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Radiological Habits Survey: Wylfa, 2009

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Environment Report RL 03/10

Environment Agency

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Environment Report RL 03/10

Final Report

Radiological Habits Survey: Wylfa, 2009

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CONTENTS

FIGURES

TABLES

ANNEXES

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SUMMARY

This report presents the results of a survey conducted in 2009 to determine the habits and consumption patterns of people living, working and pursuing recreational activities in the vicinity of Wylfa nuclear power station. The site discharges gaseous radioactive waste via stacks to the atmosphere, liquid radioactive waste via a culvert into the Irish Sea 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.

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
- Occupancy within 1 km of the site perimeter fence
- Any new or unusual exposure pathways

Interviews were conducted with members of the public and data collected for 381 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) 97.5th 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 all intertidal areas along the northern coast of Anglesey between Carmel Head in the west and Point Lynas in the east, and the adjacent area of sea up to 6 km offshore. Internal and external exposure pathways were investigated because of the potential effects from liquid discharges. Foods from the aquatic survey area were consumed from the following food groups: fish, crustaceans, molluscs, and marine plants/algae. The predominant foods consumed by the respective high-rate groups for these food groups were mackerel, bass and pollack; brown crab, common lobster and common prawns; mussels; *Porphyra*. The mean consumption rates for the adult high-rate group for fish, crustaceans, molluscs and marine plants/algae were 29 kg y^{-1}, 16 kg y^{-1}, 6.9 kg y^{-1} and 0.5 kg y^{-1} respectively. The mean consumption rate for the adult high rate group exceeded the generic 97.5th percentile rate for crustaceans but not for fish or molluscs. Generic 97.5th

percentile rates have not been determined for marine plants/algae. The adult high-rate groups for intertidal occupancy included people undertaking angling, beach warden duties, boat maintenance, dog walking, fixing moorings, nature reserve warden duties, seaweed collecting, shellfish collecting and playing. 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 potting. The activities in the adult high-rate group for handling sediment were bait digging, collecting seaweed, collecting shellfish and fixing moorings. People were undertaking water-based activities such as commercial fishing, boat angling, power boating, rowing, kayaking, swimming and sub-aqua diving. One individual was identified that used seaweed as a fertiliser for vegetables. The use of seaweed as animal feed was not identified but stray sheep were observed grazing on seaweed on the shore.

The terrestrial survey area was defined as the land, freshwater watercourses and ponds within 5 km of the centre of the Wylfa site. In this area, internal exposure pathways were investigated because of the potential effects from gaseous discharges. Thirty-five farms were identified which produced beef cattle, lambs, cows' milk, suckler calves, pigs and arable crops. Three smallholdings produced beef cattle, pedigree sheep, lambs, chicken eggs and duck eggs. A small vineyard produced wine. Farmers and smallholders consumed produce from their farms and smallholdings. Residents consumed fruit, vegetables, chickens, geese, chickens eggs and ducks eggs from their properties. Two beekeepers were identified who produced honey within the survey area. Freshwater angling was identified on a lake, Llyn Llygerian, and two small rivers, Afon Meddanen and Afon Wygyr. Foods from the terrestrial area were consumed from the following food groups: green vegetables, other vegetables, root vegetables, potato, domestic fruit, milk, pig meat, sheep meat, poultry, eggs, wild/free foods, rabbits/hares, honey, wild fungi and freshwater fish. The mean consumption rates for the adult high-rate groups for root vegetables and sheep meat exceeded their respective generic 97.5^{th} percentile rates. The consumption of cattle meat, venison or cereals was not identified.

The human consumption of spring and well water was identified at five residences distributed throughout the survey area. Livestock were identified drinking water from boreholes, wells, streams and a lake.

The transfer of contamination off-site by wildlife was investigated as radionuclides could enter the food chain or contaminate the environment through this pathway. A representative from Magnox North Ltd reported that rabbits were prevented from accessing the site by tight security fences and concrete and stone surfaces that prevented burrowing. A falconer was engaged periodically to scare pigeons away and pigeons were occasionally culled. The pigeons had been monitored on an *ad hoc* basis but no elevated levels of radioactivity had been found in them. Seagulls sometimes flew over the site but no action was taken against them. The consumption of rabbits that had been shot in areas away from the site was recorded but it is unlikely that these rabbits had spent any time on the site. No consumption of pigeons was identified within the survey area.

The direct radiation survey area was defined as the land and sea within 1 km of the site perimeter fence. In this area, external pathways were investigated because of potential effects from ionising radiation emanating directly from the site and from exposure to gases discharged from the site to the atmosphere. Occupancy rates were obtained for residents, employees and for people undertaking leisure activities such as angling and dog walking. The highest outdoor occupancy rate was for a farmer who lived and worked in the survey area and the highest indoor and total occupancy rates were for residents. The occupancy rates were analysed in three zones according to the distance from the site perimeter fence. All the highest occupancy rates were in the >0.5 – 1 km zone. Gamma dose rate measurements were taken indoors and outdoors at most properties where interviews were conducted in the direct radiation survey area. Background readings were taken at distances beyond 5 km of the Wylfa licensed site centre.

Comparisons were made with the results from a previous habits survey undertaken in the Wylfa area in 2004.

In the aquatic survey in 2009, compared with 2004, there were increases in the mean consumption rates for the adult high-rate groups for fish, crustaceans, molluscs, and marine plants/algae. The mean consumption rates for the adult high-rate group for fish increased from 22 kg y^{-1} to 29 kg y^{-1}, for crustaceans increased from 6.5 kg y^{-1} to 16 kg y^{-1}, and for molluscs increased from 1.5 kg y^{-1} to 6.9 kg y^{-1}. The consumption of marine plants/algae was not identified in 2004 and had increased to 0.5 kg y^{-1} in 2009.

The mean intertidal occupancy rates for the adult high-rate groups increased in 2009 compared to 2004 over the following substrates: mud and sand from nil to 390 h y^{-1}; rock from 220 h y^{-1} to 580 h y^{-1}; and sand from 300 h y^{-1} to 410 h y^{-1}. The mean intertidal occupancy rate over mud and stones decreased from 26 h y^{-1} to nil, and the mean intertidal occupancy rate over sand and stones decreased from 290 h y^{-1} to 260 h y^{-1}. The mean handling rates for the adult high-rate groups for fishing gear increased from 580 h y^{-1} to 1000 h y^{-1} and for sediment increased from 18 h y^{-1} to 180 h y^{-1}.

In the terrestrial survey area in 2009, compared with 2004, there were relatively large increases in the mean consumption rates for the adult high-rate groups for the following food groups: other vegetables from 22 kg y^{-1} to 38 kg y^{-1}; root vegetables from 21 kg y^{-1} to 41 kg y^{-1}; sheep meat from 8.0 kg y^{-1} to 26 kg y^{-1}; poultry from 1.6 kg y^{-1} to 4.5 kg y^{-1}; and freshwater fish from 0.2 kg y^{-1} to 2.5 kg y^{-1}. There were relatively large decreases in the mean consumption rates for the high-rate groups for cattle meat, from 38 kg y^{-1} to nil, pig meat, from 17 kg y^{-1} to 7.9 kg y^{-1}, wild/free foods, from 5.6 kg y^{-1} to 2.2 kg y^{-1}, and honey, from 4.5 kg y^{-1} to 1.7 kg y^{-1}. There were small increases in the mean consumption rates for the adult high-rate groups for milk and eggs and small decreases for green vegetables, potato, domestic fruit, rabbits/hares and wild fungi. The consumption of venison or cereals was not identified in either survey.

Much of the land in the direct radiation survey area had been nominated for building activities for a possible new nuclear power station. Consequently many of the residential properties had been bought up by developers and were no longer occupied. It was expected that most of the residential properties that were occupied at the time of the survey, except for three that were located outside the demarcated new build area, would eventually be vacated.

In 2009, compared with 2004, there were significant decreases in the highest total occupancy rate in the 0 - 0.25 km zone and the >0.25 - 0.5 km zone, from 8100 h y^{-1} to 1600 h y^{-1}, and from 8400 h y^{-1} to 730 h y^{-1} respectively. These reductions were attributed to the lack of occupied residential properties in these zones in 2009. In the >0.5 - 1.0 km zone there was a small increase in the highest total occupancy rate from 8400 h y^{-1} in 2004 to 8700 h y^{-1} in 2009. Gamma dose rate measurements taken at four residences were compared and the results were broadly similar in 2004 and 2009.

Suggestions are provided for changes to the current environmental monitoring programmes on the basis of the information collected during the survey. These include: adding a sample of mussels to the mollusc food group since they were consumed at a higher rate than the winkles currently monitored, but retaining the sample of winkles in order to preserve the time series for this species; replacing a sample of broad beans with a sample of tomatoes, since they were consumed in higher quantities; introducing samples of chickens eggs and sheep meat since they were both consumed at high rates and no samples are currently taken in those food groups. A sample of sheep faeces could be considered, as a more economic alternative to sheep meat.

1 INTRODUCTION

The public may be exposed to radiation as a result of the operations of the Wylfa nuclear licensed site either through the authorised 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 lower doses, and overall protection to the public is provided from the effects of radiation. The term 'representative person' is equivalent to, and replaces, the term 'average member of the critical group' as recommended by ICRP (ICRP, 2006). 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 Radioactive Substances Act 1993 (RSA 93) (UK Parliament, 1993) as amended by the Environment Act 1995 (EA 95) (UK Parliament, 1995); by legislation implementing the European Union (EU) Basic Safety Standards (BSS) Directive 96/29/Euratom (CEC, 1996) and by the Energy Act 2004 (EA 04) (UK Parliament, 2004). The Directive takes into account the recommendations of the ICRP, particularly ICRP 60 (ICRP, 1991). From 6th April 2010, in England and Wales, the provisions of RSA 93 authorising the disposals of radioactive waste, will be subsumed within the Environmental Permitting Regulations (UK Parliament, 2010). 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 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.

Authorisations under RSA 93 (or, from April 2010, appropriate permits) are, or will be, issued 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 authorised discharges of radioactivity do not result in unacceptable doses to consumers via the food chain. The Food Standards Agency also ensures that public radiation exposure via the food chain is within EU acceptable limits.

1.2 Radiological protection framework

Dose standards for the public are embodied in the national policy (UK Parliament, 2009a), 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 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). This direction has been reaffirmed in the recent policy document (UK Parliament, 2009). It includes the requirements 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 each exposure 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 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 a group of UK Government Bodies (EA, SEPA, DoENI, NRPB and FSA, 2002). The National Dose Assessment Working Group (NDAWG) has also published principles underlying retrospective radiological assessment (i.e. assessment of doses already received from past discharges) (Allott, 2005) and possible methods of carrying out these assessments using 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, 2009), 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

2.1 Site activity

Wylfa nuclear power station is located on the north coast of Anglesey (Ynys Mon), approximately 2 km west of the village of Cemaes (see Figures 1 and 2). The station generates electricity from twin Magnox reactors and began supplying electricity to the national grid in 1971. It is owned by the Nuclear Decommissioning Authority and operated under contract by Magnox North Ltd. The site discharges gaseous and liquid radioactive wastes into the environment and contains sources of direct radiation. During the habits survey fieldwork period one of the reactors was undergoing maintenance and was not producing electricity. It had been off-line since April 2009 and it was anticipated that it would start generating electricity again in September 2009. The other reactor was operating normally. The Magnox reactors at Wylfa are currently expected to operate until December 2010, although there is the possibility that this may be extended.

Magnox North Ltd is licensed to operate the site under NIA 65, which allows the installation and operation of certain activities. Under RSA 93 the company is authorised to discharge gaseous radioactive wastes via stacks to the atmosphere and liquid radioactive wastes via an outfall into the Irish Sea. Details of the amounts of gaseous and liquid radioactive waste discharged are published in the RIFE reports, for example, EA, FSA, NIEA and SEPA, 2009.

Wylfa has been proposed as a potential site for a possible new nuclear power station and approximately 232 hectares of land adjacent to the existing nuclear site have been nominated for new nuclear building activities (UK Parliament, 2009b).

2.2 Survey objectives

The Centre for Environment, Fisheries & Aquaculture Science (Cefas) undertook the Wylfa habits survey in 2009 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 Wylfa 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
- Occupancy within 1 km of the licensed site perimeter fence
- 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

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

The aquatic survey area, shown in Figure 1, covered the intertidal areas along the northern coast of Anglesey from Carmel Head in the west, to Point Lynas in the east, and the adjacent sea area up to 6 km offshore.

The terrestrial survey area, shown in Figure 2, covered all land within 5 km of the site centre (National Grid Reference: SH 351 939) to encompass the main areas of potential deposition from gaseous discharges. Watercourses and lakes potentially containing contamination from the washout of gaseous discharges are discussed in the terrestrial section of this report.

The direct radiation survey area, which is also shown in Figure 2, was defined as all land and sea within 1 km of the site perimeter fence.

The same aquatic, terrestrial and direct radiation areas were used in the previous habits survey conducted by Cefas in the Wylfa area, which was in 2004 (Clyne *et al*., 2005).

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 at Wylfa. People with local knowledge of the survey area were contacted for information relevant to the

various exposure pathways. These included representatives from the North Western and North Wales Sea Fisheries Committee, the Marine Fisheries Agency and parish councils. These people provided information on commercial and hobby fishing, angling and gardening.

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 23rd June to the 3rd July 2009 by a survey team of four people, according to techniques described by Leonard *et al.* (1982). During the fieldwork a meeting was held between two members of the survey team and a representative from the Wylfa site. This discussion provided details about current site activities, local information, potential exposure pathways and activities in the area, and the transfer of contamination off-site by wildlife.

The following information was obtained during the meeting:

- One of the reactors had been shut down for maintenance since April 2009 and it was expected that it would stay off-line until September 2009. The other reactor was operating normally at the time of the survey.
- At Wylfa there are no fuel storage ponds so there are no pond-derived liquid discharges. Other active effluent is fed into the cooling water outfall before it enters the sea at Porth Wnal. There is a single main stack on the reactor building for gaseous discharges. Gamma dose monitoring is carried out around the site and there is no detectable direct radiation at the perimeter fence.
- Seaweed that collects on the cooling water intake screens is sent to a commercial composting company on Anglesey and the compost is sold to organic farms.
- The land surrounding the site is being bought up by a consortium in anticipation that a new nuclear power station will be built in the area, although no definite decision has yet been taken on whether or not a new station will be built at Wylfa.
- Information about potential exposure pathways and activities in the area included; anglers at Wylfa Head and Porth Wnal, walkers on the Anglesey Coastal Path and Wylfa Head Nature Reserve, limited public opening times for the nearby Cestyll Gardens, limited public use of Wylfa Sports and Social Club.
- Rabbits have frequently been seen on the land surrounding the site but they are prevented from accessing the site by tight security fences and concrete and stone surfaces that prevent burrowing. A falconer is engaged periodically to scare pigeons away and local pigeons are occasionally culled. The pigeons have been monitored on an *ad hoc* basis but no elevated levels of radioactivity have been found in them.

Interviews were conducted with individuals who were identified in the pre-survey preparation and others that were identified during the fieldwork. These included, for example, commercial fishermen, hobby fishermen, anglers, boat users, people carrying out activities on intertidal areas, farmers,

gardeners, beekeepers and people living, working and pursuing 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 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 most properties in the direct radiation area where interviews were conducted. Background gamma dose rates were taken at a distance beyond 5 km from the site centre.

Four Cefas personnel spent nine days each investigating the survey areas and interviewing individuals who were relevant to the survey. Observations for 381 individuals were recorded.

For practical and resource reasons, the survey did not involve the whole population in the vicinity of Wylfa, 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 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) there were approximately 2800 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 site employees or contractors 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, any consumption data, and activities and occupancy rates for these employees while outside work, are included in the results if employees were encountered during the survey.

