh; sand; sand and stones. In 2010, activities were recorded over the same substrates with the addition of occupancy over stones. In both years occupancy rates were obtained for activities occurring on a boat resting on mud.

The activities undertaken over intertidal substrates by the individuals in the high-rate groups in 2006 included attending nets, angling, bait digging, walking, dog walking, playing, bird watching, fossil hunting, beach warden duties, marsh warden duties, operating small businesses, tending livestock and living on a houseboat resting on mud. In 2010, the activities were similar, excluding fossil hunting, marsh warden duties and living on a houseboat resting on mud, and with the addition of search and rescue duties, beachcombing, horse riding, collecting whelks, collecting seaweed, collecting samphire and carrying out boat maintenance on a boat resting on mud. The only activity for individuals in the high-rate group for handling fishing gear in 2006 and 2010 was handling nets. The only activity for individuals in the high-rate group for handling sediment in 2006 was bait digging and in 2010 the activities were bait digging, fixing moorings and wildfowling.

A comparison between the 2006 and 2010 data for occupancy over intertidal substrates, handling fishing gear and handling sediment is shown in Table K.

**Table K. Comparison between 2006 and 2010 intertidal occupancy rates and handling rates of fishing gear and sediment for adults**

Intertidal substrate or handling pathway	2006			2010		
	Number in high-rate group	Maximum occupancy or handling rate (h y <sup>-1</sup> )	Mean occupancy or handling rate for the high-rate group (h y <sup>-1</sup> )	Number in high-rate group	Maximum occupancy or handling rate (h y <sup>-1</sup> )	Mean occupancy or handling rate for the high-rate group (h y <sup>-1</sup> )
<b>Mud</b>	3	1560	1300	1	995	995
<b>Mud and sand</b>	5	1515	1168	24	216	107
<b>Mud, sand and stones<sup>a</sup></b>	5	182	125	5	365	356
<b>Rock</b>	6	100	74	2	364	326
<b>Salt marsh</b>	2	520	382	2	420	301
<b>Sand</b>	12	840	544	16	1231	688
<b>Sand and stones</b>	1	672	672	8	156	110
<b>Stones</b>	Nil	Nil	Nil	5	335	243
<b>Boat on mud</b>	4	5046	3742	1	365	365
<b>Handling fishing gear</b>	5	1560	1386	1	990	990
<b>Handling sediment</b>	1	780	780	3	106	73

**Notes**

<sup>a</sup>In the 2006 report, data for intertidal occupancy were presented for adults and children mixed. The only high-rate group that included children was for occupancy over mud, sand and stones and therefore the high-rate group for this substrate has been recalculated for adults only, for use in this comparison.

The mean intertidal occupancy rates for the high-rate group for mud, for sand and for salt marsh in 2010 were broadly similar to those in 2006. The most significant changes were the decreases in the mean occupancy rates for the high-rate group over mud and sand, over sand and stones and on a boat resting on mud, and the increases in the occupancy rate over rock and over stones. The decrease in the occupancy over mud and sand was due mainly to a reduction in the fishing effort over this substrate resulting from declining catches. The occupancy on board a boat resting on mud decreased significantly in 2010 compared with 2006 because the berths in Watchet Harbour were dredged more often in 2010 than in 2006 and therefore the houseboats berthed in the harbour were permanently afloat. The handling rate for fishing gear decreased in 2010, which was a consequence of a reduction in the number of fishermen operating in the survey area and a reduction of fishing time by the remaining fishermen owing to a reported decline in catches. The significant decrease in the

handling rate of sediment in 2010 was attributed to one commercial bait digger who was interviewed in 2006 but not in 2010.

## 8.2 Terrestrial survey area

Activities in the terrestrial survey area in 2010 were very similar to those in 2006. The principal types of farm remained a mix of beef cattle, dairy cattle, sheep, pigs, broiler chickens and chickens for eggs. Most farms produced arable crops, mainly for use as animal feed. In both surveys, one allotment site was identified and several gardeners were producing a variety of fruit and vegetables and some kept chickens for chicken eggs.

The mean consumption rates for the adult high-rate group for terrestrial food groups from the 2006 and 2010 surveys are shown in Table L.

**Table L. Comparison between 2006 and 2010 mean consumption rates for the adult high-rate groups for terrestrial food groups ( $\text{kg y}^{-1}$  or  $\text{l y}^{-1}$ )**

<b>Food group</b>	<b>2006</b>	<b>2010</b>
<b>Green vegetables</b>	45.2	22.6
<b>Other vegetables</b>	67.1	24.8
<b>Root vegetables</b>	34.4	25.6
<b>Potato</b>	58.5	65.7
<b>Domestic fruit</b>	43.6	40.6
<b>Milk</b>	137.5	220.4
<b>Cattle meat</b>	38.8	44.5
<b>Pig meat</b>	19.0	16.4
<b>Sheep meat</b>	8.1	15.1
<b>Poultry</b>	8.5	6.3
<b>Eggs</b>	18.5	19.5
<b>Wild/free foods</b>	4.2	2.7
<b>Rabbits/hares</b>	1.4	2.2
<b>Honey</b>	3.8	1.9
<b>Wild fungi</b>	1.7	0.9
<b>Venison</b>	10.0	15.2
<b>Freshwater fish</b>	1.2	Nil

Consumption rates increased in 2010 in the following seven food groups: potato; milk; cattle meat; sheep meat; eggs; rabbits/hares; venison. Consumption rates decreased in 2010 in the following 10 food groups: green vegetables; other vegetables; root vegetables; domestic fruit; pig meat; poultry; wild/free foods; honey; wild fungi; freshwater fish (not consumed in 2010). There were relatively large increases in the consumption rates for milk and sheep meat and relatively large decreases in the

consumption rates for green vegetables, other vegetables and root vegetables. No consumption of cereals was identified in either 2006 or 2010.

The increase in the mean rate for the high-rate group of milk consumers was due to one farming family who were consuming more milk in 2010 than in 2006. There was a steep decline in the number of lamb consumers from 25 in 2006 to three in 2010 which was partly attributed to the increasing costs involved in sending lambs to the abattoir and partly due to two farming families who consumed lamb in 2006 who were not available for an interview during the 2010 survey. Although no consumption rates of freshwater fish were recorded in 2010, it was reported that rainbow trout were being consumed from a stocked trout lake. No specific reasons were identified for the other changes in consumption rates.

The human consumption of groundwater was identified in both the 2006 and the 2010 surveys. The use of groundwater and surface water for the drinking supply for livestock was also identified in both surveys.

### **8.3 Direct radiation survey area**

Activities identified in the direct radiation survey area in 2006 included people living in the area, farming, angling and beachcombing. The activities identified in 2010 were similar, with the addition of bird watching, and within the nuclear licensed site area, nature conservation activities were noted. A comparison between the 2006 and 2010 direct radiation occupancy rates, by zone, is presented in Table M. It should be noted that in 2006 the direct radiation survey area was defined as 1 km from the nuclear licensed site boundary and in 2010 the direct radiation survey area was defined as 1.1 km from the nuclear licensed site boundary.

<b>Table M. Comparison between 2006 and 2010 direct radiation occupancy rates (<math>h\ y^{-1}</math>)</b>		
	<b>2006</b>	<b>2010</b>
<b>Within the nuclear licensed site area</b>		
Highest total	Nil	234
Highest indoor	Nil	Nil
Highest outdoor	Nil	234
<b>0 – 0.25 km zone</b>		
Highest total	1456	240
Highest indoor	Nil	Nil
Highest outdoor	1456	240
<b>&gt;0.25 – 0.5 km zone</b>		
Highest total	Nil	63
Highest indoor	Nil	Nil
Highest outdoor	Nil	63
<b>&gt;0.5 – 1 km zone in 2006 and &gt;0.5 – 1.1 km zone in 2010</b>		
Highest total	8448	7988
Highest indoor	8188	7676
Highest outdoor	3285	1750

In 2010, an outside occupancy rate and total occupancy rate of 230  $h\ y^{-1}$  were obtained for one person undertaking nature conservation activities within the nuclear licensed site area who was not a site employee. No occupancy data were obtained for this area in 2006. In the 0 – 0.25 km zone in 2006 the highest total and outdoor rates were for a farmer and in 2010 were for an angler. No one was identified spending time in the >0.25 – 0.5 km zone in 2006 and in 2010 the highest total and outdoor rates were for a farmer. The highest total, indoor and outdoor rates in the >0.5 – 1 km zone in 2006 and in the >0.5 – 1.1 km zone in 2010 were for residents.

In the Hinkley Point direct radiation survey area, one set of gamma dose measurements taken in 2010 can be compared with those taken at the same premises in 2006. These data are shown in Table N.

<b>Table N. Comparison between 2006 and 2010 gamma dose rates (<math>\mu Gy\ h^{-1}</math>)</b>				
	<b>Outdoor</b>		<b>Indoor</b>	
<b>Residence number</b>	<b>2006</b>	<b>2010</b>	<b>2006</b>	<b>2010</b>
House 1	0.071	0.083	0.061	0.061

**Notes**

These measurements have not been adjusted for natural background dose rates  
The residence number corresponds to that in Table 53

## 9 MAIN FINDINGS

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

- Discharges of liquid radioactive waste to the Bristol Channel
- Discharges of gaseous radioactive waste to the atmosphere
- Emissions of direct radiation

Data were collected for 363 individuals including, for example, commercial and hobby fishermen, anglers, people spending time on intertidal substrates, farmers, allotment holders, gardeners, beekeepers and people spending time within the direct radiation survey area. 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 could only be defined with the outcome of a dose assessment.

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

### 9.1 Aquatic survey area

The mean consumption rate for the adult high-rate group (as defined in Section 3.4) for the separate aquatic consumption pathways for foods potentially affected by liquid discharges were:

- 14 kg y<sup>-1</sup> for fish
- 13 kg y<sup>-1</sup> for crustaceans
- 0.8 kg y<sup>-1</sup> for molluscs
- 11 kg y<sup>-1</sup> for wildfowl
- 0.7 kg y<sup>-1</sup> for marine plants/algae
- 5.7 kg y<sup>-1</sup> for salt marsh grazed sheep meat

The predominant foods consumed by the high-rate groups for fish were bass, grey mullet, Dover sole, thornback ray, European eel and cod. The only crustacean species consumed by the high-rate group was brown shrimps and the only mollusc species consumed by the high-rate group was whelks. The predominant species of wildfowl consumed by the high-rate group were mallard, pintail and wigeon. The predominant species of marine plants/algae consumed by the high-rate group were samphire, *Porphyra umbilicalis* and sea beet.

The use of seaweed as a fertiliser on land where fruit and vegetables were grown was identified. The use of seaweed for animal feed was not identified.

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

- 1000 h y<sup>-1</sup> for mud
- 110 h y<sup>-1</sup> for mud and sand
- 360 h y<sup>-1</sup> for mud, sand and stones
- 330 h y<sup>-1</sup> for rock
- 300 h y<sup>-1</sup> for salt marsh
- 690 h y<sup>-1</sup> for sand
- 110 h y<sup>-1</sup> for sand and stones
- 240 h y<sup>-1</sup> for stones
- 370 h y<sup>-1</sup> for a boat on mud

The mean handling rate for the adult high-rate groups for handling were:

- 990 h y<sup>-1</sup> for handling fishing gear
- 73 h y<sup>-1</sup> for handling sediment

The adult maximum occupancy rate in water was 70 h y<sup>-1</sup> and on water was 7300 h y<sup>-1</sup>.

### 9.2 Terrestrial survey area

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

- 23 kg y<sup>-1</sup> for green vegetables
- 25 kg y<sup>-1</sup> for other vegetables
- 26 kg y<sup>-1</sup> for root vegetables
- 66 kg y<sup>-1</sup> for potato
- 41 kg y<sup>-1</sup> for domestic fruit
- 220 l y<sup>-1</sup> for milk
- 45 kg y<sup>-1</sup> for cattle meat
- 16 kg y<sup>-1</sup> for pig meat
- 15 kg y<sup>-1</sup> for sheep meat
- 6.3 kg y<sup>-1</sup> for poultry
- 19 kg y<sup>-1</sup> for eggs
- 2.7 kg y<sup>-1</sup> for wild/free foods
- 2.2 kg y<sup>-1</sup> for rabbits/hares
- 1.9 kg y<sup>-1</sup> for honey
- 0.9 kg y<sup>-1</sup> for wild fungi
- 15 kg y<sup>-1</sup> for venison

No consumption of freshwater fish or cereals was identified from the survey area. The consumption of foodstuffs by children (10-year-old and 1-year-old age groups) was also recorded.

The consumption of groundwater by humans was identified at five households where borehole water was used as the domestic supply. Livestock were supplied with borehole water at 11 farms and at several other farms the animals had access to stream and ditch water in the fields.

Control measures taken by the Hinkley Point site against wildlife in order to limit the possibility that contamination is transferred off-site included periodically culling rabbits and occasionally using a falconer to scare pigeons and seagulls.

### 9.3 Direct radiation survey area

An outside occupancy rate and total occupancy rate of 230 h y<sup>-1</sup> were obtained for one person spending time within the nuclear licensed site area who was not a site employee.

For occupancy by members of the public within 1.1 km of the Hinkley Point nuclear licensed site boundary, the highest indoor, outdoor and total occupancy rates were:

#### **0 - 0.25 km zone**

- No indoor occupancy rates were recorded
- 240 h y<sup>-1</sup> outdoor occupancy rate
- 240 h y<sup>-1</sup> total occupancy rate

#### **>0.25 - 0.5 km zone**

- No indoor occupancy rates were recorded
- 63 h y<sup>-1</sup> outdoor occupancy rate
- 63 h y<sup>-1</sup> total occupancy rate

#### **>0.5 - 1 km zone**

- 7700 h y<sup>-1</sup> indoor occupancy rate
- 1800 h y<sup>-1</sup> outdoor occupancy rate
- 8000 h y<sup>-1</sup> total occupancy rate

## 10 SUGGESTIONS

The information collected during the 2010 Hinkley Point habits survey can be used to make recommendations for changes to the current monitoring programmes.

### 10.1 Summary of current environmental monitoring programmes

The 2009 monitoring programmes for Hinkley Point operated by the Environment Agency and the Food Standards Agency, and published in the RIFE report (EA, FSA, NIEA and SEPA, 2010), included the samples and measurements listed below. The location names, foods and substrate classifications are taken directly from that publication. Some of the samples and measurements taken for the monitoring programmes may be from outside the survey areas used for the 2010 Hinkley Point habits survey.

#### *Aquatic monitoring*

<b>Sample</b>	<b>Location</b>
Cod	Stolford
Bass	Stolford
Shrimps	Stolford
Limpets	Stolford
<i>Porphyra</i>	Stolford
Seaweed	Pipeline
Beetroot (to determine sea to land transfer)	Stolford
Potatoes (to determine sea to land transfer)	Stolford
Soil from (to determine sea to land transfer)	Stolford
Mud	Watchet Harbour
Sediment	Pipeline
Sediment	Stolford
Sediment	Stert Flats
Sediment	River Parrett
Sediment	Weston-Super-Mare
Sediment	Burnham-on-Sea
Sediment	Kilve
Sediment	Blue Anchor Bay
Seawater	Pipeline

**Gamma dose rate measurements**

<b>Substrate</b>	<b>Location</b>
Mud	River Parrett
Mud	Stert Flats
Mud	Stolford
Mud	Hinkley Point
Mud	Watchet Harbour
Mud	Blue Anchor Bay
Mud and pebbles	Stert Flats
Mud and rock	Stolford
Mud and rock	Hinkley Point
Mud and rock	Kilve
Mud and sand	Weston-Super-Mare
Mud and sand	Burnham-on-Sea
Mud and sand	Kilve
Mud and sand	Watchet Harbour
Mud and sand	Blue Anchor Bay
Mud and stones	River Parrett
Pebbles and rock	Hinkley Point
Pebbles and rock	Watchet Harbour
Pebbles and sand	Blue Anchor Bay
Rock and sand	Kilve
Sand	Weston-Super-Mare
Sand	Burnham-on-Sea

**Terrestrial monitoring**

- Milk
- Apples
- Blackberries
- Carrots
- Lettuce
- Potatoes
- Runner beans
- Spinach
- Wheat
- Freshwater

### 10.2 Suggestions for changes to the monitoring programmes

The following lists 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 radiological assessment. It is suggested that samples currently monitored, which are not listed below, remain unchanged in the monitoring programmes.

#### ***Environment Agency monitoring***

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

#### ***Food Standards Agency monitoring***

- Within the 'mollusc' food group, the sample of limpets currently collected could be replaced with a sample of whelks, which was the only mollusc species being consumed.
- In the 'green vegetables' food group, lettuce could be replaced with cabbage as it made the highest percentage contribution to this food group.
- A sample of beef could be added since this was consumed at a high rate and no meat samples are currently taken. Alternatively, a sample of beef cattle faeces could be added as a more economic option.

## **11 ACKNOWLEDGEMENTS**

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**Table 1. Survey coverage**

Group	Criteria	Estimate of complete coverage	Number for whom positive data was obtained	Coverage for positive observations	Notes
<b>SUMMARY OF ALL PATHWAYS</b>					
All potential interviewees in the Hinkley Point 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>(B) TERRESTRIAL PATHWAYS</b> )	1990 <sup>a</sup>	132 <sup>b</sup>	7%	The survey targeted individuals who were potentially the most exposed, mostly producers of local foods such as farmers and allotment holders. Additionally, 29 people were consuming produce who were not resident within the terrestrial survey area.
	Number of people resident in the direct radiation survey area (See <b>(C) DIRECT RADIATION PATHWAYS</b> )	26	13 <sup>b</sup>	50%	Interviews were conducted at 6 occupied residences out of a total of 12 identified occupied residences.
	Number of people visiting the direct radiation survey area (See <b>(C) DIRECT RADIATION PATHWAYS</b> )	U	2 <sup>b</sup>	U	Where an individual was conducting activities affected by liquid discharges within the direct radiation survey area (e.g. anglers), they have been allocated to aquatic pathways below.
	Number of people effected by liquid discharges (excluding those assigned to other categories above) (See <b>(A) AQUATIC PATHWAYS</b> )	U	216 <sup>b</sup>	U	
	Total for aquatic, terrestrial and direct radiation survey areas	U	363 <sup>b</sup>	U	

**Table 1. Survey coverage**

Group	Criteria	Estimate of complete coverage	Number for whom positive data was obtained	Coverage for positive observations	Notes
<b>(A) AQUATIC PATHWAYS</b>					
Commercial fishermen	Number of commercial fishermen actively fishing in the survey area	1	1	100%	
Hobby fishermen	Number of hobby fishermen fishing in the survey area	5	2	40%	
People undertaking activities in or on water (e.g. swimming, sailing, and search and rescue duties)	Number of people undertaking activities in or on water in the survey area	U	83	U	
Bait diggers, wildfowlers and seaweed collectors	Number of people undertaking these activities in the survey area	U	11	U	
Other people using the shore including anglers, dog walkers and people playing etc.	Number of people undertaking these activities in the survey area	U	175	U	
Fish and shellfish consumers	Number of people consuming fish or shellfish from the aquatic survey area	U	58	U	
Wildfowl consumers	Number of people consuming wildfowl from the aquatic survey area	U	16	U	
Marine plant consumers	Number of people consuming marine plants from the aquatic survey area	U	7	U	
Salt marsh grazed lamb consumers	Number of people consuming salt marsh grazed lamb from the aquatic survey area	U	2	U	

**Table 1. Survey coverage**

Group	Criteria	Estimate of complete coverage	Number for whom positive data was obtained	Coverage for positive observations	Notes
<b>(B) TERRESTRIAL PATHWAYS</b>					
Farmers	Number of farmers and their family members consuming food from the terrestrial survey area	80	70	88%	Interviews were conducted at 22 out of a total of 25 identified working farms.
Gardeners	Number of gardeners and their family members consuming food from the survey area	U	56	U	
Allotment holders	Number of allotment holders and their family members consuming food from the survey area	Unknown but more than 40	19	U	
Bee keepers	Number of people consuming honey produced by bee keepers in the survey area	U	16	U	Interviews were conducted with 2 beekeepers.
<b>(C) DIRECT RADIATION PATHWAYS</b>					
Residents	Number of residents in the survey area	26	13	50%	Interviews were conducted at 6 occupied residences out of a total of 12 identified occupied residences.
Visitors	Number of visitors to the survey area	U	12	U	Individuals were undertaking farming and recreational activities within the direct radiation survey area, including those also affected by aquatic discharges, such as anglers etc.
<b>BREAKDOWN OF AGE GROUPS</b>					
Adults	16-year-old and over	U	279	U	
10-year-old	6-year-old to 15-year-old	U	71	U	
1-year-old	0 to 5-year-old	U	13	U	

**Notes**

<sup>a</sup> Estimate of the number of people resident in the 5 km terrestrial survey area based on data from [www.statistics.gov.uk](http://www.statistics.gov.uk).

<sup>b</sup> The number of people for whom positive data was obtained for pathways (A) and (B) and (C) will usually not equal the relevant totals in the summary of all pathways. This is because in sections (A), (B) and (C) some individuals may be counted two or more times, for example someone who digs their own bait, goes shore angling and consumes the catch.

U - Unknown

**Table 2. Typical food groups used in habits surveys**

Food group	Examples of foods within the group
Green vegetables	Asparagus, broccoli, Brussels sprout, cabbage, calabrese, cauliflower, chard, courgettes, cucumber, gherkin, globe artichoke, herbs, kale, leaf beet, lettuce, marrow, spinach
Other vegetables	Aubergine, broad bean, chilli pepper, French bean, mangetout, pea, kohlrabi, pepper, pumpkin, runner bean, sweetcorn, tomato
Root vegetables	Beetroot, carrot, celeriac, celery, chicory, fennel, garlic, Jerusalem artichoke, 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, raspberry, redcurrants, rhubarb, rowanberry, strawberry, tayberry, whitecurrant
Milk	Cows' milk, cream, yoghurt, goats' milk
Cattle meat <sup>a</sup>	Beef
Pig meat <sup>a</sup>	Pork
Sheep meat <sup>a</sup>	Lamb, mutton
Poultry <sup>b</sup>	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 <sup>a</sup>	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 <sup>c</sup> , cuttlefish <sup>c</sup> , 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, scallops, razor clam, whelks, winkles
Wildfowl <sup>b</sup>	Canada goose, greylag goose, mallard, pink-footed goose, pintail, shoveler, teal, wigeon

**Notes**<sup>a</sup> Including offal<sup>b</sup> Domesticated ducks and geese are classified as poultry. Wild ducks and geese are classified as wildfowl.<sup>c</sup> Although squid and cuttlefish are molluscs, radiologically they are more akin to fish.



**Table 3. Adults' consumption rates of fish from the Hinkley Point aquatic survey area (kg y<sup>-1</sup>)**

Observation number	Bass	Cod	Dover sole	Conger eel	European eel	Flounder	Grey mullet	Sprat	Thornback ray	Turbot	Whiting	Total
157	2.1	1.5	-	-	-	-	-	-	-	-	-	3.6
114	-	2.4	-	-	-	-	-	-	-	-	-	2.4
115	-	2.4	-	-	-	-	-	-	-	-	-	2.4
211	2.0	-	-	-	-	-	-	-	-	-	-	2.0
266	-	2.0	-	-	-	-	-	-	-	-	-	2.0
267	-	2.0	-	-	-	-	-	-	-	-	-	2.0
64	0.3	0.4	-	-	-	-	-	-	-	-	0.3	1.0
65	0.3	0.4	-	-	-	-	-	-	-	-	0.3	1.0
66	0.3	0.4	-	-	-	-	-	-	-	-	0.3	1.0
67	0.3	0.4	-	-	-	-	-	-	-	-	0.3	1.0
116	0.7	-	-	-	-	-	-	-	-	-	-	0.7
117	0.7	-	-	-	-	-	-	-	-	-	-	0.7
130	0.7	-	-	-	-	-	-	-	-	-	-	0.7
131	0.7	-	-	-	-	-	-	-	-	-	-	0.7
217	0.2	0.2	-	-	-	-	0.1	-	-	-	-	0.4
218	0.2	0.2	-	-	-	-	0.1	-	-	-	-	0.4
274	0.2	-	-	-	-	-	-	-	-	-	-	0.2
275	0.2	-	-	-	-	-	-	-	-	-	-	0.2

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of fish based on the 9 high-rate adult consumers is 14.1 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 47 observations is 18.7 kg y<sup>-1</sup>

**Table 4. Adults' consumption rates of crustaceans from the Hinkley Point aquatic survey area (kg y<sup>-1</sup>)**

Observation number	Brown shrimp
<b>6</b>	<b>20.6</b>
<b>7</b>	<b>10.3</b>
<b>209</b>	<b>8.8</b>
8	3.2
9	3.2
10	3.2
256	2.8
257	2.8
184	0.3
253	0.2
254	0.2
255	0.2
233	0.2
234	0.2
73	0.2
74	0.2
75	0.2

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of crustaceans based on the 3 high-rate adult consumers is 13.3 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 17 observations is 16.5 kg y<sup>-1</sup>

**Table 5. Adults' consumption rates of molluscs from the Hinkley Point aquatic survey area (kg y<sup>-1</sup>)**

Observation number	Whelk
<b>6</b>	<b>0.8</b>
<b>8</b>	<b>0.8</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of molluscs based on the 2 high-rate adult consumers is 0.8 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 2 observations is 0.8 kg y<sup>-1</sup>

**Table 6. Adults' consumption rates of wildfowl from the Hinkley Point aquatic survey area (kg y<sup>-1</sup>)**

Observation number	Golden plover	Mallard	Pintail	Teal	Wigeon	Total
<b>233</b>	<b>0.9</b>	<b>6.8</b>	<b>3.9</b>	<b>1.2</b>	<b>3.9</b>	<b>16.7</b>
<b>234</b>	<b>0.3</b>	<b>2.3</b>	<b>1.3</b>	<b>0.4</b>	<b>1.3</b>	<b>5.6</b>
256	-	4.5	-	-	-	4.5
257	-	4.5	-	-	-	4.5
73	-	2.3	-	0.3	-	2.5
74	-	2.3	-	0.3	-	2.5
75	-	2.3	-	0.3	-	2.5
80	-	0.9	-	0.3	-	1.2
81	-	0.9	-	0.3	-	1.2
84	-	0.9	-	0.3	-	1.2
85	-	0.9	-	0.3	-	1.2
253	-	1.1	-	-	-	1.1
254	-	1.1	-	-	-	1.1
255	-	1.1	-	-	-	1.1

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of wildfowl based on the 2 high-rate adult consumers is 11.2 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 14 observations is 13.1 kg y<sup>-1</sup>

**Table 7. Adults' consumption rates of marine plants/algae from the Hinkley Point aquatic survey area (kg y<sup>-1</sup>)**

Observation number	<i>Porphyra umbilicalis</i>	Samphire	Sea beet	Sea lettuce	Total
<b>6</b>	<b>0.7</b>	-	-	<b>0.2</b>	<b>0.9</b>
<b>8</b>	<b>0.7</b>	-	-	-	<b>0.7</b>
<b>163</b>	-	<b>0.7</b>	-	-	<b>0.7</b>
<b>164</b>	-	<b>0.7</b>	-	-	<b>0.7</b>
<b>224</b>	-	-	<b>0.7</b>	-	<b>0.7</b>
<b>225</b>	-	-	<b>0.7</b>	-	<b>0.7</b>
<b>233</b>	-	<b>0.5</b>	-	-	<b>0.5</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of marine plants/algae based on the 7 high-rate adult consumers is 0.7 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 7 observations is 0.9 kg y<sup>-1</sup>

**Table 8. Adults' consumption rates of salt marsh grazed sheep meat from the Hinkley Point aquatic survey area (kg y<sup>-1</sup>)**

Observation number	Salt marsh grazed lamb
<b>362</b>	<b>5.7</b>
<b>363</b>	<b>5.7</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of salt marsh grazed sheep meat based on the 2 high-rate adult consumers is 5.7 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 2 observations is 5.7 kg y<sup>-1</sup>

**Table 9. Childrens' consumption rates of fish from the Hinkley Point aquatic survey area (kg y<sup>-1</sup>)****10-year-old age group (6 - 15 years old)**

Observation number	Age	Bass	Cod	Total
<b>156</b>	<b>9</b>	<b>2.1</b>	<b>1.5</b>	<b>3.6</b>
<b>268</b>	<b>13</b>		<b>2.0</b>	<b>2.0</b>
<b>269</b>	<b>11</b>		<b>2.0</b>	<b>2.0</b>
118	12	0.7		0.7
119	10	0.4		0.4

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of fish for the 10-year-old age group based on the 3 high-rate consumers is 2.5 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 5 observations is 3.5 kg y<sup>-1</sup>

**Table 10. Children's consumption rates of wildfowl from the Hinkley Point aquatic survey area (kg y<sup>-1</sup>)****10-year-old age group (6 - 15 years old)**

Observation number	Age	Mallard	Teal	Total
<b>83</b>	<b>6</b>	<b>0.5</b>	<b>0.2</b>	<b>0.6</b>

**Notes**

The emboldened observation is the high-rate consumer

The mean consumption rate of wildfowl for the 10-year-old age group based on the only consumer is 0.6 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

**1-year-old age group (0 - 5 years old)**

Observation number	Age	Mallard	Teal	Total
<b>82</b>	<b>5</b>	<b>0.5</b>	<b>0.2</b>	<b>0.6</b>

**Notes**

The emboldened observation is the high-rate consumer

The mean consumption rate of wildfowl for the 1-year-old age group based on the only consumer is 0.6 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

**Table 11. Consumption rates of vegetables grown on land where seaweed has been used as a fertiliser (kg y<sup>-1</sup>)**

Observation number	Age	Green vegetables					Other vegetables				Root vegetables					Potato	Domestic Fruit		
		Asparagus	Broccoli	Cabbage	Courgette	Lettuce	Pea	Broad bean	French bean	Runner bean	Beetroot	Carrot	Onion	Parsnip	Spring onion	Potato	Apple	Grapes	Pear
6	75	-	10.0	4.1	-	1.0	-	-	2.4	18.1	5.5	3.0	2.4	2.4	-	15.2	4.5	0.8	1.1
7	74	-	10.0	4.1	-	1.0	-	-	2.4	18.1	5.5	3.0	2.4	2.4	-	15.2	4.5	0.8	1.1
8	53	-	10.0	4.1	-	1.0	-	-	2.4	18.1	5.5	3.0	2.4	2.4	-	15.2	4.5	0.8	1.1
9	43	-	10.0	4.1	-	1.0	-	-	2.4	18.1	5.5	3.0	2.4	2.4	-	15.2	4.5	0.8	1.1
10	22	-	10.0	4.1	-	1.0	-	-	2.4	18.1	5.5	3.0	2.4	2.4	-	15.2	4.5	0.8	1.1
11	18	-	10.0	4.1	-	1.0	-	-	2.4	18.1	5.5	3.0	2.4	2.4	-	15.2	4.5	0.8	1.1
70	47	-	-	-	5.0	-	8.1	-	4.9	4.1	-	-	-	-	-	-	-	-	-
71	48	-	-	-	5.0	-	8.1	-	4.9	4.1	-	-	-	-	-	-	-	-	-
72	12	-	-	-	1.7	-	2.7	-	1.6	1.5	-	-	-	-	-	-	-	-	-
91	69	-	-	-	-	-	4.5	4.6	-	13.6	8.2	2.3	-	-	-	18.2	-	-	-
92	69	-	-	-	-	-	4.5	4.6	-	13.6	8.2	2.3	-	-	-	18.2	-	-	-
211	63	2.9	-	-	-	2.1	-	-	-	19.0	5.7	3.2	-	2.5	1.4	22.3	13.6	-	6.8
212	62	2.9	-	-	-	2.1	-	-	-	19.0	5.7	3.2	-	2.5	1.4	22.3	13.6	-	6.8

**Notes**

These foods are included in the aquatic section of this report as the exposure pathway is sea to land transfer and the source of potential exposure is liquid discharge. Foods consumed by most of these individuals were grown in the terrestrial survey area. Therefore they are also potentially subject to gaseous discharges and are included in the terrestrial food groups and Annex 1 as terrestrial foods. Foods consumed by observation numbers 91 and 92 were grown outside the terrestrial survey area, and therefore, are not included in the terrestrial food groups and Annex 1.

**Table 12. Adults' intertidal occupancy rates in the Hinkley Point aquatic survey area (h y<sup>-1</sup>)**

Observation number	Location	Activity	Mud	Mud and sand	Mud, sand and stones	Rock	Salt marsh	Sand	Sand and stones	Stones	Boat on mud
8	Stert Flats off Stolford	Attending nets (and a small amount of time collecting whelks and seaweed)	995	-	-	-	-	-	-	-	-
296	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
297	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
298	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
299	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
300	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
301	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
302	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
303	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
304	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
305	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
306	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
307	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
308	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
309	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
310	Brean Down to Stert Island	Search and rescue duties	100	100	-	-	-	-	-	-	-
311	Brean Down to Stert Island	Search and rescue duties	75	75	-	-	-	-	-	-	-
312	Brean Down to Stert Island	Search and rescue duties	75	75	-	-	-	-	-	-	-
313	Brean Down to Stert Island	Search and rescue duties	75	75	-	-	-	-	-	-	-
314	Brean Down to Stert Island	Search and rescue duties	75	75	-	-	-	-	-	-	-
315	Brean Down to Stert Island	Search and rescue duties	75	75	-	-	-	-	-	-	-
316	Brean Down to Stert Island	Search and rescue duties	75	75	-	-	-	-	-	-	-
294	River Parrett	EA enforcement officer duties	30	-	-	-	-	-	-	-	-
295	River Parrett	EA enforcement officer duties	30	-	-	-	-	-	-	-	-
	Combwich	Fixing moorings	10	-	-	-	-	-	-	-	-
	Near Shurton Bars	Bait digging	-	36	-	-	-	-	-	-	-
	<b>Kilve, Shurton Bars and Hinkley Point</b>	<b>Angling</b>	-	-	-	<b>288</b>	-	-	-	-	-
233	Near Hinkley Point	Wildfowling	-	30	-	-	-	-	-	-	-
	River Parrett	Wildfowling (and a small amount of time collecting samphire)	-	-	-	-	30	-	-	-	-
	Stert	Dog walking	-	-	-	-	-	104	-	-	-
226	<b>Blue Anchor</b>	<b>Attending nets</b>	-	<b>216</b>	-	-	-	-	-	-	-

**Table 12. Adults' intertidal occupancy rates in the Hinkley Point aquatic survey area (h y<sup>-1</sup>)**

Observation number	Location	Activity	Mud	Mud and sand	Mud, sand and stones	Rock	Salt marsh	Sand	Sand and stones	Stones	Boat on mud
227	Blue Anchor	Attending nets	-	216	-	-	-	-	-	-	-
163	Stert	Dog walking and bird watching	-	182	-	-	-	-	-	-	-
		Dog walking, bird watching and collecting samphire	-	-	-	-	182	-	-	-	-
		Beachcombing	-	-	-	-	-	-	-	182	-
238	Stert	Dog walking	-	-	365	-	-	-	-	-	
239	Stert	Dog walking	-	-	365	-	-	-	-	-	
166	Stert	Dog walking	-	-	350	-	-	-	-	-	
167	Stert	Dog walking	-	-	350	-	-	-	-	-	
168	Stert	Dog walking	-	-	350	-	-	-	-	-	
140	Doniford	Rock pooling	-	-	24	-	-	-	-	-	-
50	<b>Brean Down</b>	<b>Angling</b>	-	-	-	364	-	-	-	-	-
	Burnham-on-Sea and Berrow	Bait digging	-	-	-	-	-	68	-	-	-
138	Kilve	Angling	-	-	-	121	-	-	-	-	-
	Stolford	Angling	-	-	-	-	-	121	-	-	-
	<b>Lilstock</b>	<b>Angling</b>	-	-	-	-	-	-	-	121	-
161	Hinkley Point	Angling	-	-	-	120	-	-	-	-	-
	<b>Hinkley Point</b>	<b>Angling</b>	-	-	-	-	-	-	120	-	-
155	Shurton Bars	Angling	-	-	-	112	-	-	-	-	-
	St Audrie's Bay, Blue Anchor and Stolford	Angling	-	-	-	-	-	335	-	-	-
	<b>Lilstock, Kilve and Doniford</b>	<b>Angling</b>	-	-	-	-	-	-	-	335	-
157	Shurton Bars	Angling	-	-	-	112	-	-	-	-	-
	St Audrie's, Blue Anchor and Stolford	Angling	-	-	-	-	-	335	-	-	-
	<b>Lilstock, Kilve and Doniford</b>	<b>Angling</b>	-	-	-	-	-	-	-	335	-
162	Hinkley Point	Angling	-	-	-	56	-	-	-	-	-
	Blue Anchor	Angling	-	-	-	-	-	56	-	-	-
	<b>Hinkley Point</b>	<b>Angling</b>	-	-	-	-	-	-	56	-	-
25	Brean	Angling	-	-	-	12	-	-	-	-	
362	<b>Stert Point</b>	<b>Tending livestock</b>	-	-	-	-	420	-	-	-	
199	Stert	Nature reserve warden duties	-	-	-	-	24	6	-	-	
43	<b>Berrow and Brean</b>	<b>Beach warden duties</b>	-	-	-	-	-	1231	-	-	

**Table 12. Adults' intertidal occupancy rates in the Hinkley Point aquatic survey area (h y<sup>-1</sup>)**

Observation number	Location	Activity	Mud	Mud and sand	Mud, sand and stones	Rock	Salt marsh	Sand	Sand and stones	Stones	Boat on mud
63	Berrow and Brean	Horse riding, operating a small business, angling and bait digging	-	-	-	-	-	1162	-	-	-
42	Berrow and Brean	Beach warden duties	-	-	-	-	-	867	-	-	-
68	Berrow and Brean	Operating a small business	-	-	-	-	-	804	-	-	-
106	Berrow and Brean	Operating a small business	-	-	-	-	-	804	-	-	-
69	Berrow and Brean	Operating a small business	-	-	-	-	-	662	-	-	-
44	Berrow and Brean	Beach warden duties	-	-	-	-	-	650	-	-	-
62	Berrow	Operating a small business, horse riding	-	-	-	-	-	622	-	-	-
45	Berrow	Beach warden duties	-	-	-	-	-	582	-	-	-
46	Berrow	Beach warden duties	-	-	-	-	-	582	-	-	-
47	Berrow	Beach warden duties	-	-	-	-	-	582	-	-	-
57	Burnham-on-Sea	Dog walking	-	-	-	-	-	548	-	-	-
58	Burnham-on-Sea	Dog walking	-	-	-	-	-	548	-	-	-
30	Brean	Dog walking	-	-	-	-	-	456	-	-	-
55	Burnham-on-Sea	Dog walking	-	-	-	-	-	456	-	-	-
56	Burnham-on-Sea	Dog walking	-	-	-	-	-	456	-	-	-
48	Berrow	Beach warden duties	-	-	-	-	-	393	-	-	-
49	Berrow	Beach warden duties	-	-	-	-	-	393	-	-	-
112	Burnham-on-Sea, Berrow and Brean	Angling	-	-	-	-	-	312	-	-	-
93	Blue Anchor, Brean, Berrow and Burnham-on-Sea	Dog walking	-	-	-	-	-	312	-	-	-
94	Blue Anchor, Brean, Berrow and Burnham-on-Sea	Dog walking	-	-	-	-	-	312	-	-	-
108	Burnham-on-Sea	Angling	-	-	-	-	-	286	-	-	-
52	Burnham-on-Sea	Dog walking	-	-	-	-	-	274	-	-	-
23	Brean	Dog walking	-	-	-	-	-	208	-	-	-
24	Brean	Dog walking	-	-	-	-	-	208	-	-	-
95	Blue Anchor	Dog walking	-	-	-	-	-	180	-	-	-
96	Blue Anchor	Dog walking	-	-	-	-	-	180	-	-	-
12	Brean	Dog walking	-	-	-	-	-	176	-	-	-