People were initially questioned about their habits relating to the survey area that their first identified activity occurred in and, where possible, they were also asked about their habits relating to the other two survey areas. For example, people in the terrestrial survey were initially questioned because it was known that they grew 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 organisations such as local businesses 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 a business within the 1 km direct radiation survey area, the occupancy rates for the employees. In Annexes 1 and 2, these individuals only have data for the pathways of primary interest.

3 METHODS FOR DATA ANALYSIS

3.1 Data recording and presentation

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

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

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

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.

For the purpose of data analysis, foodstuffs were aggregated into food groups as identified in Table 2. Specific food types relevant to this survey are presented in the subsequent tables. The data are structured into groups when it is reasonable to assume that consistent concentrations or dose rates would apply within the group. For example, when considering terrestrial food consumption, all types of root vegetables are grouped together in a food group called 'root vegetables'. Similarly, for aquatic food consumption, all crustacean species are grouped as 'crustaceans'. For external exposure over intertidal sediments, occupancies over the same substrate (e.g. sand) are grouped together. In addition, data are structured into age groups because different dose coefficients (i.e. the factors which convert intakes of radioactivity into dose) can apply to different ages. The age groups and their relevant age ranges are based on the recommendations in ICRP 72 (ICRP, 1996), and are listed below:

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

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

3.2 Data analysis

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

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 Wylfa survey, but Annex 3 is included in this report to maintain consistency of presentation through the series of reports.

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

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

Secondly, the 97.5th percentile rate was calculated for each group by using the *Microsoft Excel* mathematical function for calculating percentiles. This method 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 97.5th percentile consumption rates 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.

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

For use in assessments of foetal dose, consumption and occupancy rates are provided in Annex 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).

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

4 AQUATIC RADIATION PATHWAYS

4.1 Aquatic survey area

The aquatic survey area, shown in Figure 1, covered the intertidal areas along the northern coast of Anglesey from Carmel Head in the west, to Point Lynas in the east, and extended 6 km offshore. The straight-line distance between Carmel Head and Point Lynas was approximately 18 km although the actual length of the intertidal survey area was much greater than this owing to the indentations in the coastline.

The coastline was predominately exposed rocky headlands interspersed with bays and small coves of rock, sand and stones. The only expansive sand beach was located close to the village of Cemaes. There was limited road access to extensive areas of the coast but the Isle of Anglesey Coastal Path ran along the entire length of the survey area, providing access to the shore by foot in many places. Those places that were only accessible by foot tended to receive fewer visitors than the places that were accessible by road. Parts of the coast that are not specifically mentioned in the following description were stretches of open rocky coastline where no activities were observed or reported.

Carmel Head and Hen Borth

Carmel Head was a rocky outcrop situated approximately 5 km west of Wylfa power station and Hen Borth was a small cove approximately 3 km west of the site. Carmel Head could only be reached by foot and no activities were recorded there. One individual collected brown crabs by hand from the rocks between Carmel Head and Hen Borth. The substrate at Hen Borth was a mix of rock, sand and stones. Only a few people were observed using the cove at the time of the survey and these were walkers and dog walkers. Sheep that had strayed from the adjacent fields were observed grazing on dry seaweed along the strand line and also wet seaweed growing on the shelving rocks. Abundant mussels and lugworm casts were observed in the cove but there was no evidence of shellfish collection or bait digging.

Cemlyn Bay and Porth-y-pistyll

At Cemlyn Bay, a shingle spit almost a kilometre long separated the sea from a freshwater lagoon. The lower shore on the seaward side was predominantly sand and stones and there was a patch of mud and sand to the west of the bay. The lagoon area formed the Cemlyn Nature Reserve, which was run by the North Wales Wildlife Trust. Car parking was available at either end of the spit and the area attracted bird watchers, walkers, dog walkers and school nature groups. Bait digging for lugworm and ragworm took place on the mud and sand and anglers fished from the spit and from rocks either side of the bay. A small angling boat, brought by road, was observed being launched

from a slipway on the west side of the bay. Two wardens worked at the nature reserve through the summer and spent time on intertidal substrates. One individual collected seaweed, for his own consumption and to use as fertiliser on his vegetable garden, from rocks to the west of Cemlyn Bay. It was reported that winkle picking by commercial gangs from outside the area occasionally took place on the rocks to the west of Cemlyn Bay but this was not observed at the time of the survey. Two children were recorded swimming in the bay.

Porth-y-pistyll, also known locally as Cestyll beach, was a small cove located between Cemlyn Bay and Wylfa power station, which could only be reached by foot. The substrate was a mix of rock, sand and stones. One individual collected mussels there and a few other people were recorded walking or playing on the shore.

Porth Wnal and Wylfa Head

Porth Wnal was a small cove of rugged rocks situated to the west of the rocky promontory of Wylfa Head and immediately north of the power station. The power station cooling water outfall discharged into Porth Wnal. Angling took place from the rocks at Wylfa Head and the eastern shore of Porth Wnal was a particularly popular area for bass fishing. Anglers also fished from the western shore of Porth Wnal but this area was difficult to access because the perimeter fence on the northwest side of the power station extended out to the top of the shore and the anglers had to scramble along the shore below the fence at low tide. Angling boats and fishing boats were seen close to Wylfa Head and two individuals were interviewed who fished from kayaks in Porth Wnal.

Porth yr Ogof and Porth Wylfa

Porth yr Ogof was a small cove located directly to the east of Wylfa Head, and Porth Wylfa was a small cove half a kilometre further east. Both coves were flanked by rocks. Porth yr Ogof had a small sand beach with patches of stones and Porth Wylfa was predominantly stones with patches of sand on the lower shore. The coves were only accessible by foot and relatively few visitors were observed using them at the time of the survey. Individuals were recorded playing on the beach at Porth yr Ogof and angling from the rocks at the sides of both of the coves. Visiting angling and pleasure boats were observed anchored temporarily in Porth yr Ogof.

Cemaes

Cemaes was a large coastal village approximately 2 km to the east of the power station. The rocky inlet in front of the village had a sand beach approximately 300 metres long, backed by a promenade. The beach was gently sloping and a large expanse of sand was exposed at low tide. There was a small walled harbour that almost dried out at low tide to reveal patches of rock, mud and sand. A very small river, Afon Wygyr, flowed through the harbour into the sea. There were two public slipways and

a stone ramp for launching small boats. The beach was easily accessible by foot from the village and car parking was available at either end of the promenade. The beach was the premium location within the survey area for family days out on the beach and was very popular with both local people and visitors. The beach was also a very popular area for dog walking, and although dogs were not permitted in the centre of the beach during the summer, they were permitted in the northeast corner of the beach all year. A beach warden patrolled the beach through the summer. Angling took place from the rocks and the harbour pier and two people collected mussels or winkles from the rocks. Two commercial fishing boats, one of which also operated as an angling charter vessel, and another angling charter boat operated out of Cemaes Harbour. Approximately six yachts and 20 other pleasure craft were moored in the harbour or just outside. Two individuals were recorded undertaking boat maintenance in the harbour at low tide, one of whom also spent time fixing moorings. It was reported that bait digging occurred on the beach but this was not observed at the time of the survey.

Porth Padrig, Porth Llanlleiana and Hell's Mouth

Porth Padrig, also known locally as White Lady beach, was a cove situated half a kilometre to the northeast of Cemaes. Porth Llanlleina and Hell's Mouth were smaller coves further east along the coast. All three had rocky shores with beaches at the head of the coves. The beach at Porth Padrig was sand with patches of stones and the beach at Porth Llanlleina was predominantly stones with patches of sand. Hell's Mouth was mainly rock with a small area of stones and sand just a few metres wide. Limited parking was available on the road close to Porth Padrig but Porth Llanlleiana and Hell's Mouth could only be accessed on foot. The coves were visited by small numbers of people, mainly local families, for activities such as playing.

Porth Wen

Further east along the coast from Hell's Mouth was the rocky bay of Porth Wen. There was a derelict brickworks on the western shore of the bay, fronted by a stone beach. By land the shore could only be reached by long walks, but several visiting pleasure boats were observed moored close to the brickworks and the occupants had waded ashore to have a barbecue on the beach.

Bull Bay

Bull Bay was located to the east of Porth Wen and about 8 km east of Wylfa power station. The bay was approximately 2 km wide and had a rocky shore. Bull Bay Village was situated at the western end of the bay and the western third of the bay's shore could be accessed from the road through the village. Access to the shore at the eastern end of the bay was only possible from the coastal path and involved descents down steep cliffs. There was a concrete slipway in front of the village leading onto a small stone beach surrounded by rocks. The slipway was a busy launching area for small boats, especially at weekends. Powerboats, angling boats, sailing dinghies, jet skis and rowing boats

were launched from the slipway and it was reported that a small commercial potting boat was also launched there. Most of the boats were brought by road but there was a car park close to the slipway that was used as a boat compound and about seven angling and pleasure boats were kept there. Another four small boats were observed moored off the slipway. A rowing club with approximately 20 members was based at Bull Bay. Shore angling from the rocks was very popular and took place at numerous locations around the bay.

Numerous activities were observed taking place out on the water of the bay including boat angling, power boating, water-skiing, jet-skiing, sailing and canoeing.

Amlwch

Amlwch was the main port in the survey area. There was a walled harbour with rocky coastline to the east and west. The inner basin of the harbour dried out at low tide to expose areas of stones, mud and sand. The harbour pier and surrounding rocks were popular angling venues. One individual was recorded digging for bait in the inner harbour. Six commercial fishing boats, approximately 16 angling/hobby fishing boats and several yachts were based here. The port was also home to three charter vessels that catered for both angling and sub-aqua diving groups from all over the UK. Pleasure trips along the coast were offered to the public on a large semi-rigid sea rider craft. A public slipway provided launching facilities for small boats brought by road.

Porth Eilian and Point Lynas

Porth Eilian was a small rocky inlet approximately 12 km east of Wylfa power station and close to the limit of the aquatic survey area. At the head of the inlet the upper shore was stones with patches of rock and the lower shore was sand and stones. There was a small concrete slipway leading to the shore. The beach held a 'Seaside Award' flag and was moderately popular with visitors. The activities recorded there were walking, dog walking, kayaking and playing on the beach. Three children were observed swimming in the sea and a family was observed taking an inflatable raft to the beach. It was reported that small boats brought by road were launched from the slipway but this was not a busy launching site.

The western shore of Point Lynas was very precipitous and there was no access to the sea from the cliffs. No activities were recorded there.

4.2 Commercial fisheries

The main commercial fishing activity in the survey area was potting for brown crab (*Cancer pagurus*), common lobster (*Homarus gammarus*) and common prawns (*Palaemon serratus*). Small scale commercial rod and line fishing for bass (*Dicentracus labrax*) was also undertaken from the potting boats during summer and autumn and some fishermen occasionally used trammel nets to catch mixed whitefish for their own families' consumption. Usually, 10 small commercial fishing boats, all less than 10 metres in length, were based in the survey area but at the time of the survey one of them was working in Scotland. Some of the vessels only operated part-time. Crab and lobster fishing took place throughout the year but prawn fishing was mainly restricted to the winter months. Lobster catches were usually best in the summer when the lobsters were more active and the weather was more settled so that the pots could be set very close to the shore. Amlwch was the main fishing port within the survey area and six of the boats operated from there. Two others were based at Cemaes and one was based at Bull Bay. It was reported that another boat, based at Holyhead on the west coast of Anglesey, sometimes fished within the survey area. No commercial trawlers operated within the survey area. The boats based in the survey area also potted for whelks (*Buccinum undatum*) but this was usually carried out in waters outside the survey area.

It was reported that commercial winkle (*Littorina littorea*) picking gangs from outside the area occasionally visited the rocks to the west of Cemlyn Bay but this was not observed at the time of the survey. It was noted that the largest mussel cultivation beds in the UK were located in the area of the Menai Strait, approximately 30 km away from the aquatic survey area.

4.3 Seafood wholesalers and retailers

Shellfish and bass from the area were being sold to two wholesalers outside the survey area on Anglesey. From there it was distributed to retailers throughout Anglesey and further afield. Part of the catch of common lobster and common prawns was exported to Spain. One fisherman sold dressed brown crab and common lobster directly to local restaurants and hotels.

4.4 Angling, hobby fishing and shellfish collecting

Shore angling was very popular and occurred at many locations within the survey area including Cemlyn Bay, Porth Wnal, Wylfa Head, Porth yr Ogof, Porth Wylfa, Cemaes, Bull Bay, Amlwch and Point Lynas. Most angling was carried out from the rocks but it also took place from the sand and stone beach at Cemlyn Bay and the harbour piers at Cemaes and Amlwch. Porth Wnal, where the cooling water from Wylfa power station was discharged, was a favorite location for many bass anglers. Boat angling was also very popular in the survey area and many private angling boats were kept at Cemaes and Amlwch harbours or could be launched from slipways at Cemlyn, Cemaes, Bull Bay, Almwch and Porth Eilian. Two angling charter boats operated out of the harbour at Cemaes and

three operated out of the harbour at Almwch. Anglers came from all over Anglesey and much further afield.

The predominant fish species caught and consumed in the area during the summer months were bass (*Dicentrarchus labrax*), mackerel (*Scomber scombrus*) and pollack (*Pollachius pollachius).* During the winter the predominant species caught and consumed were cod (*Gadus morhua*), saithe (*Pollachius virens*) and whiting (*Merlangius merlangus*). Species caught and consumed less frequently included grey mullet (*Chelon labrosus*), dab (*Limanda limanda*), lesser spotted dogfish (*Scyliorhinus canicula*), plaice (*Pleuronectes platessa*), red gurnard (*Aspitrigla cuculus*) and thornback ray (*Raja clavata*).

In this report, the term 'hobby fishing' is used to describe recreational fishing on a small scale with gear such as nets or pots. It is usually carried out from boats that do not have commercial fishing licences and therefore it is illegal to offer the catch for sale. Several hobby fishermen operated out of Cemaes and Amlwch or launched small boats from the other slipways in the survey area. The catches of brown crabs, common lobsters and various fish species were consumed by the fishermen, their families and friends. Unregistered fishermen were allowed to use up to five pots and were permitted to land a maximum of two lobsters and five crabs per day.

Two individuals were identified that collected crustaceans non-commercially from the shore or shallow water. One person collected brown crabs by hand at low tide from crevices in the rocks on the coast between Carmel Head and Hen Borth. Another person collected brown crabs by hand from rocks in shallow water by leaning over the side of a small boat.

Molluscs collected non-commercially in the survey area included mussels (*Mytilus edulis*) and winkles (*Littorina littorea*). One individual collected winkles for their own consumption from the rocks at Cemaes and two others collected mussels for their own families consumption from rocks at Cemaes or Porth-y-pistyll.

4.5 Wildfowling

No areas suitable for wildfowling, such as salt marshes or estuaries, were located in the survey area and no wildfowling activities were identified.

4.6 Other pathways

One person was identified who regularly collected seaweed from the rocks west of Cemlyn Bay and used it as a fertiliser on vegetables, which were consumed by four people.

Seaweed that collected on the power station cooling water intake screens was sent to a commercial composting company on Anglesey. Approximately one skip load per month was sent to the composting company and this was a small proportion of their total intake of raw materials. The compost was sold to organic farms. A horticultural nursery located just outside the terrestrial survey area sold seaweed mulch to gardeners but it was confirmed that none of this seaweed came from within the aquatic survey.

The use of seaweed for animal feed was not identified but at Hen Borth sheep were allowed to stray on to the shore and were observed grazing on seaweed.

One individual was identified that dug lugworm and ragworm for angling bait on a part-time commercial basis at Cemlyn Bay. Another person dug their own bait at low tide in Amlwch Harbour.

4.7 Food consumption data

Consumption data for aquatic foodstuffs are presented in Tables 3 to 7 for adults and in Tables 8 to 9 for children. The tables include the mean consumption rates for the high-rate groups and the observed 97.5th percentile rates calculated as described in Section 3.2. For purposes of comparison, the data are summarised in Table 10 for adults and Tables 11 to 13 for children (15-year-olds, 10-year-olds and 5-year-olds, respectively). The summary tables also include mean consumption rates and 97.5th percentile consumption rates based on national data, which are referred to as 'generic' data in this report. No generic data are available for the 5-year-old group.