**Table 12. Adults' intertidal occupancy rates in the Hinkley Point aquatic survey area (h y<sup>-1</sup>)**

Observation number	Location	Activity	Mud	Mud and sand	Mud, sand and stones	Rock	Salt marsh	Sand	Sand and stones	Stones	Boat on mud
13	Brean	Dog walking	-	-	-	-	-	176	-	-	-
147	Doniford	Dog walking	-	-	-	-	-	175	-	-	-
148	Doniford	Dog walking	-	-	-	-	-	175	-	-	-
142	Doniford	Dog walking	-	-	-	-	-	169	-	-	-
113	Burnham-on-Sea, Berrow and Brean	Angling	-	-	-	-	-	156	-	-	-
109	Burnham-on-Sea	Angling	-	-	-	-	-	120	-	-	-
170	Burnham-on-Sea	Walking	-	-	-	-	-	104	-	-	-
169	Burnham-on-Sea	Walking	-	-	-	-	-	104	-	-	-
105	Blue Anchor	Dog walking	-	-	-	-	-	104	-	-	-
104	Blue Anchor	Dog walking	-	-	-	-	-	104	-	-	-
114	Burnham-on-Sea	Angling	-	-	-	-	-	104	-	-	-
66	Berrow	Angling	-	-	-	-	-	85	-	-	-
64	Berrow	Angling	-	-	-	-	-	85	-	-	-
101	Blue Anchor	Playing	-	-	-	-	-	84	-	-	-
102	Blue Anchor	Playing	-	-	-	-	-	84	-	-	-
31	Brean	Dog walking	-	-	-	-	-	78	-	-	-
32	Brean	Dog walking	-	-	-	-	-	78	-	-	-
136	Blue Anchor, Brean, Berrow and Burnham-on-Sea	Angling	-	-	-	-	-	77	-	-	-
	Lilstock	Angling	-	-	-	-	-	-	-	20	-
137	Blue Anchor, Brean, Berrow and Burnham-on-Sea	Angling	-	-	-	-	-	77	-	-	-
	Lilstock	Angling	-	-	-	-	-	-	-	20	-
14	Brean	Playing	-	-	-	-	-	72	-	-	-
15	Brean	Playing	-	-	-	-	-	72	-	-	-
16	Brean	Playing	-	-	-	-	-	72	-	-	-
21	Brean	Walking	-	-	-	-	-	70	-	-	-
22	Brean	Walking	-	-	-	-	-	70	-	-	-
116	Burnham-on-Sea	Bait digging and angling	-	-	-	-	-	66	-	-	-
54	Burnham-on-Sea	Dog walking	-	-	-	-	-	52	-	-	-
53	Burnham-on-Sea	Dog walking	-	-	-	-	-	52	-	-	-

**Table 12. Adults' intertidal occupancy rates in the Hinkley Point aquatic survey area (h y<sup>-1</sup>)**

Observation number	Location	Activity	Mud	Mud and sand	Mud, sand and stones	Rock	Salt marsh	Sand	Sand and stones	Stones	Boat on mud
107	Berrow	Bait digging	-	-	-	-	-	45	-	-	-
65	Berrow	Angling	-	-	-	-	-	43	-	-	-
59	Berrow	Horse riding	-	-	-	-	-	36	-	-	-
60	Berrow	Horse riding	-	-	-	-	-	36	-	-	-
61	Berrow	Horse riding	-	-	-	-	-	36	-	-	-
26	Brean	Playing	-	-	-	-	-	30	-	-	-
27	Brean	Playing	-	-	-	-	-	30	-	-	-
184	Blue Anchor	Angling	-	-	-	-	-	26	-	-	-
	Lilstock and Stolford	Angling	-	-	-	-	-	-	-	53	-
143	Doniford	Dog walking	-	-	-	-	-	26	-	-	-
144	Doniford	Dog walking	-	-	-	-	-	26	-	-	-
230	Blue Anchor, Stolford and Stert	Dog walking	-	-	-	-	-	25	-	-	-
229	Blue Anchor, Stolford and Stert	Dog walking	-	-	-	-	-	25	-	-	-
33	Burnham-on-Sea and Berrow	Playing	-	-	-	-	-	24	-	-	-
36	Burnham-on-Sea and Berrow	Playing	-	-	-	-	-	24	-	-	-
1	Lilstock	Angling	-	-	-	-	-	20	-	-	-
	Blue Anchor	Angling	-	-	-	-	-	-	20	-	-
97	Blue Anchor	Sunbathing	-	-	-	-	-	15	-	-	-
98	Blue Anchor	Sunbathing	-	-	-	-	-	15	-	-	-
41	Brean Down	Angling	-	-	-	-	-	8	-	-	-
40	Brean Down	Angling	-	-	-	-	-	8	-	-	-
39	Brean Down	Angling	-	-	-	-	-	8	-	-	-
211	Shurton Bars	Walking	-	-	-	-	-	6	-	-	-
212	Shurton Bars	Walking	-	-	-	-	-	6	-	-	-
87	Stert	Walking	-	-	-	-	-	3	-	-	-
86	Stert	Walking	-	-	-	-	-	3	-	-	-
<b>272</b>	<b>Stolford</b>	<b>Dog walking</b>	-	-	-	-	-	-	<b>156</b>	-	-
<b>273</b>	<b>Stolford</b>	<b>Dog walking</b>	-	-	-	-	-	-	<b>156</b>	-	-



**Table 12. Adults' intertidal occupancy rates in the Hinkley Point aquatic survey area ( $\text{h y}^{-1}$ )**

Observation number	Location	Activity	Mud	Mud and sand	Mud, sand and stones	Rock	Salt marsh	Sand	Sand and stones	Stones	Boat on mud
92	Stolford	Collecting seaweed	-	-	-	-	-	-	-	6	-
149	Kilve	Fossil hunting	-	-	-	-	-	-	-	6	-
150	Kilve	Fossil hunting	-	-	-	-	-	-	-	6	-
<b>248</b>	<b>Combwich</b>	<b>Boat maintenance</b>	-	-	-	-	-	-	-	-	<b>365</b>

**Notes**

Emboldened observations are the high-rate individuals

The mean intertidal occupancy rate over mud based on 1 observation is  $995 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 25 observations for mud is  $458 \text{ h y}^{-1}$

The mean intertidal occupancy rate over mud and sand based on 24 high-rate observations is  $107 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 26 observations for mud and sand is  $216 \text{ h y}^{-1}$

The mean intertidal occupancy rate over mud, sand and stones based on 5 high-rate observations is  $356 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 6 observations for mud, sand and stones is  $365 \text{ h y}^{-1}$

The mean intertidal occupancy rate over rock based on 2 high-rate observations is  $326 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 8 observations for rock is  $351 \text{ h y}^{-1}$

The mean intertidal occupancy rate over salt marsh based on 2 observation is  $301 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 4 observations for salt marsh is  $402 \text{ h y}^{-1}$

The mean intertidal occupancy rate over sand based on 16 high-rate observations is  $688 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 86 observations for sand is  $859 \text{ h y}^{-1}$

The mean intertidal occupancy rate over sand and stones based on 8 high-rate observations is  $110 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 22 observations for sand and stones is  $156 \text{ h y}^{-1}$

The mean intertidal occupancy rate over stones based on 5 high-rate observations is  $243 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 22 observations for stones is  $335 \text{ h y}^{-1}$

The occupancy rate on board a boat resting on mud based on 1 observation is  $365 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

**Table 13. Children's intertidal occupancy rates in the Hinkley Point aquatic survey area ( $\text{h y}^{-1}$ )**

**10-year-old age group (6 - 15 years old)**

Observation number	Age	Location	Activity	Mud, sand and stones	Rock	Sand	Stones
<b>141</b>	<b>6</b>	<b>Doniford</b>	<b>Rock pooling</b>	<b>24</b>	-	-	-
		<b>Shurton Bars</b>	<b>Angling</b>	-	<b>40</b>	-	-
<b>156</b>	<b>9</b>	<b>St Audrie's Bay, Blue Anchor and Stolford</b>	<b>Angling</b>	-	-	<b>122</b>	-
		<b>Lilstock, Kilve and Doniford</b>	<b>Angling</b>	-	-	-	<b>122</b>
<b>17</b>	<b>12</b>	<b>Brean</b>	<b>Playing</b>	-	-	<b>72</b>	-
<b>18</b>	<b>12</b>	<b>Brean</b>	<b>Playing</b>	-	-	<b>72</b>	-
<b>19</b>	<b>6</b>	<b>Brean</b>	<b>Playing</b>	-	-	<b>72</b>	-
<b>118</b>	<b>12</b>	<b>Burnham-on-Sea</b>	<b>Angling and bait digging</b>	-	-	<b>66</b>	-
<b>146</b>	<b>12</b>	<b>Doniford</b>	<b>Playing</b>	-	-	<b>45</b>	-
<b>145</b>	<b>10</b>	<b>Doniford</b>	<b>Playing</b>	-	-	<b>45</b>	-
<b>187</b>	<b>14</b>	Blue Anchor	Angling	-	-	26	-
		<b>Lilstock and Stolford</b>	<b>Angling</b>	-	-	-	<b>53</b>
232	11	Blue Anchor, Stolford and Stert	Dog walking	-	-	25	-
231	7	Blue Anchor, Stolford and Stert	Dog walking	-	-	25	-
34	6	Burnham-on-Sea and Berrow	Playing	-	-	24	-
37	6	Burnham-on-Sea and Berrow	Playing	-	-	24	-
88	15	Stert	Walking	-	-	3	-
89	13	Stert	Walking	-	-	3	-
90	10	Stert	Walking	-	-	3	-
<b>263</b>	<b>15</b>	<b>Lilstock</b>	<b>Dog walking</b>	-	-	-	<b>52</b>
<b>264</b>	<b>13</b>	<b>Lilstock</b>	<b>Dog walking</b>	-	-	-	<b>52</b>
<b>268</b>	<b>13</b>	<b>Lilstock</b>	<b>Dog walking</b>	-	-	-	<b>52</b>
<b>269</b>	<b>11</b>	<b>Lilstock</b>	<b>Dog walking</b>	-	-	-	<b>52</b>
151	8	Kilve	Fossil hunting	-	-	-	6
152	6	Kilve	Fossil hunting	-	-	-	6

**Notes**

Emboldened observations are the high-rate individuals

The intertidal occupancy rate over mud, sand and stones for the 10-year-old age group based on the only observation is  $24 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

The intertidal occupancy rate over rock for the 10-year-old age group based on the only observation is  $40 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

The mean intertidal occupancy rate over sand for the 10-year-old age group based on 7 high-rate observations is  $71 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 15 observations for sand is  $105 \text{ h y}^{-1}$

The mean intertidal occupancy rate over stones for the 10-year-old age group based on 6 high-rate observations is  $64 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 8 observations for stones is  $110 \text{ h y}^{-1}$

**Table 13. Children's intertidal occupancy rates in the Hinkley Point aquatic survey area (h y<sup>-1</sup>)****1-year-old age group (0 - 5 years old)**

Observation number	Age	Location	Activity	Sand	Sand and stones	Stones
<b>103</b>	<b>5</b>	<b>Blue Anchor</b>	<b>Playing</b>	<b>84</b>	-	-
<b>20</b>	<b>4</b>	<b>Brean</b>	<b>Playing</b>	<b>72</b>	-	-
<b>28</b>	<b>4</b>	<b>Brean</b>	<b>Playing</b>	<b>30</b>	-	-
<b>29</b>	<b>2</b>	<b>Brean</b>	<b>Playing</b>	<b>30</b>	-	-
38	4	Burnham-on-Sea and Berrow	Playing	24	-	-
35	2	Burnham-on-Sea and Berrow	Playing	24	-	-
99	3	Blue Anchor	Playing	15	-	-
100	3	Blue Anchor	Playing	15	-	-
<b>160</b>	<b>3</b>	<b>Stolford</b>	<b>Playing</b>	-	<b>96</b>	-
<b>276</b>	<b>3</b>	<b>Lilstock and Stolford</b>	<b>Playing</b>	-	-	<b>216</b>

**Notes**

Emboldened observations are the high-rate individuals

The mean intertidal occupancy rate over sand for the 1-year-old age group based on 4 high-rate observations is 54 h y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 8 observations for sand is 82 h y<sup>-1</sup>

The intertidal occupancy rate over sand and stones for the 1-year-old age group based on the only observation is 96 h y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

The intertidal occupancy rate over stones for the 1-year-old age group based on the only observation is 216 h y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

**Table 14. Gamma dose rate measurements over intertidal substrates in the Hinkley Point aquatic survey area (µGy h<sup>-1</sup>)**

Location	NGR	Substrate	Gamma dose rate at 1 metre <sup>a</sup>
Brean	ST 295 583	Sand	0.058
Berrow	ST 289 537	Sand	0.050
Burnham-on-Sea	ST 302 489	Sand	0.047
River Brue	ST 304 478	Mud	0.064
Stert	ST 261 455	Sand	0.058
Stolford	ST 238 459	Sand	0.059
Hinkley	ST 207 462	Sand	0.057
Doniford	ST 086 431	Mud and sand	0.066
Blue Anchor	ST 020 436	Sand	0.063

**Notes**

<sup>a</sup> These measurements have not been adjusted for natural background dose rates

**Table 15. Adults' handling rates of fishing gear and sediment in the Hinkley Point aquatic survey area ( $\text{h y}^{-1}$ )**

Observation number	Location	Activity	Fishing gear	Sediment
<b>8</b>	<b>Stert Flats off Stolford</b>	<b>Handling nets</b>	<b>990</b>	-
		Collecting whelks and seaweed	-	5
227	Blue Anchor	Handling nets	192	-
226	Blue Anchor	Handling nets	192	-
	<b>Combwich</b>	<b>Fixing moorings</b>		
<b>233</b>	<b>Near Shurton Bars</b>	<b>Bait digging</b>	-	<b>106</b>
	<b>River Parrett and Hinkley Point</b>	<b>Wildfowling</b>		
<b>50</b>	<b>Burnham-on-Sea and Berrow</b>	<b>Bait digging</b>	-	<b>68</b>
<b>107</b>	<b>Berrow</b>	<b>Bait digging</b>	-	<b>45</b>
63	Berrow	Bait digging	-	20
116	Burnham-on-Sea	Bait digging	-	12
6	Stolford	Collecting seaweed	-	10
211	Stolford	Collecting seaweed	-	10
70	Stert	Collecting seaweed	-	6
91	Stolford	Collecting seaweed	-	6
92	Stolford	Collecting seaweed	-	6

**Notes**

Emboldened observations are the high-rate individuals

The fishing gear handling rate based on 1 observation is  $990 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 3 observations for fishing gear is  $950 \text{ h y}^{-1}$

The mean sediment handling rate based on 3 high-rate observations is  $73 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 11 observations for sediment is  $97 \text{ h y}^{-1}$

**Table 16. Children's handling rates of fishing gear and sediment in the Hinkley Point aquatic survey area ( $\text{h y}^{-1}$ )****10-year-old age group (6 - 15 years old)**

Observation number	Age	Location	Activity	Sediment
<b>118</b>	<b>12</b>	<b>Burnham-on-Sea</b>	<b>Bait digging</b>	<b>12</b>

**Notes**

The emboldened observation is the high-rate individual

The sediment handling rate for the 10-year-old age group based on the only observation is  $12 \text{ h y}^{-1}$

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

No children were identified handling fishing gear

**Table 17. Adults' occupancy rates in and on water in the Hinkley Point aquatic survey area (h y<sup>-1</sup>)**

Observation number	Location	Activity	In water	On water
44	Brean	Swimming	70	-
286	Watchet Harbour	Living on a houseboat	-	7300
287	Watchet Harbour	Living on a houseboat	-	7300
248	Bridgwater Bay and Comwich	Sailing and boat maintenance	-	653
233	Bridgwater Bay	Sailing	-	240
317	Near Watchet	Sailing and canoeing	-	240
352	Near Watchet	Sailing and canoeing	-	240
353	Near Watchet	Sailing and canoeing	-	240
354	Near Watchet	Sailing and canoeing	-	240
355	Near Watchet	Sailing and canoeing	-	240
356	Near Watchet	Sailing and canoeing	-	240
357	Near Watchet	Sailing and canoeing	-	240
358	Near Watchet	Sailing and canoeing	-	240
359	Near Watchet	Sailing and canoeing	-	240
360	Near Watchet	Sailing and canoeing	-	240
361	Near Watchet	Sailing and canoeing	-	240
288	Watchet Harbour	Dredging	-	200
289	Watchet Harbour	Dredging	-	200
292	Offshore of Watchet	Angling	-	162
293	Offshore of Watchet	Angling	-	162
290	Watchet Harbour	Dredging	-	133
291	Watchet Harbour	Dredging	-	133
134	Offshore of Watchet	Sailing	-	72
135	Offshore of Watchet	Sailing	-	72
57	River Parrett	Sailing	-	52
58	River Parrett	Sailing	-	52
296	Brean Down to Stert Island	Search and rescue duties	-	20
297	Brean Down to Stert Island	Search and rescue duties	-	20
298	Brean Down to Stert Island	Search and rescue duties	-	20
299	Brean Down to Stert Island	Search and rescue duties	-	20
300	Brean Down to Stert Island	Search and rescue duties	-	20
301	Brean Down to Stert Island	Search and rescue duties	-	20
302	Brean Down to Stert Island	Search and rescue duties	-	20
303	Brean Down to Stert Island	Search and rescue duties	-	20
304	Brean Down to Stert Island	Search and rescue duties	-	20
305	Brean Down to Stert Island	Search and rescue duties	-	20
306	Brean Down to Stert Island	Search and rescue duties	-	20
307	Brean Down to Stert Island	Search and rescue duties	-	20
308	Brean Down to Stert Island	Search and rescue duties	-	20
309	Brean Down to Stert Island	Search and rescue duties	-	20
310	Brean Down to Stert Island	Search and rescue duties	-	20
311	Brean Down to Stert Island	Search and rescue duties	-	15
312	Brean Down to Stert Island	Search and rescue duties	-	15
313	Brean Down to Stert Island	Search and rescue duties	-	15
314	Brean Down to Stert Island	Search and rescue duties	-	15
315	Brean Down to Stert Island	Search and rescue duties	-	15
316	Brean Down to Stert Island	Search and rescue duties	-	15

**Table 18. Children's occupancy rates in and on water in the Hinkley Point aquatic survey area (h y<sup>-1</sup>)**

**10-year-old age group (6-15 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Location</b>	<b>Activity</b>	<b>In water</b>	<b>On water</b>
145	10	Doniford	Swimming	6	-
146	12	Doniford	Swimming	6	-
318	10	Near Watchet	Sailing and canoeing	-	240
319	10	Near Watchet	Sailing and canoeing	-	240
320	10	Near Watchet	Sailing and canoeing	-	240
321	10	Near Watchet	Sailing and canoeing	-	240
322	10	Near Watchet	Sailing and canoeing	-	240
323	10	Near Watchet	Sailing and canoeing	-	240
324	11	Near Watchet	Sailing and canoeing	-	240
325	11	Near Watchet	Sailing and canoeing	-	240
326	11	Near Watchet	Sailing and canoeing	-	240
327	11	Near Watchet	Sailing and canoeing	-	240
328	11	Near Watchet	Sailing and canoeing	-	240
329	11	Near Watchet	Sailing and canoeing	-	240
330	12	Near Watchet	Sailing and canoeing	-	240
331	12	Near Watchet	Sailing and canoeing	-	240
332	12	Near Watchet	Sailing and canoeing	-	240
333	12	Near Watchet	Sailing and canoeing	-	240
334	12	Near Watchet	Sailing and canoeing	-	240
335	12	Near Watchet	Sailing and canoeing	-	240
336	13	Near Watchet	Sailing and canoeing	-	240
337	13	Near Watchet	Sailing and canoeing	-	240
338	13	Near Watchet	Sailing and canoeing	-	240
339	13	Near Watchet	Sailing and canoeing	-	240
340	13	Near Watchet	Sailing and canoeing	-	240
341	13	Near Watchet	Sailing and canoeing	-	240
342	14	Near Watchet	Sailing and canoeing	-	240
343	14	Near Watchet	Sailing and canoeing	-	240
344	14	Near Watchet	Sailing and canoeing	-	240
345	14	Near Watchet	Sailing and canoeing	-	240
346	14	Near Watchet	Sailing and canoeing	-	240
347	14	Near Watchet	Sailing and canoeing	-	240
348	15	Near Watchet	Sailing and canoeing	-	240
349	15	Near Watchet	Sailing and canoeing	-	240
350	15	Near Watchet	Sailing and canoeing	-	240
351	15	Near Watchet	Sailing and canoeing	-	240

**Table 19. Adults' consumption rates of green vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation Number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Lettuce	Marrow	Rocket	Spinach	Total
196	-	-	-	-	24.4	6.0	-	-	8.5	-	-	2.0	-	-	-	40.9
197	-	-	-	-	24.4	6.0	-	-	8.5	-	-	2.0	-	-	-	40.9
198	-	-	-	-	24.4	6.0	-	-	8.5	-	-	2.0	-	-	-	40.9
238	5.8	4.4	7.2	4.4	5.8	-	-	4.4	1.4	-	-	1.0	-	1.0	-	35.3
239	5.8	4.4	7.2	4.4	5.8	-	-	4.4	1.4	-	-	1.0	-	1.0	-	35.3
132	-	-	-	-	-	-	-	16.2	-	-	10.2	-	-	-	2.7	29.2
133	-	-	-	-	-	-	-	16.2	-	-	10.2	-	-	-	2.7	29.2
274	-	-	6.7	4.1	5.5	3.4	-	-	-	-	5.8	-	-	-	-	25.4
275	-	-	6.7	4.1	5.5	3.4	-	-	-	-	5.8	-	-	-	-	25.4
213	0.9	-	-	-	-	-	-	5.5	13.6	0.2	-	2.7	-	0.9	-	23.9
214	0.9	-	-	-	-	-	-	5.5	13.6	0.2	-	2.7	-	0.9	-	23.9
73	-	-	-	9.7	-	5.0	-	2.5	2.3	-	-	2.3	-	-	-	21.8
74	-	-	-	9.7	-	5.0	-	2.5	2.3	-	-	2.3	-	-	-	21.8
75	-	-	-	9.7	-	5.0	-	2.5	2.3	-	-	2.3	-	-	-	21.8
219	-	-	-	-	-	-	-	-	17.0	-	-	1.5	-	-	-	18.5
220	-	-	-	-	-	-	-	-	17.0	-	-	1.5	-	-	-	18.5
173	-	-	-	-	13.4	4.1	-	-	-	-	-	-	-	-	-	17.5
174	-	-	-	-	13.4	4.1	-	-	-	-	-	-	-	-	-	17.5
6	-	-	10.0	-	4.1	-	-	-	-	-	-	1.0	-	-	-	15.0
7	-	-	10.0	-	4.1	-	-	-	-	-	-	1.0	-	-	-	15.0
8	-	-	10.0	-	4.1	-	-	-	-	-	-	1.0	-	-	-	15.0
9	-	-	10.0	-	4.1	-	-	-	-	-	-	1.0	-	-	-	15.0
10	-	-	10.0	-	4.1	-	-	-	-	-	-	1.0	-	-	-	15.0
11	-	-	10.0	-	4.1	-	-	-	-	-	-	1.0	-	-	-	15.0
215	-	0.9	-	-	-	-	-	8.2	4.1	-	-	0.8	-	-	-	14.0
216	-	0.9	-	-	-	-	-	8.2	4.1	-	-	0.8	-	-	-	14.0
209	-	-	2.8	-	2.3	-	1.2	-	5.1	-	-	1.1	-	-	1.3	13.8

**Table 19. Adults' consumption rates of green vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation Number	Artichoke	Asparagus	Broccoli	Brussels sprout	Cabbage	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Lettuce	Marrow	Rocket	Spinach	Total
210	-	-	2.8	-	2.3	-	1.2	-	5.1	-	-	1.1	-	-	1.3	13.8
221	-	-	-	-	6.4	-	-	-	-	-	-	1.0	5.4	-	-	12.8
222	-	-	-	-	6.4	-	-	-	-	-	-	1.0	5.4	-	-	12.8
193	-	-	-	1.1	-	-	-	10.1	-	-	-	-	-	-	-	11.3
194	-	-	-	1.1	-	-	-	10.1	-	-	-	-	-	-	-	11.3
195	-	-	-	1.1	-	-	-	10.1	-	-	-	-	-	-	-	11.3
128	-	-	-	-	7.3	-	-	-	-	0.1	-	-	-	-	-	7.4
3	-	-	5.0	1.5	-	-	-	-	-	-	-	-	-	-	-	6.5
4	-	-	5.0	1.5	-	-	-	-	-	-	-	-	-	-	-	6.5
5	-	-	5.0	1.5	-	-	-	-	-	-	-	-	-	-	-	6.5
86	-	-	2.2	-	1.8	-	-	1.5	-	-	-	-	-	-	-	5.5
87	-	-	2.2	-	1.8	-	-	1.5	-	-	-	-	-	-	-	5.5
211	-	2.9	-	-	-	-	-	-	-	-	-	2.1	-	-	-	5.0
212	-	2.9	-	-	-	-	-	-	-	-	-	2.1	-	-	-	5.0
70	-	-	-	-	-	-	-	5.0	-	-	-	-	-	-	-	5.0
71	-	-	-	-	-	-	-	5.0	-	-	-	-	-	-	-	5.0
129	-	-	-	-	4.9	-	-	-	-	0.1	-	-	-	-	-	5.0
175	-	-	-	-	3.7	0.9	-	-	-	-	-	-	-	-	-	4.6
176	-	-	-	-	3.7	0.9	-	-	-	-	-	-	-	-	-	4.6
177	-	-	-	-	3.7	0.9	-	-	-	-	-	-	-	-	-	4.6
178	-	-	-	-	3.7	0.9	-	-	-	-	-	-	-	-	-	4.6
179	-	-	-	-	3.7	0.9	-	-	-	-	-	-	-	-	-	4.6
180	-	-	-	-	3.7	0.9	-	-	-	-	-	-	-	-	-	4.6
181	-	-	-	-	3.7	0.9	-	-	-	-	-	-	-	-	-	4.6
182	-	-	-	-	3.7	0.9	-	-	-	-	-	-	-	-	-	4.6
183	-	-	-	-	3.7	0.9	-	-	-	-	-	-	-	-	-	4.6
190	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	-	3.0

**Table 19. Adults' consumption rates of green vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

<b>Observation Number</b>	<b>Artichoke</b>	<b>Asparagus</b>	<b>Broccoli</b>	<b>Brussels sprout</b>	<b>Cabbage</b>	<b>Cauliflower</b>	<b>Chard</b>	<b>Courgette</b>	<b>Cucumber</b>	<b>Herbs</b>	<b>Kale</b>	<b>Lettuce</b>	<b>Marrow</b>	<b>Rocket</b>	<b>Spinach</b>	<b>Total</b>
191	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	-	3.0
76	-	-	-	-	-	-	-	0.9	-	-	-	1.8	-	-	-	2.7
77	-	-	-	-	-	-	-	0.9	-	-	-	1.8	-	-	-	2.7
78	-	-	-	-	-	-	-	0.9	-	-	-	1.8	-	-	-	2.7
277	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	1.4	2.6
229	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	1.8
230	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	1.8
130	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	1.5
131	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	1.5
121	-	-	-	-	0.9	-	-	-	-	-	-	-	-	-	-	0.9
122	-	-	-	-	0.9	-	-	-	-	-	-	-	-	-	-	0.9
126	-	-	-	-	0.9	-	-	-	-	-	-	-	-	-	-	0.9
127	-	-	-	-	0.9	-	-	-	-	-	-	-	-	-	-	0.9
184	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3
185	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3
186	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3
188	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3
189	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables based on the 28 high-rate adult consumers is 22.6 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 72 observations is 40.9 kg y<sup>-1</sup>

**Table 20. Adults' consumption rates of other vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Aubergine	Broad bean	French bean	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
196	-	9.1	4.8	12.6	-	-	4.6	7.9	4.6	6.0	49.6
197	-	-	4.8	12.6	-	-	4.6	7.9	4.6	6.0	40.5
198	-	-	4.8	12.6	-	-	4.6	7.9	4.6	6.0	40.5
238	7.3	1.5	-	-	10.2	-	4.4	0.2	1.0	12.2	36.8
239	7.3	1.5	-	-	10.2	-	4.4	0.2	1.0	12.2	36.8
73	-	9.1	-	3.0	-	-	13.6	-	-	6.6	32.3
74	-	9.1	-	3.0	-	-	13.6	-	-	6.6	32.3
75	-	9.1	-	3.0	-	-	13.6	-	-	6.6	32.3
219	-	4.6	1.8	-	-	-	13.6	0.7	-	10.8	31.4
220	-	4.6	1.8	-	-	-	13.6	0.7	-	10.8	31.4
86	-	5.5	4.3	8.1	-	-	4.1	-	0.9	3.6	26.5
87	-	5.5	4.3	8.1	-	-	4.1	-	0.9	3.6	26.5
274	-	4.1	4.9	-	-	2.2	12.2	-	2.1	-	25.5
275	-	4.1	4.9	-	-	2.2	12.2	-	2.1	-	25.5
169	-	6.8	-	-	-	-	18.0	-	-	-	24.7
170	-	6.8	-	-	-	-	18.0	-	-	-	24.7
171	-	6.8	-	-	-	-	18.0	-	-	-	24.7
172	-	6.8	-	-	-	-	18.0	-	-	-	24.7
132	-	-	2.9	-	-	-	21.8	-	-	-	24.6
133	-	-	2.9	-	-	-	21.8	-	-	-	24.6
209	-	-	1.4	1.1	1.5	-	10.2	0.9	-	8.1	23.1
210	-	-	1.4	1.1	1.5	-	10.2	0.9	-	8.1	23.1
6	-	-	2.4	-	-	-	18.1	-	-	-	20.5
7	-	-	2.4	-	-	-	18.1	-	-	-	20.5
8	-	-	2.4	-	-	-	18.1	-	-	-	20.5
9	-	-	2.4	-	-	-	18.1	-	-	-	20.5
10	-	-	2.4	-	-	-	18.1	-	-	-	20.5
11	-	-	2.4	-	-	-	18.1	-	-	-	20.5
190	-	9.3	-	-	-	-	10.9	-	-	-	20.2

**Table 20. Adults' consumption rates of other vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Aubergine	Broad bean	French bean	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
191	-	9.3	-	-	-	-	10.9	-	-	-	20.2
213	-	-	-	2.7	-	-	-	0.2	-	16.2	19.1
214	-	-	-	2.7	-	-	-	0.2	-	16.2	19.1
76	-	-	3.2	-	1.5	-	13.6	-	0.9	-	19.1
77	-	-	3.2	-	1.5	-	13.6	-	0.9	-	19.1
78	-	-	3.2	-	1.5	-	13.6	-	0.9	-	19.1
211	-	-	-	-	-	-	19.0	-	-	-	19.0
212	-	-	-	-	-	-	19.0	-	-	-	19.0
200	-	4.6	-	-	-	-	13.6	-	-	-	18.2
201	-	4.6	-	-	-	-	13.6	-	-	-	18.2
173	-	10.0	-	-	-	-	7.5	-	-	-	17.5
174	-	10.0	-	-	-	-	7.5	-	-	-	17.5
70	-	-	4.9	8.1	-	-	4.1	-	-	-	17.0
71	-	-	4.9	8.1	-	-	4.1	-	-	-	17.0
215	-	1.8	-	1.4	-	-	3.4	-	-	6.8	13.4
216	-	1.8	-	1.4	-	-	3.4	-	-	6.8	13.4
184	-	-	-	-	-	-	5.1	-	-	7.2	12.3
185	-	-	-	-	-	-	5.1	-	-	7.2	12.3
186	-	-	-	-	-	-	5.1	-	-	7.2	12.3
188	-	-	-	-	-	-	5.1	-	-	7.2	12.3
189	-	-	-	-	-	-	5.1	-	-	7.2	12.3
3	-	-	-	1.5	-	-	9.1	-	-	-	10.6
4	-	-	-	1.5	-	-	9.1	-	-	-	10.6
5	-	-	-	1.5	-	-	9.1	-	-	-	10.6
229	-	-	-	-	-	-	4.6	0.1	-	1.8	6.5
230	-	-	-	-	-	-	4.6	0.1	-	1.8	6.5
221	-	-	1.1	-	-	-	-	-	-	5.4	6.5
222	-	-	1.1	-	-	-	-	-	-	5.4	6.5
80	-	-	-	2.0	-	-	4.0	-	-	-	6.0

**Table 20. Adults' consumption rates of other vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Aubergine	Broad bean	French bean	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
81	-	-	-	2.0	-	-	4.0	-	-	-	6.0
84	-	-	-	2.0	-	-	4.0	-	-	-	6.0
85	-	-	-	2.0	-	-	4.0	-	-	-	6.0
266	-	-	-	2.3	-	-	1.7	-	0.6	1.4	5.9
267	-	-	-	2.3	-	-	1.7	-	0.6	1.4	5.9
121	-	-	-	-	-	-	3.9	-	-	-	3.9
122	-	-	-	-	-	-	3.9	-	-	-	3.9
126	-	-	-	-	-	-	3.9	-	-	-	3.9
127	-	-	-	-	-	-	3.9	-	-	-	3.9
175	-	2.2	-	-	-	-	1.5	-	-	-	3.7
176	-	2.2	-	-	-	-	1.5	-	-	-	3.7
177	-	2.2	-	-	-	-	1.5	-	-	-	3.7
178	-	2.2	-	-	-	-	1.5	-	-	-	3.7
179	-	2.2	-	-	-	-	1.5	-	-	-	3.7
180	-	2.2	-	-	-	-	1.5	-	-	-	3.7
181	-	2.2	-	-	-	-	1.5	-	-	-	3.7
182	-	2.2	-	-	-	-	1.5	-	-	-	3.7
183	-	2.2	-	-	-	-	1.5	-	-	-	3.7
193	-	-	-	-	-	-	3.6	-	-	-	3.6
194	-	-	-	-	-	-	3.6	-	-	-	3.6
195	-	-	-	-	-	-	3.6	-	-	-	3.6
2	-	-	-	-	-	-	2.7	-	-	0.2	2.9
128	-	-	-	-	-	-	-	0.6	-	0.1	0.7
129	-	-	-	-	-	-	-	0.4	-	0.1	0.5

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables based on the 43 high-rate adult consumers is 24.8 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 82 observations is 40.4 kg y<sup>-1</sup>

**Table 21. Adults' consumption rates of root vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Beetroot	Carrot	Celeriac	Garlic	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Sweet potato	Total
169	10.8	6.7	-	-	-	10.7	-	-	14.4	-	-	-	42.6
170	10.8	6.7	-	-	-	10.7	-	-	14.4	-	-	-	42.6
238	-	4.3	2.3	-	1.4	8.6	1.2	-	-	-	8.7	6.4	32.9
239	-	4.3	2.3	-	1.4	8.6	1.2	-	-	-	8.7	6.4	32.9
76	2.1	6.8	-	-	15.2	2.7	0.9	-	-	-	-	-	27.6
77	2.1	6.8	-	-	15.2	2.7	0.9	-	-	-	-	-	27.6
78	2.1	6.8	-	-	15.2	2.7	0.9	-	-	-	-	-	27.6
193	20.5	-	-	-	1.1	-	-	-	-	-	-	-	21.6
194	20.5	-	-	-	1.1	-	-	-	-	-	-	-	21.6
195	20.5	-	-	-	1.1	-	-	-	-	-	-	-	21.6
128	-	5.4	-	-	5.4	4.3	4.3	-	-	-	-	-	19.4
173	4.5	2.5	-	-	-	7.9	2.0	-	-	-	-	-	16.9
174	4.5	2.5	-	-	-	7.9	2.0	-	-	-	-	-	16.9
132	6.6	3.6	-	-	-	2.9	2.9	-	-	-	-	-	15.9
133	6.6	3.6	-	-	-	2.9	2.9	-	-	-	-	-	15.9
196	-	9.0	-	0.4	-	1.5	2.4	-	-	-	-	-	13.3
197	-	9.0	-	0.4	-	1.5	2.4	-	-	-	-	-	13.3
198	-	9.0	-	0.4	-	1.5	2.4	-	-	-	-	-	13.3
6	5.5	3.0	-	-	-	2.4	2.4	-	-	-	-	-	13.3
7	5.5	3.0	-	-	-	2.4	2.4	-	-	-	-	-	13.3
8	5.5	3.0	-	-	-	2.4	2.4	-	-	-	-	-	13.3
9	5.5	3.0	-	-	-	2.4	2.4	-	-	-	-	-	13.3
10	5.5	3.0	-	-	-	2.4	2.4	-	-	-	-	-	13.3
11	5.5	3.0	-	-	-	2.4	2.4	-	-	-	-	-	13.3
129	-	3.6	-	-	3.6	2.9	2.9	-	-	-	-	-	13.0
211	5.7	3.2	-	-	-	-	2.5	-	-	1.4	-	-	12.8
212	5.7	3.2	-	-	-	-	2.5	-	-	1.4	-	-	12.8
274	-	4.1	-	-	4.1	3.2	-	-	-	-	-	-	11.3
275	-	4.1	-	-	4.1	3.2	-	-	-	-	-	-	11.3

**Table 21. Adults' consumption rates of root vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Beetroot	Carrot	Celeriac	Garlic	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Sweet potato	Total
73	5.5	4.5	-	-	-	-	-	-	-	-	-	-	10.0
74	5.5	4.5	-	-	-	-	-	-	-	-	-	-	10.0
75	5.5	4.5	-	-	-	-	-	-	-	-	-	-	10.0
190	3.3	6.3	-	-	-	-	-	-	-	-	-	-	9.6
191	3.3	6.3	-	-	-	-	-	-	-	-	-	-	9.6
219	4.1	2.3	-	-	2.3	-	-	0.9	-	-	-	-	9.5
220	4.1	2.3	-	-	2.3	-	-	0.9	-	-	-	-	9.5
215	4.5	-	-	-	-	4.5	-	-	-	-	-	-	9.1
216	4.5	-	-	-	-	4.5	-	-	-	-	-	-	9.1
80	4.0	4.0	-	-	-	-	-	-	-	-	-	-	8.0
81	4.0	4.0	-	-	-	-	-	-	-	-	-	-	8.0
84	4.0	4.0	-	-	-	-	-	-	-	-	-	-	8.0
85	4.0	4.0	-	-	-	-	-	-	-	-	-	-	8.0
130	4.1	-	-	-	2.3	-	-	-	-	-	-	-	6.4
131	4.1	-	-	-	2.3	-	-	-	-	-	-	-	6.4
200	-	4.5	-	-	-	-	-	-	-	-	-	-	4.5
201	-	4.5	-	-	-	-	-	-	-	-	-	-	4.5
209	-	-	-	-	1.7	1.4	-	-	1.2	-	-	-	4.2
210	-	-	-	-	1.7	1.4	-	-	1.2	-	-	-	4.2
3	2.7	1.5	-	-	-	-	-	-	-	-	-	-	4.2
4	2.7	1.5	-	-	-	-	-	-	-	-	-	-	4.2
5	2.7	1.5	-	-	-	-	-	-	-	-	-	-	4.2
270	-	4.1	-	-	-	-	-	-	-	-	-	-	4.1
271	-	4.1	-	-	-	-	-	-	-	-	-	-	4.1
181	1.0	0.6	-	-	-	1.8	0.4	-	-	-	-	-	3.8
175	1.0	0.6	-	-	-	1.8	0.4	-	-	-	-	-	3.8
176	1.0	0.6	-	-	-	1.8	0.4	-	-	-	-	-	3.8
177	1.0	0.6	-	-	-	1.8	0.4	-	-	-	-	-	3.8
178	1.0	0.6	-	-	-	1.8	0.4	-	-	-	-	-	3.8