Adults' consumption rates

Adults were consuming foods from the following four food groups: fish, crustaceans, molluscs and marine plants/algae. The people consuming the greatest quantities of food from the aquatic survey area were commercial fishermen, anglers, non-commercial mollusc and seaweed collectors, and the families of these groups of people. No consumption of wildfowl was identified.

The predominant species of fish consumed by all adults were mackerel (*Scomber scombrus*) and bass (*Dicentrarchus labrax*), with smaller quantities of pollack (*Pollachius pollachius*), cod (*Gadus morhua*), plaice (*Pleuronectes platessa*), grey mullet (*Chelon labrosus*), dab (*Limanda limanda*), whiting (*Merlangius merlangus*), saithe (*Pollachius virens*), herring (*Clupea harengus*), thornback ray (*Raja clavata*), red gurnard (*Aspitrigla cuculus*) and lesser spotted dogfish (*Scyliorhinus canicula*). A high-rate group of 18 individuals was identified with a maximum consumption rate of 47 kg y^{-1} and a mean of 29 kg y^{-1}. The observed 97.5th percentile rate based on 92 observations was 46 kg y^{-1}. This compares with the adult generic mean and 97.5th percentile rates for fish of 15 kg y^{-1} and 40 kg y^{-1} respectively. The percentage breakdown of species consumed by the high-rate group, rounded to the nearest 5% and excluding mixed fish, was 30% mackerel, 30% bass, 15% pollack, 5% grey mullet,

5% plaice, 5% dab, and approximately 10% of a mix of cod, herring, red gurnard, saithe, thornback ray and whiting.

The species of crustaceans consumed by adults were brown crab (*Cancer pagurus*), common lobster (*Homarus gammarus*) and common prawn (*Palaemon serratus*). Five individuals were identified in the high-rate group with a maximum consumption rate of 23 kg y^{-1} and a mean of 16 kg y^{-1}. The observed 97.5th percentile consumption rate based on 37 observations was 23 kg y^{-1}. This compares with the adult generic mean and 97.5th percentile rates for crustaceans of 3.5 kg y^{-1} and 10 kg y^{-1} respectively. The percentage breakdown of species consumed by the high-rate group, rounded to the nearest 5%, was 55% brown crab, 30% common lobster and 15% common prawn.

The species of molluscs consumed by adults were mussel (*Mytilus edulis*) and winkle (*Littorina littorea*). A high-rate group of two individuals was identified with a maximum consumption rate of 6.9 kg y^{-1} and a mean of 6.9 kg y^{-1}. The observed 97.5th percentile consumption rate based on four observations was 6.9 kg y^{-1}. This compares with the adult generic mean and 97.5th percentile rates for molluscs of 3.5 kg y^{-1} and 10 kg y^{-1} respectively. The only species consumed by the high-rate group was mussels.

The only species of marine plants/algae consumed by adults was *Porphyra sp.,* collected from the coast to the west of Cemlyn Bay. A high-rate group, represented by the only observation, consumed 0.5 kg y^{-1}. The observed 97.5th percentile rate is not applicable for one observation. No generic data are available for this food group.

Four adults were identified consuming vegetables grown in fertiliser made from seaweed collected on the shore in the aquatic survey area. Table 7 presents the consumption rates of the vegetables consumed, which were Brussels sprouts, cabbage, cauliflower, cucumber, lettuce, chilli pepper, mangetout, pea, pepper, runner bean, tomato, beetroot, carrot, onion, spring onion and potato. 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. However, these foods were grown in the terrestrial survey area and they are also potentially subject to gaseous discharges. Therefore, they are also included in the terrestrial food groups and are included once in Annex 1 as terrestrial foods.

Children's consumption rates

15-year-old age group

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

For fish, a high-rate group of four individuals was identified with a maximum consumption rate of 5.5 kg y^{-1} and a mean of 5.0 kg y^{-1}. The observed 97.5th percentile rate based on four observations was 5.5 kg y^{-1}. This compares with the 15-year-old age group generic mean and 97.5th percentile rates for fish of 6.5 kg y^{-1} and 20 kg y^{-1} respectively.

For crustaceans, a high-rate group, represented by the only observation, consumed 1.2 kg y^{-1}. The observed 97.5th percentile rate is not applicable for one observation. This compares with the 15-year-old age group generic mean and 97.5th percentile rates for crustaceans of 2.5 kg y^{-1} and 6.0 kg y^{-1} respectively.

10-year-old age group

Children in the 10-year-old age group were consuming foods from the following food groups: fish and crustaceans. No consumption of molluscs, wildfowl or marine plants/algae was identified.

For fish, a high-rate group of two individuals was identified with a maximum consumption rate of 24 kg y^{-1} and a mean of 17 kg y^{-1}. The observed 97.5th percentile rate based on four observations was 23 kg y^{-1}. This compares with the 10-year-old age group generic mean and 97.5th percentile consumption rates for fish of 6.0 kg y^{-1} and 20 kg y^{-1} respectively.

For crustaceans, a high-rate group of two individuals was identified with a maximum consumption rate of 5.2 kg y^{-1} and a mean of 5.0 kg y^{-1}. The observed 97.5th percentile rate based on four observations was 5.2 kg y^{-1}. This compares with the 10-year-old age group generic mean and 97.5th percentile consumption rates for crustaceans of 2.5 kg y^{-1} and 7.0 kg y^{-1} respectively.

5-year-old age group

Children in the 5-year-old age group were consuming foods from the fish food group. No consumption of crustaceans, molluscs, wildfowl or marine plants/algae was identified.

For fish, one individual was identified in the high-rate group with a consumption rate of 7.1 kg y^{-1}. The observed 97.5th percentile rate based on two observations was 6.9 kg y^{-1}. Generic mean and 97.5th percentile consumption rates are not available for the 5-year-old age group.

1-year-old age group

No children in the 1-year-old age group were identified consuming any aquatic foods from the survey area.

3-month-old age group

No children in the 3-month-old age group were identified consuming any aquatic foods from the survey area.

4.8 Intertidal occupancy

Intertidal occupancy rates for adults and children are presented in Table 14 and Table 15, respectively.

Adults' intertidal occupancy rates

Activities for adults were identified over the following four types of substrate: mud and sand; rock; sand; and sand and stones.

The maximum occupancy rate recorded over mud and sand was 390 h y^{-1} for an individual who was fixing moorings and maintaining boats. No other individuals had occupancy rates within a factor of three of this, so the occupancy rate for the high-rate group is 390 h y^{-1}.

The maximum occupancy rate recorded over rock was 980 h y^{-1} for an individual who was angling and collecting seaweed. Two other individuals, one who was angling, and the other who was angling and collecting mussels, had occupancy rates within a factor of three of this. This provides a mean occupancy rate for the high-rate group of 580 h y^{-1}.

The maximum occupancy rate recorded over sand was 730 h y^{-1} for a dog walker. Four other individuals, comprising three dog walkers and a beach warden, had occupancy rates within a factor of three of this giving a mean occupancy rate for the high-rate group of 410 h y^{-1}.

The maximum occupancy rate recorded over sand and stones was 500 h y^{-1} for a nature reserve warden. Eight other individuals, comprising of another nature reserve warden and people who were dog walking, angling and playing, had occupancy rates within a factor of three of this. This provides a mean occupancy rate for the high-rate group of 260 h y^{-1}.

Children's intertidal occupancy rates

15-year-old age group

Activities for the 15-year-old age group were identified over the following three types of substrate: rock; sand; and sand and stones.

The maximum occupancy rate recorded over rock was 160 h y^{-1} for two children who were angling. One other child, who was also an angler, had an occupancy rate within a factor of three of this giving a mean occupancy rate for the high-rate group of 130 h y^{-1}.

The maximum occupancy rate recorded over sand was 48 h y^{-1} for a child who was playing. Two other children, who were also playing, had occupancy rates within a factor of three of this giving a mean occupancy rate for the high-rate group of 38 h y^{-1}.

The maximum occupancy rate recorded over sand and stones was 41 h y^{-1} for a child who was playing. Two other children, who were also playing, had occupancy rates within a factor of three of this giving a mean occupancy rate for the high-rate group of 36 h y^{-1}.

10-year-old age group

Activities for the 10-year-old age group were identified over the following two types of substrate: sand; and sand and stones.

The maximum occupancy rate recorded over sand was 180 h y^{-1} for a child who was playing. No other children had occupancy rates within a factor of three of this, so the occupancy rate for the high-rate group is 180 h y^{-1}.

The maximum occupancy rate recorded over sand and stones was 130 h y^{-1} for a child who was playing. No other children had occupancy rates within a factor of three of this, so the occupancy rate for the high-rate group is 130 h y^{-1}.

5-year-old age group

Activities for the 5-year-old age group were identified over the following two types of substrate: sand; and sand and stones.

The maximum occupancy rate recorded over sand was 110 h y^{-1} for five children who were playing. No other children had occupancy rates within a factor of three of this so the mean occupancy rate for the high-rate group is 110 h y^{-1}.

The maximum occupancy rate recorded over sand and stones was 230 h y^{-1} for a child who was playing. Five other children, who were also playing, had occupancy rates within a factor of three of this giving a mean occupancy rate for the high-rate group of 140 h y^{-1}.

1-year-old age group

Activities for the 1-year-old age group were only identified over sand.

The only occupancy rate recorded over sand was 6 h y^{-1} for a child who was playing. No other children were identified over sand, so the occupancy rate for the high-rate group is 6 h y^{-1}.

3-month-old age group

Activities for the 3-month-old age group were only identified over sand and stones.

The only occupancy rate recorded over sand and stones was 15 h y^{-1} for a child who was playing. No other children were identified over sand and stones, so the occupancy rate for the high-rate group is 15 h y^{-1}.

Gamma dose rate measurements

Representative gamma dose rate measurements at 1 m above the substrate were taken over mud and sand; mud, sand and stones; sand; sand and stones; and stones. These measurements (shown in Table 16) ranged from 0.057 µGy h^{-1} to 0.091 µGy h^{-1} over mud and sand; from 0.091 µGy h^{-1} to 0.096 µGy h^{-1} over mud, sand and stones; from 0.054 µGy h^{-1} to 0.075 µGy h^{-1} over sand; from 0.058 µGy h^{-1} to 0.060 µGy h^{-1} over sand and stones; and from 0.054 µGy h^{-1} to 0.098 µGy h^{-1} over stones. Natural levels of around 0.05 µGy h^{-1} over sand and around 0.07 µGy h^{-1} over mud are expected. A value of 0.06 µGy h^{-1} is expected for all other substrate types.

4.9 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.

Adults' handling rates of fishing gear and sediment

Table 17 presents the adult handling rates of fishing gear and sediment recorded during the survey.

The maximum fishing gear handling rate recorded was 1400 h y^{-1} for two fishermen. Five other fishermen had fishing gear handling rates that came within a factor of three of this giving a mean handling rate for the high-rate group of 1000 h y^{-1}.

The maximum sediment handling rate recorded was 300 h y^{-1} for an individual fixing moorings for boats. Two other individuals, one who was a bait digger and mussel collector and the other who was a bait digger and seaweed collector, had a sediment handling rate that came within a factor of three of this. This provides a mean handling rate for the high-rate group of 180 h y^{-1}.

Children's handling rates of fishing gear and sediment

No children were identified handling fishing gear or sediment

4.10 Water based activities

Activities taking place in or on the water can lead to ingestion of water and/or inhalation of spray. These pathways are generally considered to be minor in comparison with other exposure pathways such as the ingestion of foods produced in the vicinity of a nuclear site. However, relevant data have been collected for consideration in dose assessments. Mean occupancy rates for the high-rate groups and 97.5th 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 are presented in Table 18 and Table 19, respectively. Generic data for members of a sub aqua club and members of a rowing club were gained through interviews with representatives of the clubs.

Activities in the water

Activities taking place in the water around Wylfa were water skiing, sub-aqua diving, swimming, kayaking and angling from a kayak. Thirty-three observations were recorded for adults and nine observations were recorded for children. The highest occupancy rate for adults was 96 h y^{-1} for a water skier. The highest occupancy rate for children in the 15-year-old age group was 10 h y^{-1} for a child who was kayaking; the highest occupancy rate for children in the 10-year-old age group was 60 h y^{-1} for a child who was swimming and the highest occupancy rate for the 5-year-old age group was 10 h y^{-1} for another child who was also swimming.

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

Activities on the water

Activities taking place on the water around Wylfa included potting for shellfish, skippering an angling charter boat, boat angling, using a boat for sub-aqua diving activities, power-boating, rowing and collecting crabs by hand from a boat. Seventy-seven observations were recorded for adults and eight observations were recorded for children. The highest occupancy rate for adults was 1500 h y^{-1} for a commercial potting fisherman who also undertook recreational boat angling. The highest occupancy rate for children in the 15-year-old age group was 40 h y^{-1} for a child who was rowing and the highest occupancy rate for children in both the 10-year-old and 5-year-old age groups was 48 h y^{-1} for children who were paddling.

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

5 TERRESTRIAL RADIATION PATHWAYS

5.1 Terrestrial survey area

The terrestrial survey area covered all land, freshwater watercourses and ponds within 5 km of the Wylfa site centre (National Grid Reference: SH 351 939), shown in Figure 2.

The land within 5 km of the Wylfa site was predominantly agricultural. The only population centres were the coastal village of Cemaes to the east, the hamlets of Tregele and Llanfechell to the southeast, the hamlet of Mynydd Mechell to the south and the hamlet of Llanfairynghornwy to the southwest. Two small rivers, Afon Meddanen and Afon Wygyr, flowed through the east of the survey area. Afon Meddanen was a tributary of Afon Wygyr and the latter flowed into the sea at Cemaes Harbour. The lake of Llyn Llygeirian was located towards the south of the survey area.

Thirty-five working farms were identified in the Wylfa terrestrial survey area. Of these:

- One produced arable crops and beef cattle
- Three produced arable crops, beef cattle and lambs
- One produced arable crops, beef cattle, lambs and pigs
- One produced arable crops, beef cattle, lambs and suckler calves
- Two produced beef cattle
- Three produced beef cattle and cows' milk
- Three produced beef cattle, cows' milk and lambs
- Ten produced beef cattle and lambs
- One produced beef cattle, lambs and pigs
- Two produced beef cattle, lambs and suckler calves
- One produced cows' milk and lambs
- Five produced lambs
- Two produced lambs and suckler calves

The arable crops consisted of barley and maize, which were used mainly as livestock feed on the farms on which they were produced, or sold as livestock feed to other local farms. One farmer sold barley nationally for human consumption. Nearly all farmers that kept livestock grew grass for silage and/or hay for use on their own farms with any surplus being sold to neighbouring livestock farmers.

Beef cattle and lambs were mainly sold to an abattoir in Gaerwen on Anglesey or through an auction, also at Gaerwen. They were also sold further afield at Caernarfon, Ruthin, St Asaph, Wrexham, Ellesmere, Shrewsbury and Manchester. Limited numbers were sold privately direct to other farmers. Suckler cattle were sold through auctions at Gaerwen and Ruthin or sold directly to other farms. Pigs

were auctioned at Chelford in Cheshire. Cows' milk was sold to a national company for the production of mozzarella cheese.

Farmers and their families were consuming, lamb, milk and pork produced on their own farms. One farmer also kept pigs solely for his own family's consumption.

Three smallholdings were identified in the terrestrial survey area. One raised beef cattle and kept chickens and ducks for eggs, one raised pedigree sheep and kept chickens and ducks for eggs and one raised lambs and kept chickens for eggs. The beef cattle and pedigree sheep were sold privately to other farms and chicken and duck eggs were sold from the door. The smallholders' families and friends consumed lamb, chicken eggs and duck eggs produced on the smallholdings.