**Table 21. Adults' consumption rates of root vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Beetroot	Carrot	Celeriac	Garlic	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Sweet potato	Total
179	1.0	0.6	-	-	-	1.8	0.4	-	-	-	-	-	3.8
180	1.0	0.6	-	-	-	1.8	0.4	-	-	-	-	-	3.8
182	1.0	0.6	-	-	-	1.8	0.4	-	-	-	-	-	3.8
183	1.0	0.6	-	-	-	1.8	0.4	-	-	-	-	-	3.8
221	-	0.6	-	-	1.5	1.3	-	0.1	-	-	-	-	3.6
222	-	0.6	-	-	1.5	1.3	-	0.1	-	-	-	-	3.6
277	-	1.8	-	-	-	-	-	-	-	0.8	-	-	2.6
213	2.5	-	-	-	-	-	-	-	-	-	-	-	2.5
214	2.5	-	-	-	-	-	-	-	-	-	-	-	2.5
121	-	0.6	-	-	-	0.5	-	-	-	-	-	-	1.2
122	-	0.6	-	-	-	0.5	-	-	-	-	-	-	1.2
126	-	0.6	-	-	-	0.5	-	-	-	-	-	-	1.2
127	-	0.6	-	-	-	0.5	-	-	-	-	-	-	1.2
229	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
230	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
266	-	0.6	-	-	-	-	-	-	-	-	-	-	0.6
267	-	0.6	-	-	-	-	-	-	-	-	-	-	0.6
236	-	-	-	0.2	-	-	-	-	-	-	-	-	0.2
237	-	-	-	0.2	-	-	-	-	-	-	-	-	0.2

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables based on the 15 high-rate adult consumers is 25.6 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 77 observations is 33.8 kg y<sup>-1</sup>

**Table 22. Adults' consumption rates of potato from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

<b>Observation number</b>	<b>Potato</b>
<b>73</b>	<b>100.0</b>
<b>74</b>	<b>100.0</b>
<b>75</b>	<b>100.0</b>
<b>200</b>	<b>71.4</b>
<b>201</b>	<b>71.4</b>
<b>202</b>	<b>71.4</b>
<b>203</b>	<b>71.4</b>
<b>206</b>	<b>71.4</b>
<b>207</b>	<b>71.4</b>
<b>238</b>	<b>52.4</b>
<b>239</b>	<b>52.4</b>
<b>196</b>	<b>48.5</b>
<b>197</b>	<b>48.5</b>
<b>198</b>	<b>48.5</b>
<b>169</b>	<b>36.4</b>
<b>170</b>	<b>36.4</b>
215	22.7
216	22.7
211	22.3
212	22.3
128	21.8
132	21.8
133	21.8
86	16.4
87	16.4
6	15.2
7	15.2
8	15.2
9	15.2
10	15.2
11	15.2
129	14.6
3	9.1
4	9.1
5	9.1
270	8.2
271	8.2
80	8.0
81	8.0
84	8.0
85	8.0
266	6.8
267	6.8
121	6.5
122	6.5
126	6.5
127	6.5
272	5.7
273	5.7

**Table 22. Adults' consumption rates of potato from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

<b>Observation number</b>	<b>Potato</b>
193	4.6
194	4.6
195	4.6

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of potato based on the 16 high-rate adult consumers is 65.7 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 52 observations is 100.0 kg y<sup>-1</sup>

**Table 23. Adults' consumption rates of domestic fruit from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Apple	Apricot	Blackberry	Blackcurrant	Blueberry	Boysenberry	Cherry	Damson	Fig	Gooseberry	Grapes	Greengages	Lemon	Loganberry	Medlars	Melon	Nectarines	Peach	Pear	Plum	Quince	Raspberry	Redcurrants	Rhubarb	Strawberry	Tayberry	Walnuts	Whitecurrant	Total
238	13.6	-	-	2.7	2.3	-	9.1	-	-	2.3	1.0	3.6	0.2	-	-	2.0	-	6.6	7.3	7.3	-	8.1	2.7	5.5	3.8	2.7	0.2	-	81.0
239	13.6	-	-	2.7	2.3	-	9.1	-	-	2.3	1.0	3.6	0.2	-	-	2.0	-	6.6	7.3	7.3	-	8.1	2.7	5.5	3.8	2.7	0.2	-	81.0
198	3.6	-	-	-	-	-	0.3	-	0.4	0.5	-	-	-	5.3	-	-	-	-	-	0.8	-	16.3	-	1.7	15.9	5.3	0.8	-	50.7
196	3.6	-	-	-	-	-	0.3	-	0.4	-	-	-	-	5.3	-	-	-	-	-	0.8	-	16.3	-	1.7	15.9	5.3	0.8	-	50.3
197	3.6	-	-	-	-	-	0.3	-	0.4	-	-	-	-	5.3	-	-	-	-	-	0.8	-	16.3	-	1.7	15.9	5.3	0.8	-	50.3
73	16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.7	-	-	4.5	-	-	-	-	3.0	-	40.9
74	16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.7	-	-	4.5	-	-	-	-	3.0	-	40.9
75	16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.7	-	-	4.5	-	-	-	-	3.0	-	40.9
213	15.9	0.7	2.3	1.4	-	-	-	1.4	0.5	1.4	1.4	-	-	-	0.9	-	-	-	4.5	2.3	0.7	-	-	-	-	-	-	1.4	34.5
253	33.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33.3
254	33.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33.3
255	33.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33.3
214	15.9	0.7	-	1.4	-	-	-	1.4	0.5	1.4	1.4	-	-	-	0.9	-	-	-	4.5	2.3	0.7	-	-	-	-	-	-	1.4	32.2
215	15.9	-	-	0.9	-	-	-	-	0.1	1.4	-	-	-	-	-	-	-	-	4.5	1.8	-	2.3	-	2.3	2.0	-	-	0.9	32.1
216	15.9	-	-	0.9	-	-	-	-	0.1	1.4	-	-	-	-	-	-	-	-	4.5	1.8	-	2.3	-	2.3	2.0	-	-	0.9	32.1
169	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.6	-	2.1	15.7	-	-	-	31.3
170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.6	-	2.1	15.7	-	-	-	31.3
171	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.6	-	2.1	15.7	-	-	-	31.3
172	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.6	-	2.1	15.7	-	-	-	31.3
86	20.0	-	-	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.0	1.8	-	-	0.1	-	29.9
87	20.0	-	-	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.0	1.8	-	-	0.1	-	29.9
80	20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	6.0	-	-	-	-	-	-	-	-	27.0
81	20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	6.0	-	-	-	-	-	-	-	-	27.0
84	20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	6.0	-	-	-	-	-	-	-	-	27.0
85	20.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	6.0	-	-	-	-	-	-	-	-	27.0
5	10.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	9.1	-	1.5	-	-	-	-	-	-	21.7
211	13.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.8	-	-	-	-	-	-	-	-	-	20.4
212	13.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.8	-	-	-	-	-	-	-	-	-	20.4
209	11.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	4.5	-	2.3	-	-	-	-	-	-	19.3
210	11.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	4.5	-	2.3	-	-	-	-	-	-	19.3
219	9.1	0.5	-	0.5	0.5	0.5	0.9	-	0.9	-	0.9	-	-	0.2	-	-	0.5	-	0.9	-	0.5	0.9	0.5	0.9	-	0.5	-	0.5	18.8
220	9.1	0.5	-	0.5	0.5	0.5	0.9	-	0.9	-	0.9	-	-	0.2	-	-	0.5	-	0.9	-	0.5	0.9	0.5	0.9	-	0.5	-	0.5	18.8
3	10.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	3.0	-	1.5	-	-	-	-	-	-	15.7
4	10.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	3.0	-	1.5	-	-	-	-	-	-	15.7
184	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	0.2	-	1.1	-	-	-	-	-	-	14.5



**Table 23. Adults' consumption rates of domestic fruit from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Apple	Apricot	Blackberry	Blackcurrant	Blueberry	Boysenberry	Cherry	Damson	Fig	Gooseberry	Grapes	Greengages	Lemon	Loganberry	Medlars	Melon	Nectarines	Peach	Pear	Plum	Quince	Raspberry	Redcurrants	Rhubarb	Strawberry	Tayberry	Walnuts	Whitecurrant	Total
122	0.7	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0
126	0.7	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0
127	0.7	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0
217	0.5	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7
218	0.5	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7
260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	-	-	-	-	-	-	-	-	0.6
261	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	-	-	-	-	-	-	-	-	0.6
262	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	-	-	-	-	-	-	-	-	0.6
200	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3
201	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3
202	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3
203	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3
206	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3
207	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit based on the 21 high-rate adult consumers is 40.6 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 84 observations is 50.7 kg y<sup>-1</sup>

**Table 24. Adults' consumption rates of milk from the Hinkley Point terrestrial survey area (l y<sup>-1</sup>)**

Observation number	Cheese <sup>a</sup>	Cream	Milk	Total
<b>258</b>	-	-	<b>365.0</b>	<b>365.0</b>
<b>259</b>	-	-	<b>365.0</b>	<b>365.0</b>
<b>193</b>	-	-	<b>207.4</b>	<b>207.4</b>
<b>194</b>	-	-	<b>207.4</b>	<b>207.4</b>
<b>195</b>	-	-	<b>207.4</b>	<b>207.4</b>
<b>240</b>	-	-	<b>207.4</b>	<b>207.4</b>
<b>73</b>	-	<b>19.5</b>	<b>121.7</b>	<b>141.2</b>
<b>74</b>	-	<b>19.5</b>	<b>121.7</b>	<b>141.2</b>
<b>75</b>	-	<b>19.5</b>	<b>121.7</b>	<b>141.2</b>
121	-	-	112.0	112.0
122	-	-	112.0	112.0
126	-	-	112.0	112.0
127	-	-	112.0	112.0
202	-	-	91.3	91.3
203	-	-	91.3	91.3
206	-	-	91.3	91.3
207	-	-	91.3	91.3
213	6.8	-	-	6.8
214	6.8	-	-	6.8

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of milk based on the 9 high-rate adult consumers is 220.4 l y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 19 observations is 365.0 l y<sup>-1</sup>

<sup>a</sup> The obtained consumption rates were converted into the equivalent litres of milk

**Table 25. Adults' consumption rates of cattle meat from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Beef
<b>253</b>	<b>73.3</b>
<b>254</b>	<b>73.3</b>
<b>255</b>	<b>73.3</b>
<b>73</b>	<b>63.1</b>
<b>74</b>	<b>63.1</b>
<b>75</b>	<b>63.1</b>
<b>200</b>	<b>27.0</b>
<b>201</b>	<b>27.0</b>
<b>202</b>	<b>27.0</b>
<b>203</b>	<b>27.0</b>
<b>206</b>	<b>27.0</b>
<b>207</b>	<b>27.0</b>
<b>266</b>	<b>26.0</b>
<b>267</b>	<b>26.0</b>
256	20.0
257	20.0

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of cattle meat based on the 14 high-rate adult consumers is 44.5 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 16 observations is 73.3 kg y<sup>-1</sup>

**Table 26. Adults' consumption rates of pig meat from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

<b>Observation number</b>	<b>Pork</b>
<b>241</b>	<b>18.1</b>
<b>242</b>	<b>18.1</b>
<b>243</b>	<b>18.1</b>
<b>244</b>	<b>18.1</b>
<b>245</b>	<b>18.1</b>
<b>246</b>	<b>18.1</b>
<b>247</b>	<b>18.1</b>
<b>200</b>	<b>14.5</b>
<b>201</b>	<b>14.5</b>
<b>202</b>	<b>14.5</b>
<b>203</b>	<b>14.5</b>
<b>206</b>	<b>14.5</b>
<b>207</b>	<b>14.5</b>
238	2.7
239	2.7

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of pig meat based on the 13 high-rate adult consumers is 16.4 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 15 observations is 18.1 kg y<sup>-1</sup>

**Table 27. Adults' consumption rates of sheep meat from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

<b>Observation number</b>	<b>Lamb</b>
<b>196</b>	<b>15.1</b>
<b>197</b>	<b>15.1</b>
<b>198</b>	<b>15.1</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of sheep meat based on the 3 high-rate adult consumers is 15.1 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 3 observations is 15.1 kg y<sup>-1</sup>

**Table 28. Adults' consumption rates of poultry from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Goose	Partridge	Pheasant	Pigeon	Turkey	Total
<b>256</b>	-	-	<b>9.0</b>	<b>2.0</b>	-	<b>11.0</b>
<b>257</b>	-	-	<b>9.0</b>	<b>2.0</b>	-	<b>11.0</b>
<b>80</b>	<b>0.4</b>	-	<b>4.5</b>	<b>1.2</b>	<b>0.7</b>	<b>6.8</b>
<b>81</b>	<b>0.4</b>	-	<b>4.5</b>	<b>1.2</b>	<b>0.7</b>	<b>6.8</b>
<b>84</b>	<b>0.4</b>	-	<b>4.5</b>	<b>1.2</b>	<b>0.7</b>	<b>6.8</b>
<b>85</b>	<b>0.4</b>	-	<b>4.5</b>	<b>1.2</b>	<b>0.7</b>	<b>6.8</b>
<b>73</b>	-	-	<b>5.3</b>	<b>0.5</b>	-	<b>5.7</b>
<b>74</b>	-	-	<b>5.3</b>	<b>0.5</b>	-	<b>5.7</b>
<b>75</b>	-	-	<b>5.3</b>	<b>0.5</b>	-	<b>5.7</b>
<b>253</b>	-	<b>0.7</b>	<b>4.5</b>	-	-	<b>5.2</b>
<b>254</b>	-	<b>0.7</b>	<b>4.5</b>	-	-	<b>5.2</b>
<b>255</b>	-	<b>0.7</b>	<b>4.5</b>	-	-	<b>5.2</b>
<b>196</b>	-	-	<b>3.9</b>	<b>0.2</b>	-	<b>4.1</b>
<b>197</b>	-	-	<b>3.9</b>	<b>0.2</b>	-	<b>4.1</b>
<b>198</b>	-	-	<b>3.9</b>	<b>0.2</b>	-	<b>4.1</b>
128	-	-	3.6	-	-	3.6
3	-	-	2.4	-	-	2.4
4	-	-	2.4	-	-	2.4
5	-	-	2.4	-	-	2.4
251	-	-	2.3	-	-	2.3
252	-	-	2.3	-	-	2.3
260	-	-	1.8	-	-	1.8
261	-	-	1.8	-	-	1.8
262	-	-	1.8	-	-	1.8
190	-	-	1.4	-	-	1.4
191	-	-	1.4	-	-	1.4
206	-	-	1.4	-	-	1.4
207	-	-	1.4	-	-	1.4
238	-	-	0.9	-	-	0.9
239	-	-	0.9	-	-	0.9

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of poultry based on the 15 high-rate adult consumers is 6.3 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 30 observations is 11.0 kg y<sup>-1</sup>

**Table 29. Adults' consumption rates of eggs from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Chicken egg	Duck egg	Goose egg	Total
<b>2</b>	<b>35.6</b>	-	-	<b>35.6</b>
<b>193</b>	<b>23.4</b>	-	-	<b>23.4</b>
<b>194</b>	<b>23.4</b>	-	-	<b>23.4</b>
<b>195</b>	<b>23.4</b>	-	-	<b>23.4</b>
<b>251</b>	<b>17.8</b>	-	-	<b>17.8</b>
<b>252</b>	<b>17.8</b>	-	-	<b>17.8</b>
<b>211</b>	<b>14.8</b>	-	-	<b>14.8</b>
<b>212</b>	<b>14.8</b>	-	-	<b>14.8</b>
<b>238</b>	<b>11.9</b>	-	-	<b>11.9</b>
<b>239</b>	<b>11.9</b>	-	-	<b>11.9</b>
173	11.4	-	-	11.4
174	11.4	-	-	11.4
209	8.9	0.7	-	9.6
128	8.9	-	0.3	9.2
130	8.9	-	-	8.9
131	8.9	-	-	8.9
213	8.9	-	-	8.9
214	8.9	-	-	8.9
86	6.4	-	-	6.4
87	6.4	-	-	6.4
196	5.9	-	-	5.9
197	5.9	-	-	5.9
198	5.9	-	-	5.9
229	4.4	-	-	4.4
230	4.4	-	-	4.4
175	1.5	-	-	1.5
176	1.5	-	-	1.5
177	1.5	-	-	1.5
178	1.5	-	-	1.5
179	1.5	-	-	1.5
180	1.5	-	-	1.5
181	1.5	-	-	1.5
182	1.5	-	-	1.5
183	1.5	-	-	1.5
272	0.2	0.4	0.6	1.2
273	0.2	0.4	0.6	1.2

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs based on the 10 high-rate adult consumers is 19.5 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 36 observations is 24.9 kg y<sup>-1</sup>

**Table 30. Adults' consumption rates of wild/free foods from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Blackberry	Crab apple	Elderberry	Hazel nuts	Sloe	Total
214	2.3	0.9	2.3	-	-	5.4
274	2.5	-	-	-	2.5	5.0
275	2.5	-	-	-	2.5	5.0
213	-	0.9	2.3	-	-	3.2
219	2.3	0.9	-	-	-	3.2
220	2.3	0.9	-	-	-	3.2
80	2.7	-	-	-	-	2.7
81	2.7	-	-	-	-	2.7
84	2.7	-	-	-	-	2.7
85	2.7	-	-	-	-	2.7
256	0.5	-	-	-	2.3	2.7
257	0.5	-	-	-	2.3	2.7
238	2.3	-	-	-	-	2.3
239	2.3	-	-	-	-	2.3
209	2.3	-	-	-	-	2.3
210	2.3	-	-	-	-	2.3
73	1.5	-	-	0.5	-	2.0
74	1.5	-	-	0.5	-	2.0
75	1.5	-	-	0.5	-	2.0
190	2.0	-	-	-	-	2.0
191	2.0	-	-	-	-	2.0
3	1.8	-	-	-	-	1.8
4	1.8	-	-	-	-	1.8
224	1.8	-	-	-	-	1.8
225	1.8	-	-	-	-	1.8
193	1.5	-	-	-	-	1.5
194	1.5	-	-	-	-	1.5
195	1.5	-	-	-	-	1.5
76	0.9	-	-	-	0.5	1.4
77	0.9	-	-	-	0.5	1.4
78	0.9	-	-	-	0.5	1.4
211	1.4	-	-	-	-	1.4
212	1.4	-	-	-	-	1.4
249	1.0	-	-	-	-	1.0
250	1.0	-	-	-	-	1.0
251	0.5	-	-	-	0.5	1.0
252	0.5	-	-	-	0.5	1.0
215	0.9	-	-	-	-	0.9
216	0.9	-	-	-	-	0.9
196	0.8	-	-	-	-	0.8
197	0.8	-	-	-	-	0.8
198	0.8	-	-	-	-	0.8
229	0.8	-	-	-	-	0.8
230	0.8	-	-	-	-	0.8
253	0.7	-	-	-	-	0.7
254	0.7	-	-	-	-	0.7
255	0.7	-	-	-	-	0.7
236	0.5	-	-	-	-	0.5
237	0.5	-	-	-	-	0.5
132	0.5	-	-	-	-	0.5
133	0.5	-	-	-	-	0.5
221	0.3	-	-	-	-	0.3
222	0.3	-	-	-	-	0.3
2	0.2	-	-	-	-	0.2
86	0.2	-	-	-	-	0.2
87	0.2	-	-	-	-	0.2
260	0.2	-	-	-	-	0.2
261	0.2	-	-	-	-	0.2
262	0.2	-	-	-	-	0.2
128	-	-	0.1	-	-	0.1
129	-	-	0.05	-	-	0.05

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of wild/free foods based on the 25 high-rate adult consumers is 2.7 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 61 observations is 5.0 kg y<sup>-1</sup>

**Table 31. Adults' consumption rates of rabbits/hares from the Hinkley Point terrestrial area (kg y<sup>-1</sup>)**

Observation number	Rabbit
<b>73</b>	<b>2.6</b>
<b>74</b>	<b>2.6</b>
<b>75</b>	<b>2.6</b>
<b>128</b>	<b>0.9</b>
190	0.7
191	0.7
196	0.5
197	0.5
198	0.5
266	0.4
267	0.4

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of rabbits/hares based on the 4 high-rate adult consumers is 2.2 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 11 observations is 2.6 kg y<sup>-1</sup>

**Table 32. Adults' consumption rates of honey from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

Observation number	Honey
<b>209</b>	<b>2.5</b>
<b>235</b>	<b>1.4</b>
272	0.6
273	0.6
238	0.5
239	0.5
256	0.5
257	0.5
80	0.2
81	0.2
84	0.2
85	0.2
221	0.2
222	0.2

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of honey based on the 2 high-rate adult consumers is 1.9 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 14 observations is 2.1 kg y<sup>-1</sup>

**Table 33. Adults' consumption rates of wild fungi from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

<b>Observation number</b>	<b>Mushrooms</b>
<b>274</b>	<b>1.3</b>
<b>275</b>	<b>1.3</b>
<b>73</b>	<b>1.1</b>
<b>74</b>	<b>1.1</b>
<b>75</b>	<b>1.1</b>
<b>251</b>	<b>1.0</b>
<b>252</b>	<b>1.0</b>
<b>238</b>	<b>0.9</b>
<b>239</b>	<b>0.9</b>
<b>253</b>	<b>0.8</b>
<b>254</b>	<b>0.8</b>
<b>255</b>	<b>0.8</b>
<b>2</b>	<b>0.7</b>
<b>3</b>	<b>0.6</b>
<b>4</b>	<b>0.6</b>
<b>5</b>	<b>0.6</b>
<b>256</b>	<b>0.5</b>
<b>257</b>	<b>0.5</b>
200	0.3
201	0.3
202	0.3
203	0.3
219	0.2
220	0.2
121	0.2
122	0.2
126	0.2
127	0.2
193	0.2
194	0.2
195	0.2
206	0.1
207	0.1

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of wild fungi based on the 18 high-rate adult consumers is 0.9 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 33 observations is 1.3 kg y<sup>-1</sup>

**Table 34. Adults' consumption rates of venison from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

<b>Observation number</b>	<b>Venison</b>
<b>256</b>	<b>25.0</b>
<b>257</b>	<b>25.0</b>
<b>196</b>	<b>8.7</b>
<b>197</b>	<b>8.7</b>
<b>198</b>	<b>8.7</b>
80	5.6
81	5.6
84	5.6
85	5.6
217	4.5
218	4.5

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of venison based on the 5 high-rate adult consumers is 15.2 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 11 observations is 25.0 kg y<sup>-1</sup>

**Table 35. Children's consumption rates of green vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

Observation number	Age	Broccoli	Brussels sprout	Cabbage	Cauliflower	Courgette	Kale	Lettuce	Total
<b>88</b>	<b>15</b>	<b>2.2</b>	-	<b>1.8</b>	-	<b>1.5</b>	-	-	<b>5.5</b>
<b>89</b>	<b>13</b>	<b>2.2</b>	-	<b>1.8</b>	-	<b>1.5</b>	-	-	<b>5.5</b>
<b>90</b>	<b>10</b>	<b>2.2</b>	-	<b>1.8</b>	-	<b>1.5</b>	-	-	<b>5.5</b>
<b>192</b>	<b>14</b>	-	-	-	-	-	-	<b>3.0</b>	<b>3.0</b>
<b>79</b>	<b>14</b>	-	-	-	-	<b>0.9</b>	-	<b>1.8</b>	<b>2.7</b>
231	7	-	-	-	-	1.8	-	-	1.8
232	11	-	-	-	-	1.8	-	-	1.8
72	12	-	-	-	-	1.7	-	-	1.7
123	15	-	-	0.9	-	-	-	-	0.9
124	10	-	-	0.9	-	-	-	-	0.9
187	14	-	-	-	-	-	-	0.3	0.3

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables for the 10-year-old age group based on the 5 high-rate consumers is 4.5 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 11 observations is 5.5 kg y<sup>-1</sup>

**1-year-old age group (0 - 5 years old)**

Observation number	Age	Broccoli	Brussels sprout	Cabbage	Cauliflower	Courgette	Kale	Lettuce	Total
<b>276</b>	<b>3</b>	<b>0.7</b>	<b>0.5</b>	<b>0.6</b>	<b>0.4</b>	-	<b>0.6</b>	-	<b>2.8</b>
125	5	-	-	0.6	-	-	-	-	0.6

**Notes**

The emboldened observation is the high-rate consumer

The consumption rate of green vegetables for the 1-year-old age group based on the 1 high-rate consumer is 2.8 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 2 observations is 2.8 kg y<sup>-1</sup>

**Table 36. Children's consumption rates of other vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

Observation number	Age	Broad bean	French bean	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
<b>88</b>	<b>15</b>	<b>5.5</b>	<b>4.3</b>	<b>8.1</b>	-	-	<b>4.1</b>	-	<b>0.9</b>	<b>3.6</b>	<b>26.5</b>
<b>89</b>	<b>13</b>	<b>5.5</b>	<b>4.3</b>	<b>8.1</b>	-	-	<b>4.1</b>	-	<b>0.9</b>	<b>3.6</b>	<b>26.5</b>
<b>90</b>	<b>10</b>	<b>5.5</b>	<b>4.3</b>	<b>8.1</b>	-	-	<b>4.1</b>	-	<b>0.9</b>	<b>3.6</b>	<b>26.5</b>
<b>192</b>	<b>14</b>	<b>9.3</b>	-	-	-	-	<b>10.9</b>	-	-	-	<b>20.2</b>
<b>79</b>	<b>14</b>	-	<b>3.2</b>	-	<b>1.5</b>	-	<b>13.6</b>	-	<b>0.9</b>	-	<b>19.1</b>
<b>187</b>	<b>14</b>	-	-	-	-	-	<b>5.1</b>	-	-	<b>7.2</b>	<b>12.3</b>
231	7	-	-	-	-	-	4.6	0.1	-	1.8	6.5
232	11	-	-	-	-	-	4.6	0.1	-	1.8	6.5
268	13	-	-	2.3	-	-	1.7	-	0.6	1.4	5.9
269	11	-	-	2.3	-	-	1.7	-	0.6	1.4	5.9
72	12	-	1.6	2.7	-	-	1.5	-	-	-	5.9
123	15	-	-	-	-	-	3.9	-	-	-	3.9
124	10	-	-	-	-	-	3.9	-	-	-	3.9
83	6	-	-	1.0	-	-	2.0	-	-	-	3.0

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables for the 10-year-old age group based on the 6 high-rate consumers is 21.8 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 14 observations is 26.5 kg y<sup>-1</sup>

**1-year-old age group (0 - 5 years old)**

Observation number	Age	Broad bean	French bean	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
<b>125</b>	<b>5</b>	<b>0.9</b>	-	-	-	-	<b>2.7</b>	-	-	-	<b>3.6</b>
<b>82</b>	<b>5</b>	-	-	<b>1.0</b>	-	-	<b>2.0</b>	-	-	-	<b>3.0</b>
<b>276</b>	<b>3</b>	<b>0.5</b>	<b>0.5</b>	-	-	<b>0.2</b>	<b>0.7</b>	-	<b>0.2</b>	-	<b>2.1</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables for the 1-year-old age group based on the 3 high-rate consumers is 2.9 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 3 observations is 3.6 kg y<sup>-1</sup>

**Table 37. Children's consumption rates of root vegetables from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

Observation number	Age	Beetroot	Carrot	Leek	Onion	Parsnip	Total
<b>79</b>	<b>14</b>	<b>2.1</b>	<b>6.8</b>	<b>15.2</b>	<b>2.7</b>	<b>0.9</b>	<b>27.6</b>
<b>192</b>	<b>14</b>	<b>3.3</b>	<b>6.3</b>	-	-	-	<b>9.6</b>
83	6	2.0	2.0	-	-	-	4.0
123	15	-	0.6	-	0.5	-	1.2
124	10	-	0.6	-	0.5	-	1.2
231	7	-	-	-	1.1	-	1.1
232	11	-	-	-	1.1	-	1.1
268	13	-	0.6	-	-	-	0.6
269	11	-	0.6	-	-	-	0.6

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables for the 10-year-old age group based on the 2 high-rate consumers is 18.6 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 9 observations is 24.0 kg y<sup>-1</sup>

**1-year-old age group (0 - 5 years old)**

Observation number	Age	Beetroot	Carrot	Leek	Onion	Parsnip	Total
<b>82</b>	<b>5</b>	<b>2.0</b>	<b>2.0</b>	-	-	-	<b>4.0</b>
276	3	-	0.5	0.5	0.4	-	1.3
125	5	-	0.5	-	0.4	-	0.8

**Notes**

The emboldened observation is the high-rate consumer

The consumption rate of root vegetables for the 1-year-old age group based on the 1 high-rate consumer is 4.0 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 3 observations is 3.9 kg y<sup>-1</sup>

**Table 38. Children's consumption rates of potato from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Potato</b>
<b>204</b>	<b>11</b>	<b>35.7</b>
<b>205</b>	<b>9</b>	<b>35.7</b>
<b>88</b>	<b>15</b>	<b>16.4</b>
<b>89</b>	<b>13</b>	<b>16.4</b>
<b>90</b>	<b>10</b>	<b>16.4</b>
268	13	6.8
269	11	6.8
123	15	6.5
124	10	6.5
83	6	4.0

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of potato for the 10-year-old age group based on the 5 high-rate consumers is 24.1 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 10 observations is 35.7 kg y<sup>-1</sup>

**1-year-old age group (0 - 5 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Potato</b>
<b>125</b>	<b>5</b>	<b>4.6</b>
<b>82</b>	<b>5</b>	<b>4.0</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of potato for the 1-year-old age group based on the 2 high-rate consumers is 4.3 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 2 observations is 4.5 kg y<sup>-1</sup>

**Table 39. Children's consumption rates of domestic fruit from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

Observation number	Age	Apple	Blackberry	Blackcurrant	Loganberry	Pear	Plum	Raspberry	Redcurrants	Rhubarb	Strawberry	Walnuts	Total
<b>88</b>	<b>15</b>	<b>20.0</b>	-	<b>4.0</b>	-	-	-	-	<b>4.0</b>	<b>1.8</b>	-	<b>0.1</b>	<b>29.9</b>
<b>89</b>	<b>13</b>	<b>20.0</b>	-	<b>4.0</b>	-	-	-	-	<b>4.0</b>	<b>1.8</b>	-	<b>0.1</b>	<b>29.9</b>
<b>90</b>	<b>10</b>	<b>20.0</b>	-	<b>4.0</b>	-	-	-	-	<b>4.0</b>	<b>1.8</b>	-	<b>0.1</b>	<b>29.9</b>
<b>187</b>	<b>14</b>	-	-	-	<b>13.3</b>	-	<b>0.2</b>	<b>1.1</b>	-	-	-	-	<b>14.5</b>
<b>83</b>	<b>6</b>	<b>10.0</b>	-	-	-	<b>0.5</b>	<b>3.0</b>	-	-	-	-	-	<b>13.5</b>
192	14	3.8	-	-	-	-	1.2	-	-	-	3.8	-	8.8
79	14	2.5	-	0.3	-	2.5	1.3	-	0.8	-	-	-	7.3
268	13	2.8	0.3	0.3	-	-	-	0.3	-	-	-	-	3.5
269	11	2.8	0.3	0.3	-	-	-	0.3	-	-	-	-	3.5
123	15	0.7	0.3	-	-	-	-	-	-	-	-	-	1.0
124	10	0.7	0.3	-	-	-	-	-	-	-	-	-	1.0
263	15	-	-	-	-	-	0.6	-	-	-	-	-	0.6
264	13	-	-	-	-	-	0.6	-	-	-	-	-	0.6
204	11	-	0.1	-	-	-	-	-	-	-	-	-	0.1
205	9	-	0.1	-	-	-	-	-	-	-	-	-	0.1

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit for the 10-year-old age group based on the 5 high-rate consumers is 23.6 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 15 observations is 29.9 kg y<sup>-1</sup>

**1-year-old age group (0 - 5 years old)**

Observation number	Age	Apple	Blackberry	Blackcurrant	Loganberry	Pear	Plum	Raspberry	Redcurrants	Rhubarb	Strawberry	Walnuts	Total
<b>82</b>	<b>5</b>	<b>10.0</b>	-	-	-	<b>0.5</b>	<b>3.0</b>	-	-	-	-	-	<b>13.5</b>
125	5	0.3	0.1	-	-	-	-	-	-	-	-	-	0.5
276	3	-	-	-	-	-	-	0.1	-	-	-	-	0.1

**Notes**

The emboldened observation is the high-rate consumer

The mean consumption rate of domestic fruit for the 1-year-old age group based on the 1 high-rate consumer is 13.5 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 3 observations is 12.8 kg y<sup>-1</sup>

**Table 40. Children's consumption rates of milk from the Hinkley Point terrestrial survey area ( $l\ y^{-1}$ )**

**10-year-old age group (6 - 15 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Milk</b>
<b>123</b>	<b>15</b>	<b>112.0</b>
<b>124</b>	<b>10</b>	<b>112.0</b>
<b>204</b>	<b>11</b>	<b>91.3</b>
<b>205</b>	<b>9</b>	<b>91.3</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of milk for the 10-year-old age group based on the 4 high-rate consumers is  $101.6\ l\ y^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 4 observations is  $112.0\ l\ y^{-1}$

**1-year-old age group (0 - 5 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Milk</b>
<b>208</b>	<b>2</b>	<b>91.3</b>
<b>125</b>	<b>5</b>	<b>56.0</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of milk for the 1-year-old age group based on the 2 high-rate consumers is  $73.6\ l\ y^{-1}$

The observed 97.5<sup>th</sup> percentile rate based on 2 observations is  $90.4\ l\ y^{-1}$

**Table 41. Children's consumption rates of cattle meat from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Beef</b>
<b>268</b>	<b>13</b>	<b>26.0</b>
<b>204</b>	<b>11</b>	<b>13.5</b>
<b>205</b>	<b>9</b>	<b>13.5</b>
269	11	6.5

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of cattle meat for the 10-year-old age group based on the 3 high-rate consumers is 17.7 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 4 observations is 25.1 kg y<sup>-1</sup>

**Table 42. Children's consumption rates of pig meat in the Hinkley Point area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Pork</b>
<b>204</b>	<b>11</b>	<b>7.2</b>
<b>205</b>	<b>9</b>	<b>7.2</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of pig meat for the 10-year-old age group based on the 2 high-rate consumers is 7.2 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 2 observations is 7.2 kg y<sup>-1</sup>

**Table 43. Children's consumption rates of poultry from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

Observation number	Age	Goose	Pheasant	Pigeon	Turkey	Total
<b>83</b>	<b>6</b>	<b>0.2</b>	<b>2.3</b>	<b>0.6</b>	<b>0.4</b>	<b>3.4</b>
<b>263</b>	<b>15</b>	-	<b>1.8</b>	-	-	<b>1.8</b>
<b>264</b>	<b>13</b>	-	<b>1.8</b>	-	-	<b>1.8</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of poultry for the 10-year-old age group based on the 3 high-rate consumers is 2.3 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 3 observations is 3.3 kg y<sup>-1</sup>

**1-year-old age group (0 - 5 years old)**

Observation number	Age	Goose	Pheasant	Pigeon	Turkey	Total
<b>82</b>	<b>5</b>	<b>0.2</b>	<b>2.3</b>	<b>0.6</b>	<b>0.4</b>	<b>3.4</b>

**Notes**

The emboldened observation is the high-rate consumer

The consumption rate of poultry for the 1-year-old age group based on the only consumer is 3.4 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

**Table 44. Children's consumption rates of eggs from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

Observation number	Age	Chicken egg
<b>88</b>	<b>15</b>	<b>6.4</b>
<b>89</b>	<b>13</b>	<b>6.4</b>
<b>90</b>	<b>10</b>	<b>6.4</b>
<b>231</b>	<b>7</b>	<b>4.4</b>
<b>232</b>	<b>11</b>	<b>4.4</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs for the 10-year-old age group based on the 5 high-rate consumers is 5.6 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 5 observations is 6.4 kg y<sup>-1</sup>

**Table 45. Children's consumption rates of wild/free foods from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)**

**10-year-old age group (6 - 15 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Blackberry</b>	<b>Sloe</b>	<b>Total</b>
<b>192</b>	<b>14</b>	<b>2.0</b>	-	<b>2.0</b>
<b>79</b>	<b>14</b>	<b>0.9</b>	<b>0.5</b>	<b>1.4</b>
<b>83</b>	<b>6</b>	<b>1.4</b>	-	<b>1.4</b>
<b>231</b>	<b>7</b>	<b>0.8</b>	-	<b>0.8</b>
<b>232</b>	<b>11</b>	<b>0.8</b>	-	<b>0.8</b>
88	15	0.2	-	0.2
89	13	0.2	-	0.2
90	10	0.2	-	0.2
263	15	0.2	-	0.2
264	13	0.2	-	0.2

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of wild/free foods for the 10-year-old age group based on the 5 high-rate consumers is 1.2 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 10 observations is 1.8 kg y<sup>-1</sup>

**1-year-old age group (0 - 5 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Blackberry</b>	<b>Sloe</b>	<b>Total</b>
<b>82</b>	<b>5</b>	<b>1.4</b>	-	<b>1.4</b>
276	3	0.3	-	0.3

**Notes**

The emboldened observation is the high-rate consumer

The mean consumption rate of wild/free foods for the 1-year-old age group based on the 1 high-rate consumer is 1.4 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 2 observations is 1.3 kg y<sup>-1</sup>

**Table 46. Children's consumption rates of rabbits/hares from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)****10-year-old age group (6 - 15 years old)**

Observation number	Age	Rabbit
<b>268</b>	<b>13</b>	<b>0.4</b>
<b>269</b>	<b>11</b>	<b>0.4</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of rabbits/hares for the 10-year-old age group based on the 2 high-rate consumers is 0.4 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 2 observations is 0.4 kg y<sup>-1</sup>

**Table 47. Children's consumption rates of honey from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)****10-year-old age group (6 - 15 years old)**

Observation number	Age	Honey
<b>83</b>	<b>6</b>	<b>0.1</b>

**Notes**

The emboldened observation is the high-rate consumer

The consumption rate of honey for the 10-year-old age group based on the only consumer is 0.1 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

**1-year-old age group (0 - 5 years old)**

Observation number	Age	Honey
<b>82</b>	<b>5</b>	<b>0.1</b>

**Notes**

The emboldened observation is the high-rate consumer

The consumption rate of honey for the 1-year-old age group based on the only consumer is 0.1 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

**Table 48. Children's consumption rates of wild fungi from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)****10-year-old age group (6 - 15 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Mushrooms</b>
<b>123</b>	<b>15</b>	<b>0.2</b>
<b>124</b>	<b>10</b>	<b>0.2</b>
<b>204</b>	<b>11</b>	<b>0.1</b>
<b>205</b>	<b>9</b>	<b>0.1</b>

**Notes**

Emboldened observations are the high-rate consumers

The mean consumption rate of wild fungi for the 10-year-old age group based on the 4 high-rate consumers is 0.1 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate based on 4 observations is 0.2 kg y<sup>-1</sup>

**Table 49. Children's consumption rates of venison from the Hinkley Point terrestrial survey area (kg y<sup>-1</sup>)****10-year-old age group (6 - 15 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Venison</b>
<b>83</b>	<b>6</b>	<b>2.8</b>

**Notes**

The emboldened observation is the high-rate consumer

The consumption rate of venison for the 10-year-old age group based on the only consumer is 2.8 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

**1-year-old age group (0 - 5 years old)**

<b>Observation number</b>	<b>Age</b>	<b>Venison</b>
<b>82</b>	<b>5</b>	<b>2.8</b>

**Notes**

The emboldened observation is the high-rate consumer

The consumption rate of venison for the 1-year-old age group based on the only consumer is 2.8 kg y<sup>-1</sup>