A small-scale vineyard that grew grapes for wine making was located in the survey area. The production of wine had declined in recent years and in 2008 only 500 bottles had been produced. Ninety percent of the wine was sold direct from the vineyard and the other ten percent was sold through wholesalers in North Wales.

No allotment sites were identified in the terrestrial survey area, although residents were interviewed that grew a variety of fruit and vegetables in their gardens. One gardener used stream water to irrigate their vegetables. Several households kept chickens for eggs for their own consumption and one household kept chickens and geese for their own consumption.

Two beekeepers were identified in the survey area but only one was available for interview. The beekeeper that was interviewed only had one hive at the time of the survey since other hives had suffered from colony collapse disorder. The hive was located close to the boundary of the 5 km survey area, southwest of Llyn Llygeirian. In former years, each hive had produced approximately 20 kg y^{-1} of honey but in 2008 the last surviving hive had produced only 7 kg of honey. It was reported that the hives of the other beekeeper were located in the southwest of the survey area, 4.5 km from the site centre. Honey was consumed by the beekeepers and their families, given to friends and sold to acquaintances.

Blackberries, sloes and mushrooms were growing wild in the survey area and these were collected and consumed.

An organised game shoot took place on a farm in the west of the survey area and approximately 1000 pheasants, 100 partridges and 300 duck per year were sold from the shoot to a game dealer in Shropshire. The shooters families and friends also consumed the birds. Rough shooting took place on several farms within the survey area and the shooters family and friends consumed the shot mallard, pheasants and rabbits.

Freshwater angling was identified on the small rivers of Afon Meddanen and Afon Wygyr in the east of the survey area and on the lake, Llyn Llygeirian, in the south of the survey area. A private conservation and angling club of 20 members fished on Afon Meddanen and Afon Wygyr. The rivers were stocked with 100 brown trout per year and were inhabited by wild migratory sea trout. Most of the fishing was catch and return. Members were permitted to retain brown trout but not migratory sea trout. Llyn Llygeirian was stocked with rainbow trout twice a year and fished by a private syndicate of 20 members. The consumption of rainbow trout was recorded from Llyn Llygeirian.

The consumption of groundwater by humans and livestock was identified. Two households in the east of the survey area used spring water for their domestic supply and one household in the far west of the survey area used well water for their domestic supply. One household in the southeast of the survey area used both well water and mains supply water and another household in the centre of the survey area used both spring water and mains supply water. Livestock were supplied with drinking water from boreholes at three farms, from a well at one farm and from streams or a lake at four farms. At several other farms the animals 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

No wholesalers were identified in the survey area. Retailers were interviewed to establish whether they were selling produce from within the survey area. They included two greengrocers, and a general store. A butchers shop in Cemaes appeared to have closed down and no interview was possible there. One general store in the centre of the survey area sold small quantities of rhubarb grown by a local gardener. No other retailers were identified selling local produce.

5.3 The transfer of contamination off-site by wildlife

The transfer of contamination off-site by wildlife was investigated as radionuclides could enter the food chain or contaminate the environment through this pathway. A representative from Magnox North Ltd reported that, although rabbits had frequently been seen on the land surrounding the site, they were prevented from accessing the site by tight security fences and concrete and stone surfaces that prevented burrowing. A falconer was engaged periodically to scare pigeons away and local pigeons were occasionally culled. The pigeons had been monitored on an *ad hoc* basis but no elevated levels of radioactivity had been found in them. The consumption of rabbits that had been shot in areas away from the site was recorded but it is unlikely that these rabbits had spent any time on the site. No consumption of pigeons was identified within the survey area.

5.4 Food consumption data

Consumption data for locally produced foodstuffs potentially affected by gaseous discharges are presented in Tables 20 to 34 for adults and Tables 35 to 44 for children. These tables include the mean consumption rates for the high-rate groups together with the observed 97.5th percentile consumption rates, as described in Section 3.2. For comparison purposes, the data are summarised in Table 10 for adults and in Tables 11 to 13 for children (15-year-olds, 10-year-olds and 5-year-olds, respectively). No children in the 1-year-old or 3-month-old age groups were consuming foods from the terrestrial survey area.

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 45 and the foods sampled as part of the 2008 Food Standards Agency monitoring programme (EA, FSA, NIEA and SEPA, 2009) are identified by emboldened italics in the table.

Adults' consumption rates

Consumption of locally produced foods was identified in the following 15 food groups: green vegetables, other vegetables, root vegetables, potato, domestic fruit, milk, pig meat, sheep meat, poultry, eggs, wild/free foods, rabbits/hares, honey, wild fungi and freshwater fish. No consumption of cattle meat, venison or cereals was identified.

Two mean consumption rates for the high-rate groups were found to be greater than the generic 97.5th percentile consumption rates. These were for root vegetables and sheep meat. Eight 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, sheep meat and eggs. Four observed 97.5th percentile consumption rates exceeded the generic 97.5th percentile consumption rates. These were for other vegetables, root vegetables, milk and sheep meat.

Children's consumption rates

15-year-old age group

Seven children in this age group were identified consuming locally produced foods. Consumption was identified in the following 10 food groups: green vegetables, other vegetables, root vegetables, potato, domestic fruit, milk, pig meat, eggs, wild/free foods and wild fungi. No consumption of cattle meat, sheep meat, poultry, rabbits/hares, honey, venison, cereals or freshwater fish was identified.

No mean consumption rates for the high-rate groups were found to be greater than the generic 97.5th percentile consumption rates. One mean consumption rate for the high-rate group exceeded the generic mean consumption rate and this was for milk. One mean consumption rate for the high rate group was equal to the generic mean consumption rate and this was for eggs. No observed 97.5th percentile consumption rates were greater than the generic 97.5th percentile consumption rates.

10-year-old age group

Four children in this age group were identified consuming locally produced food. Consumption was identified in the following 8 food groups: other vegetables, root vegetables, potato, domestic fruit, milk, pig meat, eggs and wild/free foods. No consumption was identified for green vegetables, cattle meat, sheep meat, poultry, rabbits/hares, honey, wild fungi, venison, cereals or freshwater fish.

No mean consumption rates for the high-rate groups were found to be greater than the generic 97.5th percentile consumption rates. One mean consumption rate for the high-rate group was higher than the generic mean consumption rate and this was for eggs. No observed 97.5th percentile consumption rates were greater than the generic 97.5th percentile consumption rates.

5-year-old age group

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

No generic 97.5th percentile or generic mean consumption rates have been determined for this age group so no comparisons with the observed rates are possible.

1-year-old age group

No children in the 1-year-old age group were identified consuming foods from the terrestrial survey area.

3-month-old age group

No children in the 3-month-old age group were identified consuming foods from the terrestrial survey area.

6 DIRECT RADIATION PATHWAYS

6.1 Direct radiation survey area

The direct radiation survey area covered all land and sea within 1 km of the Wylfa site perimeter fence, as shown in Figure 2. It was noted that the boundary formed by the perimeter fence was different from the boundary of the licensed site and it was the boundary of the perimeter fence that was used as the baseline for determining the direct radiation survey area. The occupancy data collected from the direct radiation area is also applicable to the direct exposure arising from gaseous releases from the site.

The land within the direct radiation survey area was predominantly agricultural. The promontory of Wylfa Head, which was a local nature reserve with open public access, was to the northeast of the site. Adjacent to the southeast side of the power station was an electricity sub station and beyond this were the power station's Visitors Centre and Nature Trail, and the Sports and Social Club. Cestyll Gardens, which are occasionally open to the public, were situated approximately 300 m to the southwest of the site and a small number of residential properties were dispersed throughout the direct radiation survey area.

The power station was situated directly adjacent to the rocky coast and on the coast to the southwest of the site was the small bay of Porth-y-pistyll. The outfall from the power station flowed into a small inlet on the west side of Wylfa Head, called Porth Wnal and on the east side of Wylfa Head was a small bay called Porth yr Ogof. Further east along the coast, towards the limit of the 1 km area, was another small bay called Porth Wylfa.

Wylfa has been nominated as a potential site for a possible new nuclear power station and approximately 232 hectares of land adjacent to the existing nuclear site have been proposed for new nuclear build activities. The proposed new build area covers nearly all the land and properties in the current direct radiation survey area. Only the electricity sub-station, Wylfa Head, one residential property in the southeast of the survey area, and a small piece of agricultural land to the west of the survey area, containing the residential properties and associated buildings for one farm and one smallholding, are outside the proposed new build area. The land and properties in the new build area are being purchased by a consortium of companies (Bow Bidco Wylfa Ltd) in anticipation that a new power station will be built. Consequently, at the time of the survey, many of the former residents had already moved out and others were expecting to move soon. Several properties were already boarded up.

The activities of Magnox North Ltd employees and contractors while at work were not considered in the direct radiation survey. This included employees working outside the licensed site perimeter

fence at the power station Visitors Centre and Nature Trail, the Sports and Social Club and Cestyll Gardens.

6.2 Residential activities

Eighteen residences were identified in the direct radiation survey area, eleven of which had been bought out and were not occupied. The houses were scattered throughout the survey area although the majority were situated towards the south of the area in the > 0.5 – 1 km zone. Interviews were conducted with six of the households, and included three families with children. All of these were in the >0.5 – 1 km zone. One of the residences was a farm and another was a smallholding.

6.3 Leisure activities

The power station Visitors Centre received approximately 30,000 visitors per year including primary and secondary school parties from a very wide area. It was used for educational purposes and other local community activities. The associated nature trail was used for nature studies and was also open to the public. The Sports and Social Club had a playing field and a surfaced court but they were not used frequently. The clubhouse was not open on a regular basis but it was used approximately once per month for private functions such as weddings or public events such as country and western dances. Cestyll Gardens was open to visitors for three or four days per year. The Wylfa Head Nature Reserve was used by walkers and dog walkers. A farm close to the western limit of the 1 km survey area had a campsite for up to five touring caravans, each of which usually accommodated two people. It was open from March to October each year and most visitors stayed for between four and seven days.

Angling was popular from the rocks around Wylfa Head, particularly on the eastern shore of Porth Wnal near the power station cooling water outfall, which was a favorite venue for bass fishing. The perimeter fence to the northwest of the site extended to the rocky shore but it was noted that some anglers made their way along that part of the shore at low tide in order to fish from the rocks to the northeast of the site on the western shore of Porth Wnal.

The small bays of Porth-y-pistyll, Porth yr Ogof and Porth Wylfa were only accessible by foot or from the sea but they were used by a small number of people. Activities including walking, playing, sunbathing, angling, swimming and collecting mussels were each noted at one or more of these bays.

Angling and pleasure boats were noted passing close along the coast and either drifting or at anchor in the mouth of Porth Wnal and close to the beach at Porth yr Ogof. Anglers were recorded fishing from kayaks in Porth Wnal.

6.4 Commercial activities

Commercial activities within the direct radiation survey area included operations at the electricity sub-station, farming and commercial fishing. Two full time employees and ten other periodic visiting employees worked at the electricity sub-station. One farm and one smallholding were located within 1 km of the site, and another two farm workers lived outside the area but worked part time on land within the area. In total, five farmers/farm workers were identified working within the area. Fishermen were noted to be potting for brown crab and common lobster from boats operating at sea within 1 km of the site.

6.5 Occupancy rates

Table 46 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 47.

0 - 0.25 km from the licensed site perimeter fence

Occupancy data were collected for 19 individuals in the 0 - 0.25 km zone. The observations were for 12 employees, six anglers at Wylfa Head, two of whom also fished from kayaks in Porth Wnal and one walker on the nature trail and Wylfa Head. Two employees had the identical highest total occupancy rate of 1600 h y^{-1}, and the same two individuals had the highest outdoor and indoor occupancy rates that were both equal at 800 h y^{-1}.

>0.25 – 0.5 km from the licensed site perimeter fence

Occupancy data were collected for nine individuals in the >0.25 to 0.5 km zone. The observations were for two farmers tending livestock in the fields, one dog walker at Wylfa Head, one mussel collector at Porth-y-pistyll and five individuals playing or sunbathing on the beach at Porth yr Ogof. Two farmers had the identical highest total occupancy rate and outdoor occupancy rate, which were the same at 730 h y^{-1} since all the time was spent outdoors. No indoor occupancy rates were recorded in this zone.

>0.5 – 1.0 km from the licensed site perimeter fence

Occupancy data were collected for 21 people in the >0.5 - 1.0 km zone. The observations were all for residents and included three individuals who lived and worked at a farm or a smallholding within the zone. Two of these people also spent time walking on the shore within the zone. A resident had the highest total occupancy rate of 8700 h y^{-1}, and the same resident had the highest indoor occupancy rate of 8600 h y^{-1}. Two individuals who lived and worked at a smallholding had the identical highest outdoor occupancy rate of 2100 h y^{-1}.

6.6 Gamma dose rate measurements

Table 48 presents gamma dose rate measurements for the Wylfa direct radiation survey area. Gamma dose rate measurements were taken both indoors and outdoors of most 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.

Seven outdoor measurements taken over grass ranged from 0.071 µGy h^{-1} to 0.092 µGy h^{-1}. Five indoor measurements, taken over concrete or wood, ranged from 0.071 µGy h^{-1} to 0.125 µGy h^{-1}. Five background readings over rough grass ranged from 0.066 µGy h^{-1} to 0.088 µGy h^{-1}. Two of the outdoor measurements taken during the survey were greater than the highest background measurement.

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

7 USES OF HABITS DATA FOR DOSE ASSESSMENTS

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

The most extensive combinations of pathways for adult dose assessment are shown in Table 49. Each of the 30 combinations shown in Table 49 represents an actual individual (or individuals) from Annex 1 who has positive data (irrespective of the magnitude), for each pathway marked with an asterisk. It should be noted that combination numbers in Table 49 do not correlate directly with observation numbers in Annex 1. Other individuals from Annex 1 have combinations that are not listed in Table 49 because they have fewer pathways and a dose assessment for them would be adequately covered by one of the 30 listed combinations.

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

7.2 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 dose to the foetus. Therefore, consumption and occupancy data collected during the Wylfa 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); 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 Wylfa 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 Wylfa are made using these profiles and reported in the Radioactivity in Food and the Environment Reports (e.g. EA, FSA, NIEA and SEPA, 2009). Additionally, profiles have been created for the 15-year-old, 10-year-old and 5-year-old age groups, and for women of childbearing age. These are shown in Annexes 7, 8, 9 and 10 respectively. They are not currently used in the Radioactivity in Food and the Environment Reports. No profiles are provided for the 1-year-old or the 3-month-old age groups, because of insufficient data.

8 CONCLUSIONS AND SUGGESTIONS

8.1 Survey findings

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

- Discharges of liquid radioactive waste to the Irish Sea
- Discharges of gaseous radioactive waste to the atmosphere
- Emissions of direct radiation

Data were collected for 381 individuals including commercial fishermen, anglers, water sports enthusiasts, people spending time on intertidal substrates, farmers, smallholders, gardeners, beekeepers and people spending time within 1 km of the Wylfa site perimeter fence. 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.

Aquatic survey area

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

- 29 kg y^{-1} for fish
- 16 kg y^{-1} for crustaceans
- 6.9 kg y^{-1} for molluscs
- 0.5 kg y^{-1} for marine plants/algae

The predominant foods consumed by the respective high-rate groups for these food groups were: mackerel, bass and pollack; brown crab and common lobster; mussel; and *Porphyra*.

The use of seaweed as a fertiliser on vegetables was identified. The use of seaweed for animal feed was not identified but at Hen Borth sheep were allowed to stray on to the shore and were observed grazing on seaweed.

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

- 390 h y^{-1} for mud and sand
- 580 h y^{-1} for rock
- 410 h y^{-1} for sand
- 260 h y^{-1} for sand and stones

The mean handling rate for the adult high-rate group for fishing gear was 1000 h y^{-1} and for sediment was 180 h y^{-1}.

The adult maximum occupancy rate in water was 96 h y^{-1} and on water was 1500 h y^{-1}.