The observed 97.5<sup>th</sup> percentile rate is not applicable for 1 observation

**Table 50. Percentage contribution each food type makes to its terrestrial food group for adults**

<b>Green vegetables</b> Cabbage 26.4 % Courgettes 15.2 % Cucumber 13.9 % Broccoli 13.7 % Cauliflower 6.8 % Brussels sprout 6.6 % <b>Lettuce</b> 6.5 % Kale 3.9 % Asparagus 2.0 % Artichoke 1.6 % Marrow 1.3 % <b>Spinach</b> 1.1 % Rocket 0.5 % Chard 0.4 % Herbs 0.1 %	<b>Domestic fruit</b> <b>Apple</b> 38.9 % Raspberry 11.6 % Pear 9.8 % Strawberry 9.5 % Plum 6.3 % Loganberry 6.0 % Rhubarb 4.7 % Tayberry 1.6 % Cherry 1.5 % Blackcurrant 1.4 % Gooseberry 1.3 % Redcurrants 1.2 % Peach 1.0 % Walnuts 0.9 % Grapes 0.8 % Greengages 0.6 % Blackberry 0.6 % Blueberry 0.5 % Whitecurrant 0.4 % Fig 0.3 % Melon 0.3 % Damson 0.2 % Quince 0.2 % Apricot 0.2 % Medlars 0.1 % Boysenberry 0.1 % Nectarines 0.1 % Lemon 0.0 %	<b>Sheep meat</b> Lamb 100.0 %
<b>Other vegetables</b> <b>Runner bean</b> 49.2 % Tomato 16.0 % Broad bean 12.9 % Pea 8.3 % French bean 6.0 % Squash 2.2 % Pepper 2.0 % Sweetcorn 1.9 % Aubergine 1.1 % Pumpkin 0.3 %	<b>Milk</b> <b>Cows' milk</b> 94.7 % Cream 4.6 % Cheese 0.7 %	<b>Poultry</b> Pheasant 85.8 % Pigeon 8.8 % Turkey 2.3 % Partridge 1.7 % Goose 1.4 %
<b>Root vegetables</b> Beetroot 31.5 % <b>Carrot</b> 25.7 % Onion 17.4 % Leek 9.0 % Parsnip 6.8 % Shallot 4.1 % Swede 2.3 % Sweet potato 1.7 % Celeriac 0.6 % Spring onion 0.5 % Radish 0.3 % Garlic 0.2 %	<b>Cattle meat</b> Beef 100.0 %	<b>Eggs</b> Chicken egg 99.1 % Goose egg 0.5 % Duck egg 0.4 %
<b>Potato</b> <b>Potato</b> 100.0 %	<b>Pig meat</b> Pork 100.0 %	<b>Wild/free foods</b> <b>Blackberry</b> 76.52 % Sloe 12.57 % Elderberry 4.91 % Crab apple 3.84 % Hazel nuts 1.68 % Almond 0.48 %
		<b>Honey</b> Honey 100.0 %
		<b>Wild fungi</b> Mushrooms 100.0 %
		<b>Rabbits/hares</b> Rabbit 100.0 %
		<b>Venison</b> Venison 100.0 %

**Notes**

Food types in emboldened italics were monitored by FSA in 2009 (EA, FSA, NIEA and SEPA, 2010).

Wheat was also monitored.

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

**Table 51. Direct radiation occupancy rates for adults and children in the Hinkley Point area (h y<sup>-1</sup>)**

Observation Number	Sex	Activity	Age (years)	Indoor occupancy	Outdoor occupancy	Total occupancy
<b>Within the nuclear licensed site area</b>						
199	U	Nature conservation activities	U	-	234	234
<b>0 - 0.25 km zone</b>						
161	M	Angling	71	-	240	240
162	M	Angling	46	-	112	112
70	M	Beachcombing	47	-	30	30
194	M	Farming	64	-	8	8
195	M	Farming	30	-	8	8
<b>&gt;0.25 - 0.5 km zone</b>						
265	M	Farming	U	-	63	63
139	M	Bird watching	28	-	24	24
<b>&gt;0.5 - 1.1 km zone</b>						
215	M	Residing	88	7676	312	7988
216	M	Residing	61	7052	936	7988
223	F	Residing	55	7303	365	7668
229	F	Residing	38	5852	1750	7602
222	F	Residing	63	7442	106	7548
218	F	Residing	20	6263	365	6628
231	F	Residing	7	5519	1050	6569
221	M	Residing	63	6255	106	6361
232	F	Residing	11	4827	1050	5877
230	M	Residing	56	4713	1050	5763
217	M	Residing and farming	27	3130	770	3900
219	M	Residing	67	2493	217	2710
220	F	Residing	61	2493	217	2710
120	M	Farming	65	-	300	300
155	M	Angling	46	-	112	112
157	F	Angling	35	-	112	112
156	M	Angling	9	-	40	40

**Notes**

U - Unknown

**Table 52. Analysis of direct radiation occupancy rates for adults and children in the Hinkley Point area**

<b>Number of hours</b>	<b>Number of observations</b>
<b>Within the nuclear licensed site area</b>	
0 to 1000	1
<b>0 - 0.25 km zone</b>	
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	0
0 to 1000	5
<b>0 to 8760</b>	<b>5</b>
<b>&gt;0.25 - 0.5 km zone</b>	
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	0
0 to 1000	2
<b>0 to 8760</b>	<b>2</b>
<b>&gt;0.5 - 1.1 km zone</b>	
8000 to 8760	0
7000 to 8000	5
6000 to 7000	3
5000 to 6000	2
4000 to 5000	0
3000 to 4000	1
2000 to 3000	2
1000 to 2000	0
0 to 1000	4
<b>0 to 8760</b>	<b>17</b>

**Table 53. Gamma dose rate measurements for the Hinkley Point direct radiation survey ( $\mu\text{Gy h}^{-1}$ )**

**Residences**

Location	Indoor substrate	Indoor gamma dose rate at 1 metre <sup>a</sup>	Outdoor substrate	Outdoor gamma dose rate at 1 metre <sup>a</sup>
House 1	Wood	0.061	Grass	0.083
House 2	Concrete	0.073	Grass	0.081
House 3	Concrete	0.081	Grass	0.068
House 4	Wood	0.056	Grass	0.058
House 5	Concrete	0.061	Grass	0.076
House 6	Concrete	0.054	Grass	0.070

**Backgrounds**

	Location	NGR	Substrate	Background gamma dose rate at 1 metre
Background 1	East of Stolford	ST 262 453	Grass	0.064
Background 2	South-east of Fiddington	ST 232 386	Grass	0.079
Background 3	Near Kilve	ST 145 441	Grass	0.076

**Notes**

<sup>a</sup> These measurements have not been adjusted for natural background dose rates





















Annex 1. Adults' consumption rates (kg y<sup>-1</sup> or l y<sup>-1</sup>) and occupancy rates (h y<sup>-1</sup>) in the Hinkley Point area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Wildfowl	Marine plants/algae	Salt marsh grazed sheep meat	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Intertidal occupancy over mud	Intertidal occupancy over mud and sand	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over salt marsh	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Intertidal occupancy over stones	Occupancy on a boat resting on mud	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1.1 km of the licensed site boundary	Outdoor occupancy within 1.1 km of the licensed site boundary			
258	M	U	-	-	-	-	-	-	-	-	-	-	-	365.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
259	F	U	-	-	-	-	-	-	-	-	-	-	-	365.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
260	M	47	-	-	-	-	-	-	-	-	-	0.6	-	-	-	-	1.8	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-	-	-	-	-	-	-	-	
261	F	44	-	-	-	-	-	-	-	-	-	0.6	-	-	-	-	1.8	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-	-	-	-	-	-	-	-	
262	F	18	-	-	-	-	-	-	-	-	-	0.6	-	-	-	-	1.8	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-	-	-	-	-	-	-	-	
265	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63		
266	M	38	2.0	-	-	-	-	-	5.9	0.6	6.8	3.5	-	26.0	-	-	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	244	-	-	-	-	-	-	-	-	-	-	
267	F	35	2.0	-	-	-	-	-	5.9	0.6	6.8	3.5	-	26.0	-	-	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	52	-	-	-	-	-	-	-	-	-	-	
270	M	60	-	-	-	-	-	-	-	4.1	8.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
271	F	56	-	-	-	-	-	-	-	4.1	8.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
272	M	56	-	-	-	-	-	-	-	-	5.7	8.5	-	-	-	-	-	1.2	-	0.6	-	-	-	-	-	-	-	-	-	-	156	-	-	-	-	-	-	-	-	-	-	
273	F	50	-	-	-	-	-	-	-	-	5.7	8.5	-	-	-	-	-	1.2	-	0.6	-	-	-	-	-	-	-	-	-	-	156	-	-	-	-	-	-	-	-	-	-	
274	M	44	0.2	-	-	-	-	25.4	25.5	11.3	-	1.3	-	-	-	-	-	-	5.0	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
275	F	41	0.2	-	-	-	-	25.4	25.5	11.3	-	1.3	-	-	-	-	-	-	5.0	-	1.3	-	-	-	-	-	-	-	-	-	108	-	-	-	-	-	-	-	-	-	-	
277	F	U	-	-	-	-	-	2.6	-	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
278	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	
279	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	
280	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	
281	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	
282	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	
283	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	
284	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	
285	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	
286	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7300	-	-	
287	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7300	-	-	
288	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	
289	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	

Annex 1. Adults' consumption rates (kg y<sup>-1</sup> or l y<sup>-1</sup>) and occupancy rates (h y<sup>-1</sup>) in the Hinkley Point area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Wildfowl	Marine plants/algae	Salt marsh grazed sheep meat	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Intertidal occupancy over mud	Intertidal occupancy over mud and sand	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over salt marsh	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Intertidal occupancy over stones	Occupancy on a boat resting on mud	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1.1 km of the licensed site boundary	Outdoor occupancy within 1.1 km of the licensed site boundary							
290	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133	-	-					
291	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133	-	-				
292	M	40	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	162	-	-				
293	M	44	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	162	-	-				
294	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	
295	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	
296	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
297	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
298	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
299	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
300	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
301	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
302	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
303	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
304	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
305	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
306	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
307	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
308	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
309	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
310	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-
311	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-
312	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	
313	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	
314	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	
315	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	
316	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	



Annex 2. Children's consumption rates (kg y<sup>-1</sup> or l y<sup>-1</sup>) and occupancy rates (h y<sup>-1</sup>) in the Hinkley Point area

Observation number	Sex	Age (years)	Fish	Wildfowl	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand and stones	Intertidal occupancy over sand and stones	Intertidal occupancy over stones	Handling fishing gear and sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1.1 km of the licensed site boundary	Outdoor occupancy within 1.1 km of the licensed site boundary			
<b>10-year-old age group (6 - 15 years old)</b>																																
17	M	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72	-	-	-	-	-	-	-	-		
18	M	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72	-	-	-	-	-	-	-	-		
19	M	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72	-	-	-	-	-	-	-	-		
34	M	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-		
37	M	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-		
72	F	12	-	-	1.7	5.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
79	F	14	-	-	2.7	19.1	27.6	-	7.3	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
83	F	6	-	0.6	-	3.0	4.0	4.0	13.5	-	-	-	3.4	-	1.4	-	0.1	-	2.8	-	-	-	-	-	-	-	-	-	-	-	-	
88	M	15	-	-	5.5	26.5	-	16.4	29.9	-	-	-	-	6.4	0.2	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	
89	F	13	-	-	5.5	26.5	-	16.4	29.9	-	-	-	-	6.4	0.2	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	
90	M	10	-	-	5.5	26.5	-	16.4	29.9	-	-	-	-	6.4	0.2	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	
118	M	12	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66	-	-	12	-	-	-	-	-	-	
119	F	10	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
123	M	15	-	-	0.9	3.9	1.2	6.5	1.0	112.0	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	
124	F	10	-	-	0.9	3.9	1.2	6.5	1.0	112.0	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
141	F	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-
145	M	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	-	-	-	6	-	-	-	-	-	
146	M	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	-	-	-	6	-	-	-	-	-	

Annex 2. Children's consumption rates (kg y<sup>-1</sup> or l y<sup>-1</sup>) and occupancy rates (h y<sup>-1</sup>) in the Hinkley Point area

Observation number	Sex	Age (years)	Fish	Wildfowl	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Intertidal occupancy over stones	Handling fishing gear and sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1.1 km of the licensed site boundary	Outdoor occupancy within 1.1 km of the licensed site boundary	
151	M	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	
152	F	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	
156	M	9	<b>3.6</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>40</b>	<b>122</b>	-	<b>122</b>	-	-	-	-	40	
187	M	14	-	-	0.3	<b>12.3</b>	-	-	<b>14.5</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	-	<b>53</b>	-	-	-	
192	M	14	-	-	<b>3.0</b>	<b>20.2</b>	<b>9.6</b>	-	8.8	-	-	-	-	-	<b>2.0</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
204	M	11	-	-	-	-	-	<b>35.7</b>	0.1	<b>91.3</b>	<b>13.5</b>	<b>7.2</b>	-	-	-	-	-	<b>0.1</b>	-	-	-	-	-	-	-	-	-	-	-	
205	F	9	-	-	-	-	-	<b>35.7</b>	0.1	<b>91.3</b>	<b>13.5</b>	<b>7.2</b>	-	-	-	-	-	<b>0.1</b>	-	-	-	-	-	-	-	-	-	-	-	
231	F	7	-	-	1.8	6.5	1.1	-	-	-	-	-	-	<b>4.4</b>	<b>0.8</b>	-	-	-	-	-	-	-	-	25	-	-	-	-	5519	1050
232	F	11	-	-	1.8	6.5	1.1	-	-	-	-	-	-	<b>4.4</b>	<b>0.8</b>	-	-	-	-	-	-	-	-	25	-	-	-	-	4827	1050
263	M	15	-	-	-	-	-	-	0.6	-	-	-	<b>1.8</b>	-	0.2	-	-	-	-	-	-	-	-	-	-	-	<b>52</b>	-	-	-
264	F	13	-	-	-	-	-	-	0.6	-	-	-	<b>1.8</b>	-	0.2	-	-	-	-	-	-	-	-	-	-	-	<b>52</b>	-	-	-
268	M	13	<b>2.0</b>	-	-	5.9	0.6	6.8	3.5	-	<b>26.0</b>	-	-	-	-	<b>0.4</b>	-	-	-	-	-	-	-	-	-	-	<b>52</b>	-	-	-
269	F	11	<b>2.0</b>	-	-	5.9	0.6	6.8	3.5	-	6.5	-	-	-	-	<b>0.4</b>	-	-	-	-	-	-	-	-	-	-	<b>52</b>	-	-	-
318	M	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
319	M	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
320	M	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
321	F	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
322	F	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
323	F	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-

Annex 2. Children's consumption rates (kg y<sup>-1</sup> or l y<sup>-1</sup>) and occupancy rates (h y<sup>-1</sup>) in the Hinkley Point area

Observation number	Sex	Age (years)	Fish	Wildfowl	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Intertidal occupancy over stones	Handling fishing gear and sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1.1 km of the licensed site boundary	Outdoor occupancy within 1.1 km of the licensed site boundary
324	M	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-	
325	M	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
326	M	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
327	F	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
328	F	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
329	F	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
330	M	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
331	M	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
332	M	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
333	F	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
334	F	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
335	F	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
336	M	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
337	M	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
338	M	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
339	F	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
340	F	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
341	F	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
342	M	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-

Annex 2. Children's consumption rates (kg y<sup>-1</sup> or l y<sup>-1</sup>) and occupancy rates (h y<sup>-1</sup>) in the Hinkley Point area

Observation number	Sex	Age (years)	Fish	Wildfowl	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Intertidal occupancy over stones	Handling fishing gear and sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1.1 km of the licensed site boundary	Outdoor occupancy within 1.1 km of the licensed site boundary				
343	M	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-					
344	M	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-				
345	F	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-				
346	F	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-				
347	F	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-				
348	M	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-				
349	M	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-				
350	F	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-				
351	F	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-				
<b>1-year-old age group (0 - 5 years old)</b>																																	
20	F	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72	-	-	
28	F	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-
29	M	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-
35	F	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-
38	M	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-
82	M	5	-	0.6	-	3.0	4.0	4.0	13.5	-	-	-	3.4	-	1.4	-	0.1	-	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	F	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-
100	F	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-
103	M	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84	-	-

Annex 2. Children's consumption rates (kg y<sup>-1</sup> or l y<sup>-1</sup>) and occupancy rates (h y<sup>-1</sup>) in the Hinkley Point area

Observation number	Sex	Age (years)	Fish	Wildfowl	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Intertidal occupancy over stones	Handling fishing gear and sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1.1 km of the licensed site boundary	Outdoor occupancy within 1.1 km of the licensed site boundary
125	M	5	-	-	0.6	<b>3.6</b>	0.8	<b>4.6</b>	0.5	<b>56.0</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
160	M	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<b>96</b>	-	-	-	-	-	-
208	F	2	-	-	-	-	-	-	-	<b>91.3</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
276	M	3	-	-	<b>2.8</b>	<b>2.1</b>	1.3	-	0.1	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	<b>216</b>	-	-	-	-	-

**Notes**

Emboldened observations are the high-rate individuals

### Annex 3. Qualitative and estimated data for use in dose assessments

Details of activity	Exposure pathways involved	Estimated rate
None identified	None identified	Not applicable

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

Group	Ratio child/adult <sup>a</sup>	
	1-year-old <sup>e</sup>	10-year-old <sup>e</sup>
Fish <sup>b</sup>	0.050	0.200
Crustaceans <sup>b</sup>	0.050	0.250
Molluscs <sup>b</sup>	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 <sup>c</sup>	0.110	0.490
Game <sup>d</sup>	0.140	0.500
Honey	0.789	0.789
Wild fungi	0.150	0.450
Freshwater fish <sup>b</sup>	0.050	0.250
External exposure over intertidal substrates	0.030	0.500

#### Notes

<sup>a</sup>Excepting notes b and c, consumption ratios were derived from Byrom et al., (1995) which presented data for infants aged 6 to 12 months (classified here as 1-year-old) and children aged 10 to 11 years (classified here as 10-year-old).

<sup>b</sup>Ratios were derived from Smith and Jones, (2003) which presented data for infants and children.

<sup>c</sup>Ratios were derived from FSA data for wild fruit and nuts for infants and 10-year-old children.

<sup>d</sup>Game includes rabbits/hares and venison.

<sup>e</sup>Note that the age ranges within the age groups in this table do not correspond exactly with the age ranges within the age groups used throughout the rest of this report.