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:

- 25 kg y^{-1} for green vegetables
- 38 kg y^{-1} for other vegetables
- 41 kg y^{-1} for root vegetables
- 100 kg y^{-1} for potato
- 26 kg y^{-1} for domestic fruit
- 160 l y^{-1} for milk
- 7.9 kg y^{-1} for pig meat
- 26 kg y^{-1} for sheep meat
- 4.5 kg y^{-1} for poultry
- 21 kg y^{-1} for eggs
- 2.2 kg y^{-1} for wild/free foods
- 1.1 kg y^{-1} for rabbits/hares
- 1.7 kg y^{-1} for honey
- 0.6 kg y^{-1} for wild fungi
- 2.5 kg y^{-1} for freshwater fish

No consumption of cattle meat, venison or cereals was identified from the survey area. The consumption of foodstuffs by children (15-year-old, 10-year-old, 5-year-old and 1-year-old age groups) was also recorded. Combinations of food groups (both aquatic and terrestrial) consumed at mean high-rates together with external pathway exposures can be derived from the data for individuals in Annexes 1 and 2. Rates for individuals making up the high-rate groups are presented in bold type.

Human consumption of groundwater was identified at five properties distributed throughout the survey area. Three households were using spring or well water as their sole domestic supply and two households were using spring or well water but also used mains supply water. Livestock were supplied with drinking water from boreholes, a well, streams or a lake at eight farms scattered throughout the survey area. At many other farms livestock had access to stream or ditch water although they were provided with mains supply as their primary source of drinking water.

The transfer of contamination off-site by wildlife was investigated as radionuclides could enter the food chain or contaminate the environment through this pathway. A representative from Magnox North Ltd reported that rabbits were prevented from accessing the site by tight security fences and concrete and stone surfaces that prevented burrowing. A falconer was engaged periodically to scare pigeons away and local pigeons were occasionally culled. The pigeons had been monitored on an *ad hoc* basis but no elevated levels of radioactivity had been found in them. The consumption of rabbits that had been shot in areas away from the site was recorded but it is unlikely that these rabbits had spent any time on the site. No consumption of pigeons was identified within the survey area.

Direct radiation survey area

For occupancy by members of the public within 1 km of the Wylfa site perimeter fence, the highest total, indoor and outdoor occupancy rates were:

- For the 0 - 0.25 km zone; 1600 h y^{-1} total occupancy, 800 h y^{-1} indoors and 800 h y^{-1} outdoors
- For the >0.25 - 0.5 km zone; 700 h y^{-1} total occupancy, no indoor occupancy and 700 h y^{-1} outdoors
- For the >0.5 - 1.0 km zone; 8700 h y^{-1} total occupancy, 8600 h y^{-1} indoors and 2100 h y^{-1} outdoors

In the 0 - 0.25 km zone, the highest total, indoor and outdoor occupancy rates were for two employees.

In the >0.25 - 0.5 km zone, the highest total and outdoor occupancy rates were for two farmers tending livestock. No indoor occupancy rates were recorded in this zone.

In the >0.5 - 1.0 km zone, the highest total and indoor occupancy rate was for an elderly resident. The highest outdoor occupancy rate was for two farmers that lived and worked on a smallholding.

8.2 Comparisons with previous surveys

The results from this 2009 survey can be compared with results from the last combined habits survey undertaken in 2004. The aquatic, terrestrial and direct radiation survey areas in the 2009 survey were the same as those in the 2004 survey. All comparisons for consumption, intertidal occupancy and handling include data for adults only. The comparisons of occupancy rates in the direct radiation area include data for adults and children.

Aquatic survey area

The types of activities identified in 2009 were for the most part similar to those identified in 2004.

The main species of fish consumed by the adult high-rate group were the same in both 2004 and 2009 and these were bass, mackerel and pollack. The main crustacean species consumed by the adult high-rate group in 2004 were brown crabs and common lobsters and in 2009 were the same two species with the addition of common prawns. In 2004, the main species of molluscs consumed by the adult high-rate group were mussels and whelks and in 2009 the adult high rate group consumed only mussels. The consumption of wildfowl was not identified in either 2004 or 2009. The consumption of marine plants/algae was not identified in 2004, and in 2009 the only species consumed by the adult high-rate group was *Porphyra sp.* A comparison between the 2004 and 2009 data for the consumption of aquatic foods is presented in Table A. In 2009, compared with 2004, there were increases in the mean consumption rates for the adult high-rate groups for fish from 22 kg y^{-1} to 29 kg y^{-1}, for crustaceans from 6.5 kg y^{-1} to 16 kg y^{-1}, and for molluscs from 1.5 kg y^{-1} to 6.9 kg y^{-1}. The consumption of marine plants/algae was not identified in 2004 and had increased to 0.5 kg y^{-1} in 2009.

Table A. Comparison between 2004 and 2009 consumption rates of aquatic food groups for adults

	2004			2009		
Food group	Number in high-rate group	Maximum consumption rate (kg y^{-1})	Mean consumption rate for the high-rate group (kg y^{-1})	Number in high-rate group	Maximum consumption rate (kg y^{-1})	Mean consumption rate for the high-rate group (kg y^{-1})
Fish	21	51.2	22.2	18	47.2	28.8
Crustaceans	6	10.0	6.5	5	23.4	15.8
Molluscs	6	5.5	1.5	2	6.9	6.9
Marine plants/algae	Nil	Nil	Nil	1	0.5	0.5

For intertidal occupancy in 2004, activities were recorded over the following four substrates: mud and stones; rock; sand; and sand and stones. Activities were recorded over similar substrates in 2009 except that mud and sand replaced mud and stones.

A comparison between the 2004 and 2009 data for occupancy over intertidal substrates, handling fishing gear and handling sediment is shown in Table B.

The intertidal occupancy activities undertaken by the individuals in the high-rate groups in 2004 included angling, bait digging, beach warden duties, dog walking, nature reserve warden duties,

shellfish collecting and working on the shore. In 2009, the activities were similar, excluding bait digging and working on the shore and with the addition of boat maintenance, collecting seaweed, fixing moorings and playing. The only activity for individuals in the high-rate group for handling fishing gear in 2004 was handling pots and this was the same in 2009. The activities for individuals in the high-rate group for handling sediment in 2004 were bait digging and shellfish collecting and these were the same in 2009 with the addition of collecting seaweed and fixing moorings.

Table B. Comparison between 2004 and 2009 intertidal occupancy rates and handling rates of fishing gear and sediments for adults

	2004			2009		
Intertidal substrate or handling pathway	Number in high-rate group	Maximum occupancy or handling rate (h y^{-1})	Mean occupancy or handling rate for the high-rate group (h y^{-1})	Number in high-rate group	Maximum occupancy or handling rate (h y^{-1})	Mean occupancy or handling rate for the high-rate group (h y^{-1})
Mud and sand	Nil	Nil	Nil	1	390	390
Mud and stones	1	26	26	Nil	Nil	Nil
Rock	8	384	223	3	978	575
Sand	7	365	295	5	730	413
Sand and stones	5	420	290	9	504	260
Handling fishing gear	12	808	575	7	1400	1012
Handling sediment	2	26	18	3	300	180

The mean intertidal occupancy rates for the high-rate groups for sand and for sand and stones in 2009 were broadly similar to those in 2004. The most significant changes were that there were no activities recorded over mud and sand in 2004, although there were in 2009; there were no activities recorded over mud and stones in 2009, although there were in 2004; and activities over rock increased in 2009. The change from mud and stones to mud and sand was attributed to a switch in the reported substrate over which bait digging was taking place and the identification in 2009 of boat maintenance and mooring fixing activities over mud and sand, which had not been reported in 2004. The increase in the occupancy over rock in 2009 was due to an increase in the amount of time that anglers spent fishing. The handling rate for fishing gear almost doubled from 2004 to 2009 and this was attributed to commercial fishermen increasing their fishing effort. The great increase in the handling rate of sediment from 2004 to 2009 was attributed to the newly identified activities of fixing moorings and collecting seaweed.

Terrestrial survey area

Activities in the terrestrial survey area in 2009 were very similar to those in 2004. The principal types of farm remained a mix of beef cattle, dairy cattle and sheep, with a limited amount of arable crops, mainly for use as animal feed. In 2004, pigs were only kept at one farm and these were solely for consumption by the farmer's own household. In 2009, one farmer kept pigs solely for his own families consumption and another two had added pigs to their commercial range of livestock. No smallholdings were identified in 2004 but in 2009 three properties were classified as smallholdings since the householders now kept small numbers of beef cattle or sheep.

The mean consumption rates for the adult high-rate group for terrestrial food groups from the 2004 and 2009 surveys are shown in Table C below.

Table C. Comparison between 2004 and 2009 mean consumption rates for the adult high-rate groups for terrestrial food groups (kg y^{-1} or l y^{-1})

Food group	2004	2009
Green vegetables	26.7	25.0
Other vegetables	20.7	38.2
Root vegetables	21.0	41.2
Potato	104.3	100.1
Domestic fruit	28.6	26.4
Milk	140.3	157.2
Cattle meat	37.8	Nil
Pig meat	16.9	7.9
Sheep meat	8.0	25.7
Poultry	1.6	4.5
Eggs	18.4	21.1
Wild/free foods	5.6	2.2
Rabbits/hares	1.4	1.1
Honey	4.5	1.7
Wild fungi	0.9	0.6
Freshwater fish	0.2	2.5

Consumption rates increased in 2009 in the following seven food groups: other vegetables, root vegetables, milk, sheep meat, poultry, eggs and freshwater fish. Consumption rates decreased in 2009 in the following nine food groups: green vegetables, potato, domestic fruit, cattle meat (not consumed in 2009), pig meat, wild/free foods, rabbits/hares, honey and wild fungi. No consumption of venison or cereals was identified in either 2004 or 2009. There were relatively large increases in the consumption rates for other vegetables, root vegetables, sheep meat, poultry and freshwater fish and relatively large decreases in the consumption rates for cattle meat, pig meat, wild/free foods and honey.

The increase in the mean rate for the high-rate group of sheep meat consumers was due principally to the consumption for a single enthusiastic smallholder and his family. This increase was against a general decline in the number of sheep meat consumers from 39 in 2004 to 25 in 2009, which was attributed to the increasing cost and inconvenience of having home produced meat sent back from the abattoir to the producer. Cattle meat was no longer consumed in 2009, for the same reason. The decline in honey production was attributed to the collapse of the bee colonies. No specific reasons were identified for the other changes in consumption rates.

The human consumption of groundwater was identified in both the 2004 and the 2009 surveys. The widespread use of groundwater and surface water for the drinking supply for livestock was also identified in both surveys.

Direct radiation survey area

There was a marked decline in residential activities between 2004 and 2009 since eleven properties had been bought up for the proposed new build programme and were no longer occupied. Fourteen occupied residences were identified in 2004 and interviews were obtained at 11 of these, whereas only seven occupied residences were identified in 2009 and interviews were obtained at six of these. The commercial activities and leisure activities were broadly similar in 2004 and 2009. In 2009 most of the farmland in the direct radiation area was within the area nominated for the new build programme but at the time of the survey the land was still used for farming.

A comparison between the 2004 and 2009 direct radiation occupancy rates, by zone, is presented in Tables D, E and F below.

Table D. Comparison between 2004 and 2009 direct radiation occupancy rates in the 0 – 0.25 km zone (h y^{-1})

	2004	**2009**
Highest total	8052	1613
Highest indoor	7034	807
Highest outdoor	1872	807

In the 0 – 0.25 km zone the highest total, indoor and outdoor occupancy rates in 2004 were all for different residents. In 2009 there was only one residential property in this zone that appeared to be occupied but the occupants could not be contacted for interview. The highest total, indoor and outdoor occupancy rates in 2009 were all for two employees with identical occupancy rates.

Table E. Comparison between 2004 and 2009 direct radiation occupancy rates in the >0.25 – 0.5 km zone (h y^{-1})

	2004	2009
Highest total	8448	730
Highest indoor	8252	Nil
Highest outdoor	598	730

In the >0.25 – 0.5 km zone the highest total and outdoor occupancy rates in 2004 were both for two residents with identical occupancy rates. There were no occupied residential properties in this zone in 2009 and the highest total and outdoor occupancy rates were for two farm workers with identical occupancy rates. The highest indoor occupancy rate in 2004 was for a different resident and no indoor occupancy was recorded in this zone in 2009.

Table F. Comparison between 2004 and 2009 direct radiation occupancy rates in the >0.5 – 1.0 km zone (h y^{-1})

	2004	2009
Highest total	8416	8656
Highest indoor	8052	8602
Highest outdoor	2132	2080

In the >0.5 – 1.0 km zone the highest total and indoor occupancy rates in 2004 were for a resident and in 2009 were for a different resident. The highest outdoor occupancy rate in 2004 was for a farmer who lived and worked in the zone and in 2009 was for a different farmer who lived and worked in the zone.

In the Wylfa direct radiation area, gamma dose rate measurements for some residences and farms in 2009 can be compared with gamma dose rate measurements taken at the same properties in 2004. These are presented in Table G.

Table G. Comparison between 2004 and 2009 gamma dose rates (µGy h^{-1})

	Outdoor		Indoor	
Residence number	**2004**	**2009**	**2004**	**2009**
Residence 1 (smallholding)	0.071	0.083	0.088	NM
Residence 2	0.074	0.071	0.121	0.085
Residence 3	0.078	0.079	0.089	0.092
Residence 5 (farm)	0.073	0.082	0.083	0.085

These measurements have not been adjusted for natural background dose rates

These residence numbers correspond to those in Table 48

NM = Not measured

8.3 Summary of current environmental monitoring programmes

The 2008 monitoring programmes for Wylfa operated by the Environment Agency and the Food Standards Agency, and published in the RIFE report (EA, FSA, NIEA and SEPA, 2009), 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 2009 Wylfa habits survey.

Aquatic monitoring

- Plaice from the pipeline
- Bass from the outfall
- Crabs from the pipeline
- Lobsters from the pipeline
- Winkles from Cemaes Bay
- Seaweed from Cemaes Bay
- Sediment from Cemaes Bay
- Sediment from Cemlyn Bay East
- Sediment from Cemlyn Bay West
- Seawater from Cemaes Bay
- Seawater from Cemlyn Bay East
- Seawater from Cemlyn Bay West
- Gamma dose rate measurements:
    - Sand at Cemaes Bay
    - Rock and sand at Cemaes Bay
    - Pebbles and sand at Cemlyn Bay East
    - Pebbles at Cemlyn Bay West

Terrestrial monitoring

- Milk
- Apples
- Barley
- Beetroot
- Blackberries
- Broad beans
- Cabbage
- Honey
- Potatoes
- Freshwater from the public supply

8.4 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 Wylfa area and no changes to this are suggested.

Food Standards Agency monitoring

- Within the mollusc food group a sample of mussels could be taken in addition to the sample of winkles since mussels were consumed in far higher quantities than winkles. It is suggested that the winkle sample is retained in order to continue the valuable time series of data that exists for winkles.
- Broad beans could be replaced with tomatoes since they made the highest percentage contribution to the 'other vegetables' food group.
- A sample of chicken eggs could be added since these were consumed at a high rate and no sample is currently taken in this food group.
- A sample of sheep meat could be added since this was consumed at a high rate and no meat samples are currently taken. Alternatively, a sample of sheep faeces could be added as a more economic option.

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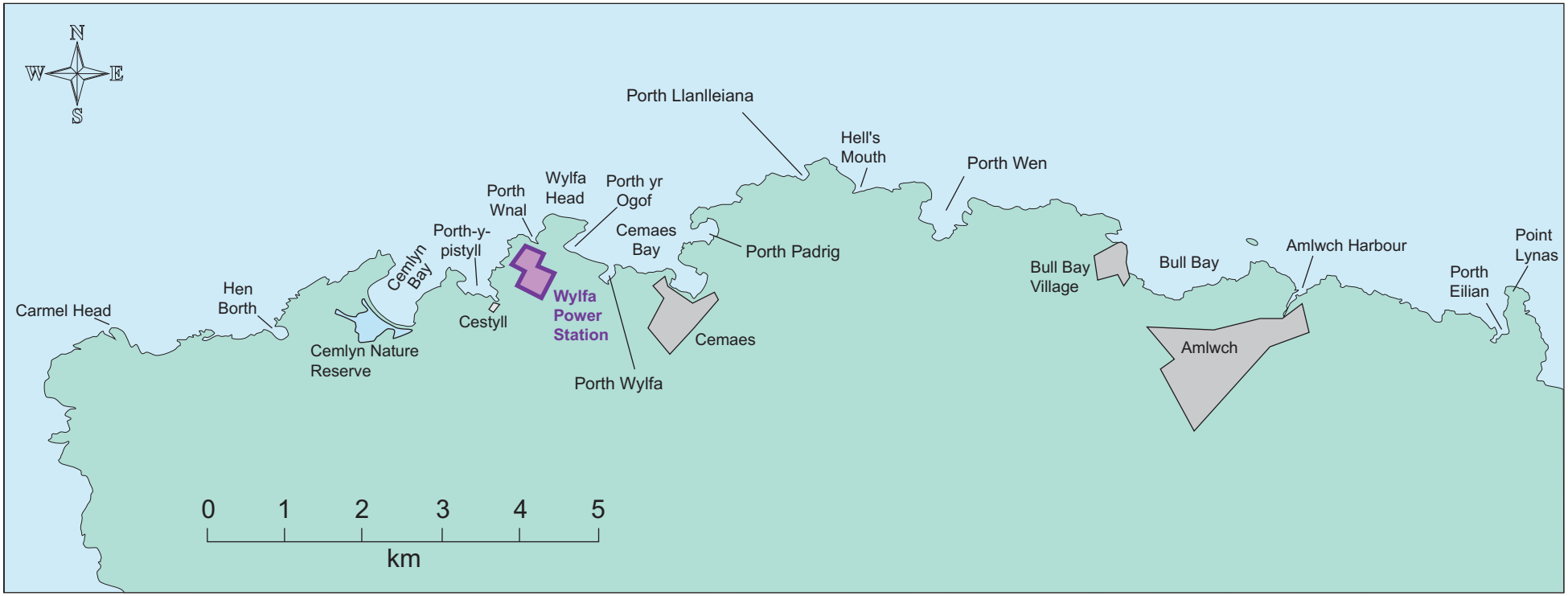

Figure 1. The Wylfa aquatic survey area

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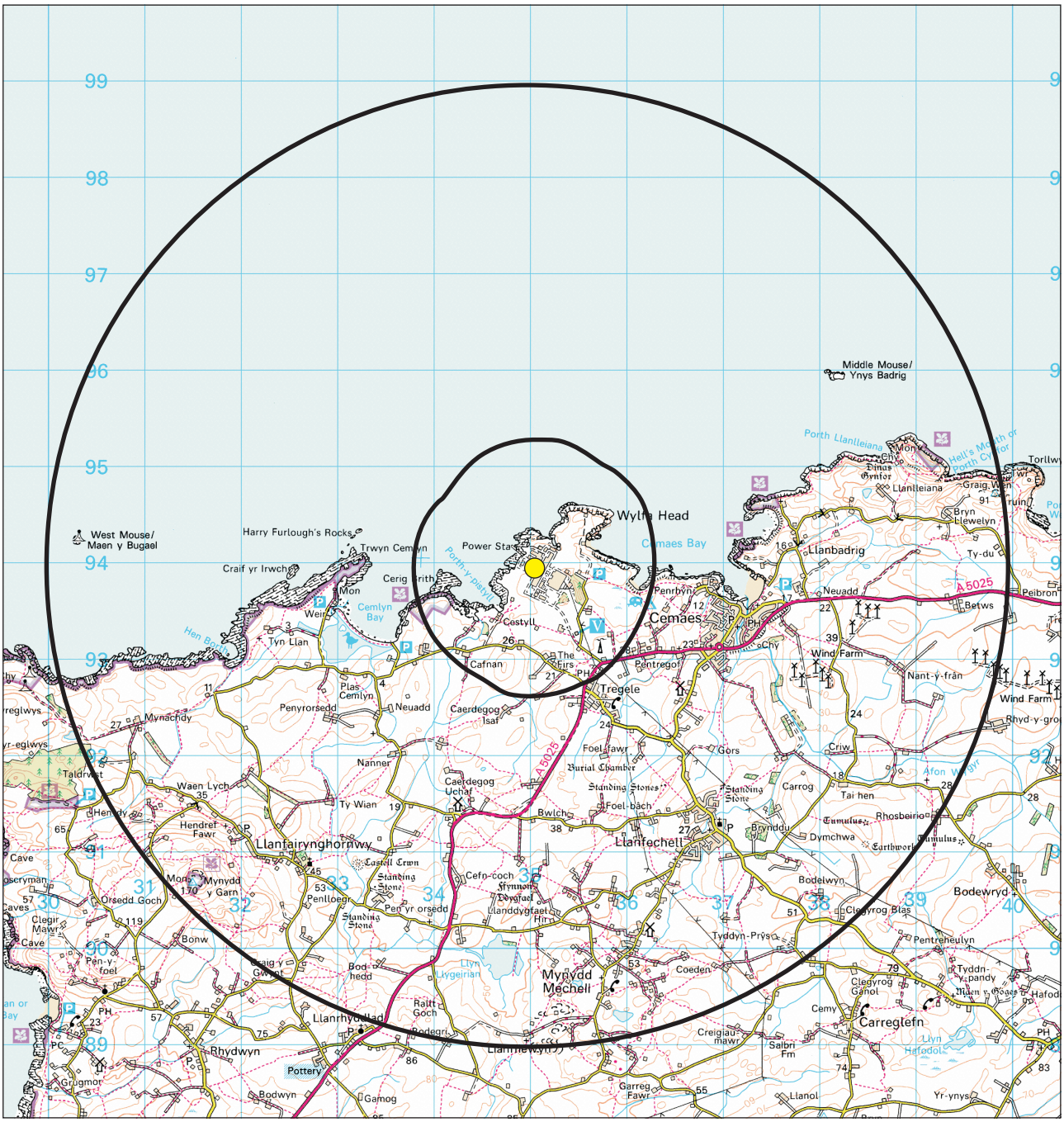

Figure 2. The Wylfa terrestrial (outer ring) and direct radiation (inner ring) survey areas

Wylfa site centre

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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
SUMMARY OF ALL PATHWAYS					
All potential people in the Wylfa aquatic, terrestrial and direct radiation survey areas.	Number of people resident in the terrestrial survey area (excluding those resident in the direct radiation survey area) (See **(B) TERRESTRIAL PATHWAYS**)	2800[a]	109[b]	4%	The survey targeted individuals who were potentially the most exposed, mostly producers of local foods such as farmers and smallholders.
	Number of people resident in the direct radiation survey area (See **(C) DIRECT RADIATION PATHWAYS**)	24	21	88%	Interviews were conducted at 6 occupied residences out of a total of 7 identified occupied residences.
	Number of people employed but not resident in the direct radiation survey area (See **(C) DIRECT RADIATION PATHWAYS**)	14	14	100%	Excluding employees and contractors of Magnox North Ltd.
	Number of people visiting the direct radiation survey area (See **(C) DIRECT RADIATION PATHWAYS**)	U	1[b]	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 **(A) AQUATIC PATHWAYS**)	U	236[b]	U	
	Total for aquatic, terrestrial and direct radiation survey areas	U	381[b]	U	
(A) AQUATIC PATHWAYS					
Commercial fishermen	Number of commercial fishermen actively fishing in survey area	14	11	79%	Interviews were conducted with skippers of 7 vessels out of a total of 9 identified vessels.
Boat anglers, hobby fishermen and charter boat skippers	Number of people interviewed during the survey	U	27	U	
Baitdiggers, shellfish collectors and seaweed collectors	Number of people interviewed during the survey	U	6	U	
Other people using the shore including anglers, dog walkers, birdwatchers and people playing etc.	Number of people interviewed during the survey	U	148	U	
Sub-aqua divers	Number of people for whom data was collected during the survey	U	13	U	An interview with a diving club representative provided generic data for 10 divers
Watersports enthusiasts	Number of people for whom data was collected during the survey	U	50	U	An interview with a rowing club representative provided generic data for 20 rowers
Fish and shellfish consumers	Number of people for whom data was collected during the survey	U	109	U	

Table 1. Survey coverage

Group	Criteria	Estimate of complete coverage	Number for whom positive data was obtained	Coverage for positive observations	Notes
(B) TERRESTRIAL PATHWAYS					
Farmers, smallholders and vineyard keepers	Number of farmers/smallholders and their family members consuming food from the terrestrial survey area	130	103	80%	Interviews were conducted at 31 out of a total of 39 identified agricultural enterprises
Gardeners	Number of gardeners and their family members consuming food from the survey area	U	16	U	
Bee keepers	Number of people consuming honey produced by bee keepers in the survey area	U	7	U	Interviews were conducted with 1 beekeeper from 2 identified beekeepers
Freshwater fish consumers	Number of people consuming freshwater fish caught in the survey area	U	2	U	
(C) DIRECT RADIATION PATHWAYS					
Residents	Number of residents in the survey area	24	21	88%	Interviews were conducted at 6 occupied residences out of a total of 7 identified occupied residences.
Employees	Number of people employed in the survey area	14	14	100%	Excluding employees and contractors of Magnox North Ltd. and people living in the direct radiation survey area
Visitors	Number of visitors to the survey area	U	14	U	Mainly individuals undertaking recreational activities within the direct radiation survey area, including those also affected by aquatic discharges, such as anglers etc
BREAKDOWN OF AGE GROUPS					
Adults	17-year-old and over	2208[a]	323	~10%	
15-year-old	12-year-old to 16-year-old	176[a]	17	~10%	
10-year-old	7-year-old to 11-year-old	183[a]	16	~9%	
5-year-old	2-year-old to 6-year-old	149[a]	23	~15%	
1-year-old	1-year-old	28[a]	1	~4%	
3-month-old	Under 1-year-old	30[a]	1	~3%	

Notes

[a] Estimate of the number of people resident in the 5 km terrestrial survey area based on data from www.statistics.gov.uk

[b] The number of people for whom positive data was obtained, for pathways (A) and (B) and (C) will 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, pepper, pumpkin, runner bean, sweetcorn, tomato
Root vegetables	Beetroot, carrot, celeriac, celery, chicory, fennel, garlic, Jerusalem artichoke, kohl rabi, 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
Solid milk products	Butter, cheese
Cattle meat[a]	Beef
Pig meat[a]	Pork
Sheep meat[a]	Lamb, mutton
Poultry	Chicken, duck, goose, grouse, guinea fowl, partridge, pheasant, pigeon, snipe, turkey, woodcock
Eggs	Chicken egg, duck egg, goose egg
Wild/free foods	Blackberry, chestnut, crab apple, damson, dandelion root, elderberry, nettle, raspberry, rowanberry, sloe, strawberry,
Honey	Honey
Wild Fungi	Mushrooms, other edible fungi
Rabbits/Hares	Rabbit, hare
Venison[a]	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[b], cuttlefish[b], rays, turbot, whitebait, whiting
Fish (freshwater)	Brown trout, rainbow trout, perch, pike, salmon (river), eels
Crustaceans	Brown crab, spider crab, crawfish, lobster, *Nephrops* , squat lobster, prawn, shrimp
Molluscs	Cockles, limpets, mussels, oysters, queens, scallops, razor shell, whelks, winkles

Notes

[a] Including offal

[b] Although squid and cuttlefish are molluscs, radiologically they are more akin to fish

Table 3. Adults' consumption rates of fish from the Wylfa aquatic survey area (kg y $^{-1}$)

Observation number	Bass	Cod	Dab	Grey mullet	Herring	Lesser spotted dogfish	Mackerel	Mixed fish	Plaice	Pollack	Red gurnard	Saithe	Thornback ray	Whiting	Total
1	**9.4**	**-**	**4.7**	**-**	**-**	**-**	**9.4**	**-**	**4.7**	**9.4**	**-**	**4.7**	**4.7**	**-**	**47.2**
2	**9.4**	**-**	**4.7**	**-**	**-**	**-**	**9.4**	**-**	**4.7**	**9.4**	**-**	**4.7**	**4.7**	**-**	**47.2**
50	**9.4**	**-**	**9.4**	**-**	**9.4**	**-**	**9.4**	**-**	**9.4**	**-**	**-**	**-**	**-**	**-**	**47.2**
105	**-**	**-**	**-**	**-**	**-**	**-**	**31.0**	**-**	**-**	**-**	**-**	**-**	**-**	**12.4**	**43.4**
12	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**40.8**	**-**	**-**	**-**	**-**	**-**	**-**	**40.8**
13	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**40.8**	**-**	**-**	**-**	**-**	**-**	**-**	**40.8**
106	**5.1**	**-**	**-**	**-**	**-**	**-**	**18.3**	**-**	**-**	**13.4**	**1.4**	**-**	**-**	**-**	**38.1**
110	**26.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**26.0**
15	**-**	**-**	**-**	**-**	**-**	**-**	**11.4**	**-**	**-**	**14.1**	**-**	**-**	**-**	**-**	**25.5**
351	**-**	**-**	**-**	**-**	**-**	**-**	**13.8**	**-**	**-**	**6.7**	**-**	**-**	**-**	**-**	**20.6**
107	**2.5**	**-**	**-**	**-**	**-**	**-**	**9.1**	**-**	**-**	**6.7**	**0.7**	**-**	**-**	**-**	**19.1**
123	**4.8**	**3.3**	**-**	**-**	**-**	**-**	**8.7**	**-**	**-**	**1.6**	**-**	**-**	**-**	**-**	**18.4**
122	**4.8**	**3.3**	**-**	**-**	**-**	**-**	**8.7**	**-**	**-**	**1.6**	**-**	**-**	**-**	**-**	**18.4**
11	**17.9**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**17.9**
87	**9.0**	**-**	**-**	**8.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**17.1**
88	**9.0**	**-**	**-**	**8.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**17.1**
89	**9.0**	**-**	**-**	**8.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**17.1**
90	**9.0**	**-**	**-**	**8.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**17.1**
112	15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	15.6
42	0.6	-	-	-	-	-	14.0	-	-	-	-	-	-	-	14.6
43	0.6	-	-	-	-	-	14.0	-	-	-	-	-	-	-	14.6
44	-	-	-	-	-	-	14.0	-	-	-	-	-	-	-	14.0
45	-	-	-	-	-	-	14.0	-	-	-	-	-	-	-	14.0
16	-	-	-	-	-	-	5.7	-	-	7.0	-	-	-	-	12.7
17	-	-	-	-	-	-	5.7	-	-	7.0	-	-	-	-	12.7
51	2.4	-	2.4	-	2.4	-	2.4	-	2.4	-	-	-	-	-	11.8
120	-	3.3	-	-	-	-	5.8	-	-	1.6	-	-	-	-	10.7
121	-	3.3	-	-	-	-	5.8	-	-	1.6	-	-	-	-	10.7
324	-	-	-	-	-	-	8.3	-	-	2.1	-	-	-	-	10.4
325	-	-	-	-	-	-	8.3	-	-	2.1	-	-	-	-	10.4
326	-	-	-	-	-	-	8.3	-	-	2.1	-	-	-	-	10.4
252	1.4	1.4	-	-	-	-	2.7	-	-	1.4	-	-	-	-	6.8
253	1.4	1.4	-	-	-	-	2.7	-	-	1.4	-	-	-	-	6.8
254	1.4	1.4	-	-	-	-	2.7	-	-	1.4	-	-	-	-	6.8
169	4.7	-	-	-	-	-	1.8	-	-	-	-	-	-	-	6.5

Table 3. Adults' consumption rates of fish from the Wylfa aquatic survey area (kg y $^{-1}$)