Annex 5. Consumption rates (kg y<sup>-1</sup> or l y<sup>-1</sup>) and occupancy rates (h y<sup>-1</sup>) for women of childbearing age<sup>a</sup> in the Hinkley Point area, for use in foetal dose assessments

Observation number	Sex	Age (years)	Fish	Crustaceans	Wildfowl	Marine plants/algae	Salt marsh grazed sheep meat	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Intertidal occupancy over mud	Intertidal occupancy over mud and sand	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Intertidal occupancy over stones	Occupancy in water	Occupancy on water	Indoor occupancy within 1.1 km of the licensed site	Outdoor occupancy within 1.1 km of the licensed site		
198	F	U	-	-	-	-	-	40.9	40.5	13.3	48.5	50.7	-	-	-	15.1	4.1	5.9	0.8	0.5	-	-	8.7	-	-	-	-	-	-	-	-	-	-	-	-	
203	F	36	-	-	-	-	-	-	-	-	71.4	0.3	91.3	27.0	14.5	-	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	
207	F	34	-	-	-	-	-	-	-	-	71.4	0.3	91.3	27.0	14.5	-	1.4	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	
218	F	20	0.4	-	-	-	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	4.5	-	-	-	-	-	-	-	-	-	-	6263	365	
225	F	U	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	-	
229	F	38	-	-	-	-	-	1.8	6.5	1.1	-	-	-	-	-	-	-	4.4	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5852	1750	
234	F	U	6.0	0.2	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
235	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
236	F	U	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
243	F	33	-	-	-	-	-	-	-	-	-	-	-	-	18.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
245	F	30	-	-	-	-	-	-	-	-	-	-	-	-	18.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
246	F	35	-	-	-	-	-	-	-	-	-	-	-	-	18.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
255	F	29	-	0.2	1.1	-	-	-	-	-	-	33.3	-	73.3	-	-	5.2	-	0.7	-	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	
259	F	U	-	-	-	-	-	-	-	-	-	-	365.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
261	F	44	-	-	-	-	-	-	-	-	-	0.6	-	-	-	-	1.8	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-	
262	F	18	-	-	-	-	-	-	-	-	-	0.6	-	-	-	-	1.8	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-	
267	F	35	2.0	-	-	-	-	-	5.9	0.6	6.8	3.5	-	26.0	-	-	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	52	-	-		
275	F	41	0.2	-	-	-	-	25.4	25.5	11.3	-	1.3	-	-	-	-	-	-	5.0	-	-	1.3	-	-	-	-	-	-	-	-	-	108	-	-	-	
277	F	U	-	-	-	-	-	2.6	-	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
282	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	
283	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	
284	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	
285	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	
287	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7300	-	
309	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	20	-	-
310	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	20	-	-
316	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	75	-	-	-	-	-	-	-	-	15	-	-
350	F	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-

Annex 5. Consumption rates (kg y<sup>-1</sup> or l y<sup>-1</sup>) and occupancy rates (h y<sup>-1</sup>) for women of childbearing age<sup>a</sup> in the Hinkley Point area, for use in foetal dose assessments

Observation number	Sex	Age (years)	Fish	Crustaceans	Wildfowl	Marine plants/algae	Salt marsh grazed sheep meat	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Intertidal occupancy over mud	Intertidal occupancy over mud and sand	Intertidal occupancy over mud, sand and stones	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Occupancy in water	Occupancy on water	Indoor occupancy within 1.1 km of the licensed site	Outdoor occupancy within 1.1 km of the licensed site		
351	F	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
354	F	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
355	F	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
358	F	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
359	F	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
361	F	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-
363	F	U	-	-	-	-	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Notes**

U - Unknown

<sup>a</sup> Based on National Statistics guidelines women were deemed to be of childbearing age if they were between 15 and 44 years old. Women of unknown age were included as they were potentially women of childbearing age.

Annex 6. Summary of profiles for adults in the Hinkley Point area

Profile Name	Number of individuals	Pathway Name																									
		Crustacea	Direct radiation <sup>a</sup>	Eggs	Fish - Sea	Fruit - Domestic	Fruit and Nuts - Wild	Gamma ext - Sediment <sup>b</sup>	Honey	Marine Plants/Algae	Meat - Cattle	Meat - Game <sup>c</sup>	Meat - Pig	Meat - Poultry	Meat - Saltmarsh Grazed Sheep	Meat - Sheep	Milk	Molluscs	Mushrooms	Occupancy IN water	Occupancy ON water	Plume (IN; 0-0.25km) <sup>d</sup>	Plume (MID; >0.25-0.5km) <sup>d</sup>	Plume (OUT; >0.5-1.1 km) <sup>d</sup>	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes
		kg	-	kg	kg	kg	kg	h	kg	kg	kg	kg	kg	kg	kg	l	kg	kg	h	h	h	h	h	kg	kg	kg	kg
Crustacean consumers	3	13.3	-	3.2	17.2	10.7	0.8	-	0.8	0.3	-	-	-	-	-	-	0.3	-	-	-	-	-	-	14.6	21.4	10.1	10.3
Occupants for direct radiation	22	-	1	2.5	0.6	5.2	0.6	80	-	-	-	0.4	-	-	-	18.9	-	-	-	-	30	-	3060	5.5	6.4	2.5	4.1
Egg consumers	10	-	0.2	19.5	0.2	21.4	1.4	80	0.1	-	-	0.5	0.6	-	-	62.2	-	0.5	-	-	-	-	-	11.4	12.6	16.3	15.6
Sea fish consumers	9	5.1	-	1.1	14.1	5.8	0.9	80	0.4	0.1	4.4	6.6	-	2.4	-	-	0.1	0.1	-	-	-	-	-	4.9	7.1	3.4	3.4
Domestic fruit consumers	21	0.1	0.1	3.4	-	40.6	1.2	50	-	-	19.5	2.2	0.3	2.2	-	2.2	20.8	-	0.4	-	-	-	760	16.4	24.7	33.4	11.6
Wild fruit and nut consumers	25	0.6	0.1	2	1.9	24.3	2.7	40	0.2	0.1	9.2	4.1	0.2	3	-	-	17.5	-	0.4	-	-	-	220	12.7	18.2	18.2	8.4
Occupants for exposure - sediment	21	0.2	0.1	-	0.9	0.3	-	680	-	0.1	-	-	-	-	0.3	-	-	-	-	-	-	-	10	0.7	1	0.7	0.6
Honey consumers	2	4.4	-	4.8	4.9	9.6	1.1	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.9	11.6	-	2.1
Marine plants/algae consumers	7	3.4	-	-	4.8	1.8	0.5	260	-	0.7	-	2.4	-	-	-	-	0.2	-	-	30	-	-	-	4.3	5.9	4.3	3.8
Cattle meat consumers	14	0.1	-	-	0.3	16.5	0.6	20	-	-	44.5	1.4	6.2	2.5	-	-	56.3	-	0.5	-	-	-	-	4.7	10.4	53	2.9
Game meat consumers	3	2	-	-	14.2	6.7	1.8	70	0.3	0.2	13.3	25.2	-	7.3	-	-	-	0.3	-	80	-	-	-	-	-	-	-
Pig meat consumers	13	-	-	-	0.1	-	-	-	-	-	12.5	-	16	0.2	-	-	28.1	-	0.1	-	-	-	-	-	2.8	33	0.7
Poultry meat consumers	15	0.5	-	1.2	2.4	33.5	1.8	-	0.1	-	29.9	8.8	-	6.3	-	3	28.2	-	0.5	-	-	-	-	12.5	16.8	31.8	6.8
Saltmarsh grazed sheep meat consumers	2	-	-	-	-	-	-	210	-	-	-	-	-	-	5.7	-	-	-	-	-	-	-	-	-	-	-	-
Sheep meat consumers	3	-	-	5.9	-	50.4	0.8	-	-	-	-	9.1	-	4.1	-	15.1	-	-	-	-	-	-	-	40.9	43.5	48.5	13.3
Milk consumers	9	0.1	0.2	7.8	-	14.9	1.2	-	-	-	21	1.7	-	1.9	-	-	220.4	-	0.4	-	-	-	-	11	12	34.9	10.5
Mollusc consumers	2	11.9	-	-	13.7	6.4	-	500	-	0.8	-	-	-	-	-	-	0.8	-	-	-	-	-	-	15	20.5	15.2	13.3
Mushroom consumers	18	0.4	-	5.3	2.1	25.6	1.9	50	0.1	-	25	4.3	0.3	3.8	-	-	23.5	-	0.9	-	-	-	-	11.5	14.2	24	7.3
Occupancy IN water	1	-	-	-	-	-	-	650	-	-	-	-	-	-	-	-	-	-	-	70	-	-	-	-	-	-	-
Occupancy ON water	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7300	-	-	-	-
Occupants for plume pathways (inner area)	3	-	1	-	1.6	-	-	90	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-
Occupants for plume pathways (mid area)	2	-	1	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-
Occupants for plume pathways (outer area)	11	-	1	0.8	0.1	9.8	0.9	10	-	-	-	0.8	-	-	-	-	-	-	-	-	-	-	6080	8.6	10.5	4.1	4.2
Green vegetable consumers	28	1.8	0.1	3.3	2.3	25.4	1.6	70	0.1	0.1	6.8	1.5	0.2	1.1	-	1.6	15.6	0.1	0.3	-	-	-	760	22.6	26.2	26.1	12.6
Other domestic vegetable consumers	43	1.2	0.1	3.1	1.6	21.2	1.3	50	0.1	-	5.7	1	0.8	0.8	-	1.1	10.2	-	0.2	-	-	-	130	15.1	24.8	22.7	13
Potato consumers	16	-	-	2.6	-	31.3	0.8	60	0.1	-	22	2.7	5.8	2.1	-	2.8	49.3	-	0.4	-	-	-	-	16.2	24.2	65.7	14.4
Root vegetable consumers	15	-	0.1	8.4	-	19.2	0.9	60	0.1	-	0.1	0.4	0.4	-	-	41.5	-	0.2	-	-	-	-	-	14.2	18.4	17.1	25.6

Notes

<sup>a</sup>Expressed as the proportion of the profile members who are exposed to direct radiation

<sup>b</sup>Gamma ext - sediment includes occupancy over mud; mud and sand; mud, sand and stones; salt marsh; sand; sand and stones; and stones

<sup>c</sup>Game meat includes rabbits/hares, venison and wildfowl

<sup>d</sup>Plume 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 7. Summary of profiles for children in the 10-year-old age group in the Hinkley Point area**

Profile Name	Number of individuals	Pathway Name																			
		Direct radiation <sup>a</sup>	Eggs	Fish - Sea	Fruit - Domestic	Fruit and Nuts - Wild	Gamma ext - Sediment <sup>b</sup>	Honey	Meat - Cattle	Meat - Game <sup>c</sup>	Meat - Pig	Meat - Poultry	Milk	Mushrooms	Occupancy IN water	Occupancy ON water	Plume (OUT; >0.5-1.1km) <sup>d</sup>	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes	Vegetables - Root
		-	kg	kg	kg	kg	h	kg	kg	kg	kg	kg	l	kg	h	h	h	kg	kg	kg	kg
Occupants for direct radiation	3	1	3	1.2	-	0.5	100	-	-	-	-	-	-	-	-	-	4160	1.2	4.3	-	0.7
Egg consumers	5	0.4	5.6	-	18	0.4	10	-	-	-	-	-	-	-	-	-	2490	4.1	18.5	9.8	0.4
Sea fish consumers	3	0.3	-	2.5	2.3	-	120	-	10.8	0.3	-	-	-	-	-	-	10	-	3.9	4.6	0.4
Domestic fruit consumers	5	-	3.8	-	23.6	0.4	20	-	-	0.7	-	0.7	-	-	-	-	-	3.4	18.9	10.6	0.8
Wild fruit and nut consumers	5	0.4	1.8	-	5.9	1.2	10	-	-	0.7	-	0.7	-	-	-	-	2490	1.9	11.1	0.8	8.7
Occupants for exposure - sediment	1	1	-	3.6	-	-	240	-	-	-	-	-	-	-	-	-	40	-	-	-	-
Honey consumers	1	-	-	-	13.5	1.4	-	0.1	-	3.4	-	3.4	-	-	-	-	-	-	3	4	4
Cattle meat consumers	3	-	-	0.7	1.3	-	20	-	17.7	0.1	4.8	-	60.8	0.1	-	-	-	-	2	26.1	0.2
Game meat consumers	1	-	-	-	13.5	1.4	-	0.1	-	3.4	-	3.4	-	-	-	-	-	-	3	4	4
Pig meat consumers	2	-	-	-	0.1	-	-	-	13.5	-	7.2	-	91.3	0.1	-	-	-	-	-	35.7	-
Poultry meat consumers	3	-	-	-	4.9	0.6	30	-	-	1.1	-	2.3	-	-	-	-	-	-	1	1.3	1.3
Milk consumers	4	-	-	-	0.6	-	-	-	6.8	-	3.6	-	101.6	0.1	-	-	-	0.4	1.9	21.1	0.6
Mushroom consumers	4	-	-	-	0.6	-	-	-	6.8	-	3.6	-	101.6	0.1	-	-	-	0.4	1.9	21.1	0.6
Occupancy IN water	2	-	-	-	-	-	50	-	-	-	-	-	-	-	10	-	-	-	-	-	-
Occupancy ON water	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-	-	-	-
Occupants for plume pathways (outer area)	2	1	4.4	-	-	0.8	30	-	-	-	-	-	-	-	-	-	6220	1.8	6.5	-	1.1
Green vegetable consumers	5	-	3.8	-	21.2	0.8	-	-	-	-	-	-	-	-	-	-	-	4.5	23.7	9.8	7.4
Other domestic vegetable consumers	6	-	3.2	-	20.1	0.6	10	-	-	-	-	-	-	-	-	-	-	3.8	21.8	8.2	6.2
Potato consumers	5	-	3.8	-	18	0.1	-	-	5.4	-	2.9	-	36.5	0.1	-	-	-	3.3	15.9	24.1	-
Root vegetable consumers	2	-	-	-	8	1.7	-	-	-	-	-	-	-	-	-	-	-	2.8	19.6	-	18.6

**Notes**

<sup>a</sup>Expressed as the proportion of the profile members who are exposed to direct radiation

<sup>b</sup>Gamma ext - sediment includes occupancy over mud, sand and stones; sand; and stones

<sup>c</sup>Game meat includes rabbits/hares, venison and wildfowl

<sup>d</sup>Plume 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 8. Summary of profiles for children in the 1-year-old age group in the Hinkley Point area

Profile Name	Number of individuals	Pathway Name										
		Fruit - Domestic kg	Fruit and Nuts - Wild kg	Gamma Ext - sediment <sup>a</sup> h	Honey kg	Meat - Game <sup>b</sup> kg	Meat - Poultry kg	Milk l	Vegetables - Green kg	Vegetables - Other Domestic kg	Vegetables - Potatoes kg	Vegetables - Root kg
Domestic fruit consumers	1	13.5	1.4	-	0.1	3.4	3.4	-	-	3	4	4
Wild fruit and nut consumers	1	13.5	1.4	-	0.1	3.4	3.4	-	-	3	4	4
Occupants for exposure - sediment	4	-	0.1	120	-	-	-	-	0.7	0.5	-	0.3
Honey consumers	1	13.5	1.4	-	0.1	3.4	3.4	-	-	3	4	4
Game meat consumers	1	13.5	1.4	-	0.1	3.4	3.4	-	-	3	4	4
Poultry meat consumers	1	13.5	1.4	-	0.1	3.4	3.4	-	-	3	4	4
Milk consumers	2	0.2	-	-	-	-	-	73.6	0.3	1.8	2.3	0.4
Green vegetable consumers	1	0.1	0.3	220	-	-	-	-	2.8	2.1	-	1.3
Other domestic vegetable consumers	3	4.7	0.5	70	-	1.1	1.1	18.7	1.1	2.9	2.9	2
Potato consumers	2	7	0.7	-	0.1	1.7	1.7	28	0.3	3.3	4.3	2.4
Root vegetable consumers	1	13.5	1.4	-	0.1	3.4	3.4	-	-	3	4	4.0

### Notes

<sup>a</sup>Gamma ext - sediment includes occupancy over sand; sand and stones; and stones

<sup>b</sup>Game meat includes rabbits/hares and venison

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

Annex 9. Summary of profiles for women of childbearing age in the Hinkley Point area, for use in foetal dose assessments

Profile Name	Pathway Name																								
	Number of individuals	Crustacea	Direct radiation <sup>a</sup>	Eggs	Fish - Sea	Fruit - Domestic	Fruit and Nuts - Wild	Gamma ext - Sediment <sup>b</sup>	Honey	Marine plants/algae	Meat - Cattle	Meat - Game <sup>c</sup>	Meat - Pig	Meat - Poultry	Meat - Saltmarsh Grazed Sheep	Meat - Sheep	Milk	Mushrooms	Occupancy IN water	Occupancy ON water	Plume (OUT; >0.5-1.1km) <sup>d</sup>	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes	Vegetables - Root
	kg	-	kg	kg	kg	kg	h	kg	kg	kg	kg	kg	kg	kg	kg	l	kg	h	h	h	kg	kg	kg	kg	
Crustacean consumers	2	0.2	-	-	3	16.7	0.3	-	-	-	36.7	3.3	-	2.6	-	-	-	0.4	-	-	-	-	-	-	-
Occupants for direct radiation	3	-	1	1.5	1.3	0.2	0.3	230	-	-	-	1.5	-	-	-	-	-	-	-	-	4780	0.6	2.2	-	0.4
Egg consumers	3	-	0.3	5.4	-	33.7	0.8	10	-	-	-	6.1	-	2.8	-	10	-	-	-	-	2530	27.9	29.1	32.4	9.3
Sea fish consumers	5	-	0.2	-	4.5	-	-	150	-	-	-	1.1	-	-	-	-	-	-	-	-	20	-	-	-	-
Domestic fruit consumers	4	0.1	-	3	-	40.3	1.2	0.1	-	18.3	6.5	-	5.1	-	7.5	-	0.2	-	-	-	20.5	21.7	26.3	8.7	
Wild fruit and nut consumers	3	-	-	-	0.1	9.4	3.2	40	0.1	0.2	-	2.3	-	2.3	-	-	-	0.4	-	-	-	8.5	10.5	2.7	6.4
Occupants for exposure - sediment	5	-	0.2	-	0.7	-	-	560	-	-	-	-	-	-	-	-	-	-	10	-	20	-	-	-	-
Honey consumers	1	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine plants/algae consumers	2	-	-	-	-	0.9	10	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cattle meat consumers	4	0.1	-	-	0.5	9.4	0.2	10	-	-	38.3	0.4	7.2	1.6	-	-	45.6	0.3	-	-	-	-	1.5	37.4	0.1
Game meat consumers	5	-	0.2	2.4	1.3	25.7	0.8	-	-	-	-	7	-	3	-	6	-	-	-	-	1330	16.4	17.4	21	6.9
Pig meat consumers	5	-	-	-	-	0.1	-	-	-	10.8	-	16.6	0.3	-	-	-	36.5	0.1	-	-	-	-	-	28.6	-
Poultry meat consumers	4	0.1	-	3	-	40.3	1.2	0.1	-	18.3	6.5	-	5.1	-	7.5	-	0.2	-	-	-	20.5	21.7	26.3	8.7	
Saltmarsh grazed sheep meat consumers	1	-	-	-	-	-	-	-	-	-	-	-	-	-	5.7	-	-	-	-	-	-	-	-	-	-
Sheep meat consumers	2	-	-	5.9	-	50.5	0.8	-	-	-	-	9.1	-	4.1	-	15.1	-	-	-	-	-	40.9	40.5	48.5	13.3
Milk consumers	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	365	-	-	-	-	-	-	-	-
Mushroom consumers	2	0.1	-	-	0.1	17.3	2.8	50	-	-	36.7	0.5	-	2.6	-	-	-	1	-	-	-	12.7	12.7	-	5.7
Occupancy IN water	1	-	-	-	-	-	650	-	-	-	-	-	-	-	-	-	-	-	70	-	-	-	-	-	-
Occupancy ON water	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7300	-	-	-	-	-
Occupants for plume pathways (outer area)	2	-	1	2.2	0.2	0.3	0.4	10	-	-	-	2.3	-	-	-	-	-	-	-	-	7120	0.9	3.3	-	0.6
Green vegetable consumers	4	-	-	3	0.1	27.2	1.6	30	-	-	-	4.6	-	2.1	-	7.5	-	0.3	-	-	-	30.6	31.7	28.1	12.8
Other domestic vegetable consumers	4	-	-	3	0.1	27.2	1.6	30	-	-	-	4.6	-	2.1	-	7.5	-	0.3	-	-	-	30.6	31.7	28.1	12.8
Potato consumers	4	-	-	3	-	25.4	0.4	-	-	-	13.5	4.6	7.2	2.4	-	7.5	45.6	0.1	-	-	-	20.5	20.2	60	6.7
Root vegetable consumers	5	-	-	2.4	-	27.1	1.8	20	-	-	-	5	-	3	-	6	-	0.3	-	-	-	24.5	26.6	24	11.9

Notes

<sup>a</sup>Expressed as the proportion of the profile members who are exposed to direct radiation

<sup>b</sup>Gamma ext - sediment includes occupancy over mud; mud and sand; mud, sand and stones; sand; sand and stones; and stones

<sup>c</sup>Game meat includes rabbits/hares, venison and wildfowl

<sup>d</sup>Plume 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

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## 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](http://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.  
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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.

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