Observation number	Bass	Cod	Dab	Grey mullet	Herring	Lesser spotted dogfish	Mackerel	Mixed fish	Plaice	Pollack	Red gurnard	Saithe	Thornback ray	Whiting	Total
170	4.7	-	-	-	-	-	1.8	-	-	-	-	-	-	-	6.5
108	-	5.6	-	-	-	-	-	-	-	-	-	-	-	-	5.6
109	-	5.6	-	-	-	-	-	-	-	-	-	-	-	-	5.6
20	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5
21	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5
22	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5
46	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3
47	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3
48	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3
49	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3
38	-	2.0	-	-	-	-	-	-	3.3	-	-	-	-	-	5.3
39	-	2.0	-	-	-	-	-	-	3.3	-	-	-	-	-	5.3
40	-	2.0	-	-	-	-	-	-	3.3	-	-	-	-	-	5.3
41	-	2.0	-	-	-	-	-	-	3.3	-	-	-	-	-	5.3
340	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1
343	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1
344	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1
154	-	2.7	-	-	-	1.0	-	-	-	1.1	-	-	-	-	4.7
155	-	2.7	-	-	-	1.0	-	-	-	1.1	-	-	-	-	4.7
337	0.7	-	-	-	-	-	3.7	-	-	-	-	-	-	-	4.4
339	0.7	-	-	-	-	-	3.7	-	-	-	-	-	-	-	4.4
52	-	-	-	-	-	-	1.4	-	-	-	-	1.4	-	1.3	4.1
53	-	-	-	-	-	-	1.4	-	-	-	-	1.4	-	1.3	4.1
60	-	-	-	-	-	-	1.7	-	-	1.7	-	-	-	-	3.4
61	-	-	-	-	-	-	1.7	-	-	1.7	-	-	-	-	3.4
233	0.9	-	-	-	-	-	2.3	-	-	-	-	-	-	-	3.2
234	0.9	-	-	-	-	-	2.3	-	-	-	-	-	-	-	3.2
235	0.9	-	-	-	-	-	2.3	-	-	-	-	-	-	-	3.2
54	-	-	-	-	-	-	1.0	-	-	-	-	1.0	-	0.9	3.0
55	-	-	-	-	-	-	1.0	-	-	-	-	1.0	-	0.9	3.0
56	-	-	-	-	-	-	1.0	-	-	-	-	1.0	-	0.9	3.0
57	-	-	-	-	-	-	1.0	-	-	-	-	1.0	-	0.9	3.0
58	-	-	-	-	-	-	1.0	-	-	-	-	1.0	-	0.9	3.0
59	-	-	-	-	-	-	1.0	-	-	-	-	1.0	-	0.9	3.0
262	-	1.3	-	-	-	-	1.6	-	-	-	-	-	-	-	2.9

Table 3. Adults' consumption rates of fish from the Wylfa aquatic survey area (kg y^{-1})

Observation number	Bass	Cod	Dab	Grey mullet	Herring	Lesser spotted dogfish	Mackerel	Mixed fish	Plaice	Pollack	Red gurnard	Saithe	Thornback ray	Whiting	Total
263	-	1.3	-	-	-	-	1.6	-	-	-	-	-	-	-	2.9
264	-	1.3	-	-	-	-	1.6	-	-	-	-	-	-	-	2.9
265	-	1.3	-	-	-	-	1.6	-	-	-	-	-	-	-	2.9
34	-	-	-	-	-	-	1.4	-	-	1.4	-	-	-	-	2.8
36	-	-	-	-	-	-	1.4	-	-	1.4	-	-	-	-	2.8
37	-	-	-	-	-	-	1.4	-	-	1.4	-	-	-	-	2.8
18	-	-	-	-	-	-	2.8	-	-	-	-	-	-	-	2.8
19	-	-	-	-	-	-	2.8	-	-	-	-	-	-	-	2.8
9	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-	2.4
10	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-	2.4
241	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	1.7
92	-	-	-	-	-	-	1.6	-	-	-	-	-	-	-	1.6
93	-	-	-	-	-	-	1.6	-	-	-	-	-	-	-	1.6
158	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3
334	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	1.1
282	-	-	-	-	-	-	0.9	-	-	-	-	-	-	-	0.9
266	-	0.3	-	-	-	-	0.4	-	-	-	-	-	-	-	0.7
267	-	0.3	-	-	-	-	0.4	-	-	-	-	-	-	-	0.7
335	-	-	-	-	-	-	0.6	-	-	-	-	-	-	-	0.6
336	-	-	-	-	-	-	0.6	-	-	-	-	-	-	-	0.6
332	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	0.5
333	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	0.5

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of fish based on the 18 high-rate adult consumers is 28.8 kg y^{-1}

The observed 97.5th percentile rate based on 92 observations is 46.1 kg y^{-1}

Table 4. Adults' consumption rates of crustaceans from the Wylfa aquatic survey area (kg y $^{-1}$)

Observation number	Common prawn	Brown crab	Common lobster	Total
12	**3.5**	**14.2**	**5.7**	**23.4**
13	**3.5**	**14.2**	**5.7**	**23.4**
110	**-**	**7.6**	**5.4**	**13.0**
18	**5.8**	**2.8**	**2.6**	**11.2**
112	**-**	**4.6**	**3.3**	**7.8**
19	5.8	-	-	5.8
11	-	5.7	-	5.7
39	1.2	2.2	1.7	5.1
40	1.2	2.2	1.7	5.1
41	1.2	2.2	1.7	5.1
1	2.3	1.8	0.7	4.8
2	2.3	1.8	0.7	4.8
16	3.5	-	0.6	4.1
108	-	-	2.6	2.6
109	-	-	2.6	2.6
6	-	2.6	-	2.6
7	-	2.6	-	2.6
8	-	2.6	-	2.6
38	-	2.2	-	2.2
36	-	0.7	1.3	2.0
50	-	1.1	0.5	1.6
51	-	1.1	0.5	1.6
15	-	-	1.3	1.3
20	1.2	-	-	1.2
21	1.2	-	-	1.2
22	1.2	-	-	1.2
324	-	0.7	0.2	0.9
325	-	0.7	0.2	0.9
326	-	0.7	0.2	0.9
181	-	0.7	-	0.7
182	-	0.7	-	0.7
17	-	-	0.6	0.6
9	-	0.4	0.2	0.6
10	-	0.4	0.2	0.6
208	-	0.5	-	0.5
60	-	0.2	-	0.2
61	-	0.2	-	0.2

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of crustaceans based on the 5 high-rate adult consumers is 15.8 kg y^{-1}

The observed 97.5th percentile rate based on 37 observations is 23.4 kg y^{-1}

Table 5. Adults' consumption rates of molluscs from the Wylfa aquatic survey area (kg y^{-1})

Observation number	Mussel	Winkle	Total
120	**6.9**	**-**	**6.9**
121	**6.9**	**-**	**6.9**
110	0.4	-	0.4
132	-	0.3	0.3

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of molluscs based on the 2 high-rate adult consumers is 6.9 kg y^{-1}

The observed 97.5th percentile rate based on 4 observations is 6.9 kg y^{-1}

Table 6. Adults' consumption rates of marine plants/algae from the Wylfa aquatic survey area (kg y^{-1})

Observation number	*Porphyra*
122	**0.5**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of marine plants/algae based on the only adult consumer is 0.5 kg y^{-1}

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

Table 7. Adults' consumption rates of vegetables grown on land where seaweed has been used as a fertiliser (kg y $^{-1}$)

Observation number	Green vegetables					Other vegetables						Root vegetables				Potato	Total
	Brussel sprout	Cabbage	Cauliflower	Cucumber	Lettuce	Chilli pepper	Mangetout	Pea	Pepper	Runner bean	Tomato	Beetroot	Carrot	Onion	Spring onion		
122	5.9	7.9	4.8	8.8	12.9	0.4	1.0	1.0	5.1	8.8	7.7	10.6	15.5	15.5	0.4	19.6	125.7
123	5.9	7.9	4.8	8.8	12.9	0.4	1.0	1.0	5.1	8.8	7.7	10.6	15.5	15.5	0.4	19.6	125.7
124	0.7	0.9	0.6	1.0	1.5	0.05	0.1	0.1	0.6	1.0	0.9	1.2	1.8	1.8	0.1	2.3	14.6
125	0.7	0.9	0.6	1.0	1.5	0.05	0.1	0.1	0.6	1.0	0.9	1.2	1.8	1.8	0.1	2.3	14.6

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. However these foods were grown in the terrestrial survey area and they are also potentially subject to gaseous discharges. Therefore they are also included in the terrestrial food groups and are included in Annex 1 as terrestrial foods.

Table 8. Children's consumption rates of fish from the Wylfa aquatic survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Bass	Cod	Mackerel	Mixed fish	Pollack	Total
23	**13**	**5.5**	**-**	**-**	**-**	**-**	**5.5**
341	**15**	**5.1**	**-**	**-**	**-**	**-**	**5.1**
342	**13**	**5.1**	**-**	**-**	**-**	**-**	**5.1**
338	**13**	**0.7**	**-**	**3.7**	**-**	**-**	**4.4**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of fish based on the 4 high-rate 15-year-old age group consumers is 5.0 kg y^{-1}

The observed 97.5th percentile rate based on 4 observations is 5.5 kg y^{-1}

10-year-old age group

Observation number	Age	Bass	Cod	Mackerel	Mixed fish	Pollack	Total
3	**11**	**-**	**-**	**-**	**23.6**	**-**	**23.6**
113	**10**	**10.4**	**-**	**-**	**-**	**-**	**10.4**
327	11	-	-	4.2	-	1.1	5.2
328	9	-	-	4.2	-	1.1	5.2

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of fish based on the 2 high-rate 10-year-old age group consumers is 17.0 kg y^{-1}

The observed 97.5th percentile rate based on 4 observations is 22.6 kg y^{-1}

5-year-old age group

Observation number	Age	Bass	Cod	Mackerel	Mixed fish	Pollack	Total
4	**2**	**-**	**-**	**-**	**7.1**	**-**	**7.1**
255	6	0.3	0.3	0.7	-	0.3	1.7

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of fish based on the only high-rate 5-year-old age group consumer is 7.1 kg y^{-1}

The observed 97.5th percentile rate based on 2 observations is 6.9 kg y^{-1}

Table 9. Children's consumption rates of crustaceans from the Wylfa aquatic survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Common prawn	Brown crab	Common lobster	Total
23	**13**	**1.2**	**-**	**-**	**1.2**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of crustaceans based on the only 15-year-old age group consumer is 1.2 kg y^{-1}

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

10-year-old age group

Observation number	Age	Common prawn	Brown crab	Common lobster	Total
113	**10**	**-**	**3.0**	**2.2**	**5.2**
3	**11**	**2.3**	**1.8**	**0.7**	**4.8**
327	11	-	0.3	0.2	0.6
328	9	-	0.3	0.2	0.6

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of crustaceans based on the 2 high-rate 10-year-old age group consumers is 5.0 kg y^{-1}

The observed 97.5th percentile rate based on 4 observations is 5.2 kg y^{-1}

Table 10. Summary of consumption rates for adults in the Wylfa area (kg y^{-1} or l y^{-1})

Food group	Number of observations	Number of high-rate consumers	Observed maximum consumption rate for the high-rate group	Observed minimum consumption rate for the high-rate group	Observed mean consumption rate for the high-rate group	Observed 97.5th percentile consumption rate	Generic mean consumption rate	Generic 97.5th percentile consumption rate
Foods from the aquatic survey area								
Fish	92	18	47.2	17.1	28.8	46.1	15.0	40.0
Crustaceans	37	5	23.4	7.8	15.8	23.4	3.5	10.0
Molluscs	4	2	6.9	6.9	6.9	6.9	3.5	10.0
Wildfowl	NC	NC	NC	NC	NC	NC	ND	ND
Marine plants/algae	1	1	0.5	0.5	0.5	NA	ND	ND
Foods from the terrestrial survey area								
Green vegetables	38	9	40.2	15.9	25.0	40.2	15.0	45.0
Other vegetables	52	8	69.8	23.4	38.2	60.5	20.0	50.0
Root vegetables	36	12	55.4	28.4	41.2	55.4	10.0	40.0
Potato	46	9	117.0	48.0	100.1	117.0	50.0	120.0
Domestic fruit	53	7	38.1	19.3	26.4	33.7	20.0	75.0
Milk	16	12	273.8	121.7	157.2	273.8	95.0	240.0
Cattle meat	NC	NC	NC	NC	NC	NC	15.0	45.0
Pig meat	10	10	11.3	5.6	7.9	11.3	15.0	40.0
Sheep meat	25	3	28.3	20.6	25.7	28.3	8.0	25.0
Poultry	18	3	4.5	4.5	4.5	4.5	10.0	30.0
Eggs	47	15	53.4	17.8	21.1	20.7	8.5	25.0
Wild/free foods	55	19	3.6	1.3	2.2	3.2	7.0	25.0
Rabbits/hares	6	2	1.1	1.1	1.1	1.1	6.0	15.0
Honey	7	4	2.3	0.9	1.7	2.3	2.5	9.5
Wild fungi	47	25	1.0	0.3	0.6	1.0	3.0	10.0
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Cereals	NC	NC	NC	NC	NC	NC	50.0	100.0
Freshwater fish	2	2	2.5	2.5	2.5	2.5	ND	ND

Notes

NA = not applicable

NC = not consumed

ND = not determined

Table 11. Summary of consumption rates for the 15-year-old age group in the Wylfa area (kg y^{-1} or l y^{-1})

Food group	Number of observations	Number of high-rate consumers	Observed maximum consumption rate for the high-rate group	Observed minimum consumption rate for the high-rate group	Observed mean consumption rate for the high-rate group	Observed 97.5th percentile consumption rate	Generic mean consumption rate	Generic 97.5th percentile consumption rate
Foods from the aquatic survey area								
Fish	4	4	5.5	4.4	5.0	5.5	6.5	20.0
Crustaceans	1	1	1.2	1.2	1.2	NA	2.5	6.0
Molluscs	NC	NC	NC	NC	NC	NC	2.5	6.0
Wildfowl	NC	NC	NC	NC	NC	NC	ND	ND
Marine plants/algae	NC	NC	NC	NC	NC	NC	ND	ND
Foods from the terrestrial survey area								
Green vegetables	3	3	1.8	1.8	1.8	1.8	9.0	25.0
Other vegetables	4	1	6.8	1.9	6.8	6.5	10.0	30.0
Root vegetables	4	4	4.0	1.8	3.5	4.0	7.5	20.0
Potato	2	2	11.4	6.1	8.7	11.2	60.0	130.0
Domestic fruit	5	1	4.4	0.7	4.4	4.0	15.0	50.0
Milk	1	1	121.7	121.7	121.7	NA	110.0	260.0
Cattle meat	NC	NC	NC	NC	NC	NC	15.0	35.0
Pig meat	1	1	5.6	5.6	5.6	NA	10.0	30.0
Sheep meat	NC	NC	NC	NC	NC	NC	5.5	15.0
Poultry	NC	NC	NC	NC	NC	NC	6.5	20.0
Eggs	6	4	10.3	5.9	7.0	9.7	7.0	25.0
Wild/free foods	3	3	0.6	0.2	0.3	0.5	3.0	13.0
Rabbits/hares	NC	NC	NC	NC	NC	NC	ND	ND
Honey	NC	NC	NC	NC	NC	NC	2.0	5.0
Wild fungi	2	2	0.3	0.3	0.3	0.3	2.0	5.5
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Cereals	NC	NC	NC	NC	NC	NC	50.0	95.0
Freshwater fish	NC	NC	NC	NC	NC	NC	ND	ND

Notes

NA = not applicable

NC = not consumed

ND = not determined

Table 12. Summary of consumption rates for the 10-year-old age group in the Wylfa area (kg y^{-1} or l y^{-1})

Food group	Number of observations	Number of high-rate consumers	Observed maximum consumption rate for the high-rate group	Observed minimum consumption rate for the high-rate group	Observed mean consumption rate for the high-rate group	Observed 97.5th percentile consumption rate	Generic mean consumption rate	Generic 97.5th percentile consumption rate
Foods from the aquatic survey area								
Fish	4	2	23.6	10.4	17.0	22.6	6.0	20.0
Crustaceans	4	2	5.2	4.8	5.0	5.2	2.5	7.0
Molluscs	NC	NC	NC	NC	NC	NC	2.5	7.0
Wildfowl	NC	NC	NC	NC	NC	NC	ND	ND
Marine plants/algae	NC	NC	NC	NC	NC	NC	ND	ND
Foods from the terrestrial survey area								
Green vegetables	NC	NC	NC	NC	NC	NC	6.0	20.0
Other vegetables	1	1	2.7	2.7	2.7	NA	8.0	25.0
Root vegetables	1	1	0.7	0.7	0.7	NA	6.0	20.0
Potato	2	1	11.4	2.4	11.4	11.2	45.0	85.0
Domestic fruit	3	3	1.8	0.7	1.1	1.7	15.0	50.0
Milk	1	1	60.8	60.8	60.8	NA	110.0	240.0
Cattle meat	NC	NC	NC	NC	NC	NC	15.0	30.0
Pig meat	1	1	2.2	2.2	2.2	NA	8.5	25.0
Sheep meat	NC	NC	NC	NC	NC	NC	4.0	10.0
Poultry	NC	NC	NC	NC	NC	NC	5.5	15.0
Eggs	2	1	10.3	0.3	10.3	10.0	6.5	20.0
Wild/free foods	3	3	0.3	0.2	0.3	0.3	3.0	11.0
Rabbits/hares	NC	NC	NC	NC	NC	NC	ND	ND
Honey	NC	NC	NC	NC	NC	NC	2.0	7.5
Wild fungi	NC	NC	NC	NC	NC	NC	1.5	4.5
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Cereals	NC	NC	NC	NC	NC	NC	45.0	75.0
Freshwater fish	NC	NC	NC	NC	NC	NC	ND	ND

Notes

NA = not applicable

NC = not consumed

ND = not determined

Table 13. Summary of consumption rates for the 5-year-old age group in the Wylfa area (kg y^{-1} or l y^{-1})

Food group	Number of observations	Number of high-rate consumers	Observed maximum consumption rate for the high-rate group	Observed minimum consumption rate for the high-rate group	Observed mean consumption rate for the high-rate group	Observed 97.5th percentile consumption rate	Generic mean consumption rate	Generic 97.5th percentile consumption rate
Foods from the aquatic survey area								
Fish	2	1	7.1	1.7	7.1	6.9	ND	ND
Crustaceans	NC	NC	NC	NC	NC	NC	ND	ND
Molluscs	NC	NC	NC	NC	NC	NC	ND	ND
Wildfowl	NC	NC	NC	NC	NC	NC	ND	ND
Marine plants/algae	NC	NC	NC	NC	NC	NC	ND	ND
Foods from the terrestrial survey area								
Green vegetables	4	2	1.1	1.1	1.1	1.1	ND	ND
Other vegetables	6	6	2.7	1.0	1.4	2.6	ND	ND
Root vegetables	4	2	2.8	2.8	2.8	2.8	ND	ND
Potato	6	3	5.8	2.4	4.7	5.8	ND	ND
Domestic fruit	5	1	5.9	0.8	5.9	5.5	ND	ND
Milk	2	2	60.8	30.4	45.6	60.1	ND	ND
Cattle meat	NC	NC	NC	NC	NC	NC	ND	ND
Pig meat	2	2	2.2	1.1	1.7	2.2	ND	ND
Sheep meat	NC	NC	NC	NC	NC	NC	ND	ND
Poultry	NC	NC	NC	NC	NC	NC	ND	ND
Eggs	1	1	0.3	0.3	0.3	NA	ND	ND
Wild/free foods	5	5	0.2	0.1	0.1	0.2	ND	ND
Rabbits/hares	NC	NC	NC	NC	NC	NC	ND	ND
Honey	NC	NC	NC	NC	NC	NC	ND	ND
Wild fungi	NC	NC	NC	NC	NC	NC	ND	ND
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Cereals	NC	NC	NC	NC	NC	NC	ND	ND
Freshwater fish	NC	NC	NC	NC	NC	NC	ND	ND

Notes

NA = not applicable

NC = not consumed

ND = not determined

Table 14. Adults' intertidal occupancy rates in the Wylfa aquatic survey area (h y $^{-1}$)

Observation number	Location	Activity	Mud and sand	Rock	Sand	Sand and stones
108	**Cemaes**	**Fixing moorings and boat maintenance**	**390**	-	-	-
120	Cemlyn Bay	Bait digging	108	-	-	-
	Porth-y-pistyll, Point Lynas, Amlwch and Bull Bay	**Collecting mussels and shore angling**	**-**	**412**	-	-
	Cemlyn Bay	Shore angling	-	**-**	-	28
122	Cemlyn Bay	Bait digging	102	-	-	-
	West of Cemlyn Bay, Point Lynas, Amlwch and Bull Bay	**Shore angling and collecting seaweed**	-	**978**	-	**-**
	Cemlyn Bay	Shore angling	-	**-**	-	**237**
110	Cemaes	Boat maintenance	80	-	-	-
1	Amlwch Harbour	Bait digging	30	-	-	-
94	**Cemaes**	**Shore angling**	-	**336**	-	-
287	Porth-y-pistyll	Walking	-	250	-	-
352	Bull Bay	Shore angling	-	192	-	-
353	Bull Bay	Shore angling	-	192	-	-
340	Various	Shore angling	-	156	-	-
351	Bull Bay	Shore angling	-	156	-	-
290	Porth-y-pistyll	Walking	-	150	-	-
87	Wylfa Head	Shore angling	-	146	-	-
337	Bull Bay	Shore angling	-	78	-	-
214	Wylfa Head	Shore angling	-	75	-	-
	Hen Borth	Dog walking	-	-	-	34
173	Wylfa Head	Shore angling	-	75	-	-
179	Wylfa Head, Porth Wylfa and Porth yr Ogof	Shore angling	-	48	-	-
	Cemaes	Dog walking	-	-	183	**-**
	Cemlyn Bay	**Dog walking**	-	-	-	**183**
136	**Cemlyn Bay**	**Nature reserve warden duties**	-	36	-	-
			-	-	-	**504**
137	**Cemlyn Bay**	**Nature reserve warden duties**	-	36	-	-
			-	-	-	**432**
206	Wylfa Head and Cemaes	Shore angling	-	24	-	-
334	Bull Bay	Shore angling	-	24	-	-
91	Wylfa Head	Shore angling	-	16	-	-
169	Wylfa Head	Shore angling	-	16	-	-
170	Wylfa Head	Shore angling	-	16	-	-
208	Between Carmel Head and Hen Borth	Collecting crabs	-	15	-	-
329	Bull Bay	Shore angling	-	14	-	-
330	Bull Bay	Shore angling	-	14	-	-
331	Bull Bay	Shore angling	-	14	-	-

Table 14. Adults' intertidal occupancy rates in the Wylfa aquatic survey area (h y $^{-1}$)

Observation number	Location	Activity	Mud and sand	Rock	Sand	Sand and stones
332	Bull Bay	Shore angling	-	14	-	-
335	Bull Bay	Shore angling	-	12	-	-
336	Bull Bay	Shore angling	-	12	-	-
95	Porth Eilian	Walking	-	4	-	-
		Dog walking	-	-	-	53
132	Cemaes	Collecting winkles	-	3	-	-
309	**Cemaes**	**Dog walking**	-	-	**730**	-
375	**Cemaes**	**Beach warden duties**	-	-	**473**	-
374	**Cemaes**	**Dog walking**	-	-	**313**	-
311	**Cemaes**	**Dog walking**	-	-	**274**	-
312	**Cemaes**	**Dog walking**	-	-	**274**	-
354	Cemaes	Playing	-	-	240	-
310	Cemaes	Dog walking	-	-	230	-
180	Cemaes	Dog walking	-	-	183	-
	Cemlyn Bay	**Dog walking**	-	-	-	**183**
85	Cemaes	Dog walking	-	-	182	-
	Cemlyn Bay	**Dog walking**	-	-	-	**182**
86	Cemaes	Dog walking	-	-	182	-
	Cemlyn Bay	**Dog walking**	-	-	-	**182**
314	Cemaes	Dog walking	-	-	130	-
183	Cemaes	Playing	-	-	120	-
	Porth-y-pistyll	Playing	-	-	-	10
184	Cemaes	Playing	-	-	120	-
	Porth-y-pistyll	Playing	-	-	-	10
315	Cemaes	Playing	-	-	110	-
316	Cemaes	Playing	-	-	110	-
319	Cemaes	Playing	-	-	110	-
320	Cemaes	Playing	-	-	110	-
96	Cemaes	Sunbathing	-	-	96	-
97	Cemaes	Sunbathing	-	-	96	-
100	Cemaes	Sunbathing	-	-	63	-
101	Cemaes	Sunbathing	-	-	63	-
224	Cemaes	Walking	-	-	52	-
313	Cemaes	Dog walking	-	-	52	-
165	Cemaes	Playing	-	-	48	-
166	Cemaes	Playing	-	-	48	-
373	Cemaes	Dog walking	-	-	46	-

Table 14. Adults' intertidal occupancy rates in the Wylfa aquatic survey area (h y $^{-1}$)

Observation number	Location	Activity	Mud and sand	Rock	Sand	Sand and stones
194	Cemaes	Playing	-	-	41	-
	Cemlyn Bay	Playing	-	-	-	41
163	Cemaes	Walking	-	-	32	-
	Cemlyn Bay and Bull Bay	Walking	-	-	-	16
164	Cemaes	Walking	-	-	32	-
	Cemlyn Bay and Bull Bay	Walking	-	-	-	16
171	Cemaes	Walking	-	-	28	-
	Cemlyn Bay and Hen Borth	Walking	-	-	-	48
172	Cemaes	Walking	-	-	28	-
	Cemlyn Bay and Hen Borth	Walking	-	-	-	48
356	Cemaes	Playing	-	-	24	-
	Porth Eilian	Playing	-	-	-	16
357	Cemaes	Playing	-	-	24	-
	Porth Eilian	Playing	-	-	-	16
174	Cemaes and Porth yr Ogof	Playing	-	-	24	-
359	Cemaes	Playing	-	-	21	-
360	Cemaes	Playing	-	-	21	-
148	Cemaes	Playing	-	-	12	-
	Cemlyn Bay	Bird watching	-	-	-	15
149	Cemaes	Playing	-	-	12	-
216	Cemaes	Dog walking	-	-	7	-
	Hen Borth	Dog walking	-	-	-	7
217	Cemaes	Dog walking	-	-	7	-
	Hen Borth	Dog walking	-	-	-	7
225	Cemaes	Walking	-	-	6	-
226	Cemaes	Walking	-	-	6	-
102	Cemaes	Sunbathing	-	-	6	-
103	Cemaes	Sunbathing	-	-	6	-
376	**Porth Padrig**	**Playing**	-	-	-	**231**
251	**Cemlyn Bay**	**Dog walking**	-	-	-	**210**
233	Porth Padrig, Porth Llanlleiana, Hell's Mouth and other beaches	Playing	-	-	-	125
234	Porth Padrig, Porth Llanlleiana, Hell's Mouth and other beaches	Playing	-	-	-	125
235	Porth Padrig, Porth Llanlleiana, Hell's Mouth and other beaches	Playing	-	-	-	125
378	Porth Padrig	Playing	-	-	-	115
258	Cemlyn Bay	Playing	-	-	-	48
259	Cemlyn Bay	Playing	-	-	-	48
84	Cemlyn Bay	Bird watching	-	-	-	40

Table 14. Adults' intertidal occupancy rates in the Wylfa aquatic survey area (h y^{-1})

Observation number	Location	Activity	Mud and sand	Rock	Sand	Sand and stones
347	Porth Eilian	Playing	-	-	-	40
348	Porth Eilian	Playing	-	-	-	40
349	Porth Eilian	Playing	-	-	-	40
215	Hen Borth	Dog walking	-	-	-	34
345	Porth Eilian	Dog walking	-	-	-	33
346	Porth Eilian	Dog walking	-	-	-	33
271	Cemlyn Bay	Playing	-	-	-	26
272	Cemlyn Bay	Playing	-	-	-	26
282	Cemlyn Bay	Playing	-	-	-	15
283	Cemlyn Bay	Playing	-	-	-	15
223	Porth Padrig	Walking	-	-	-	12
82	Cemlyn Bay	Bird watching	-	-	-	9
83	Cemlyn Bay	Bird watching	-	-	-	9
152	Cemlyn Bay	Shore angling	-	-	-	9
153	Cemaes	Bird watching	-	-	-	9
291	Cemlyn Bay	Playing	-	-	-	6
292	Cemlyn Bay	Playing	-	-	-	6
146	Cemlyn Bay	Walking	-	-	-	4
147	Cemlyn Bay	Walking	-	-	-	4

Notes

Observations in bold indicate the high-rate individuals

The mean intertidal occupancy rate over mud and sand based on the only high-rate observation is 390 h y^{-1}

The observed 97.5th percentile rate based on 5 observations for mud and sand is 362 h y^{-1}

The mean intertidal occupancy rate over rock based on 3 high-rate observations is 575 h y^{-1}

The observed 97.5th percentile rate based on 30 observations for rock is 568 h y^{-1}

The mean intertidal occupancy rate over sand based on 5 high-rate observations is 413 h y^{-1}

The observed 97.5th percentile rate based on 45 observations for sand is 457 h y^{-1}

The mean intertidal occupancy rate over sand and stones based on 9 high-rate observations is 260 h y^{-1}

The observed 97.5th percentile rate based on 50 observations for sand and stones is 388 h y^{-1}

Table 15. Children's intertidal occupancy rates in the Wylfa aquatic survey area (h y^{-1})

15-year-old age group

Observation number	Age (years)	Location	Activity	Rock	Sand	Sand and stones
341	**15**	**Various**	**Shore angling**	**156**	-	-
342	**13**	**Various**	**Shore angling**	**156**	-	-
338	**13**	**Bull Bay**	**Shore angling**	**78**	-	-
167	**13**	**Cemaes**	**Playing**	-	**48**	-
196	**14**	**Cemaes**	**Playing**	-	**41**	**-**
		Cemlyn Bay	**Playing**	-	**-**	**41**
175	**13**	**Cemaes and Porth yr Ogof**	**Playing**	-	**24**	-
177	13	Porth yr Ogof	Sunbathing	-	12	-
178	13	Porth yr Ogof	Sunbathing	-	12	-
350	**15**	**Poth Eilian**	**Playing**	-	-	**40**
274	**14**	**Cemlyn Bay**	**Playing**	-	-	**26**
293	14	Cemlyn Bay	Playing	-	-	6
294	12	Cemlyn Bay	Playing	-	-	6
295	12	Cemlyn Bay	Playing	-	-	6

Notes

Observations in bold indicate the high-rate individuals

The mean intertidal occupancy rate over rock based on 3 high-rate observations is 130 h y^{-1}

The observed 97.5th percentile rate based on 3 observations for rock is 156 h y^{-1}

The mean intertidal occupancy rate over sand based on 3 high-rate observations is 38 h y^{-1}

The observed 97.5th percentile rate based on 5 observations for sand is 47 h y^{-1}

The mean intertidal occupancy rate over sand and stones based on 3 high-rate observations is 36 h y^{-1}

The observed 97.5th percentile rate based on 6 observations for sand and stones is 40 h y^{-1}

Table 15. Children's intertidal occupancy rates in the Wylfa aquatic survey area (h y^{-1})

10-year-old age group

Observation number	Age (years)	Location	Activity	Rock	Sand	Sand and stones
355	**9**	**Cemaes**	**Playing**	-	**180**	-
98	7	Cemaes	Playing	-	48	-
168	11	Cemaes	Playing	-	48	-
197	7	Cemaes	Playing	-	41	-
		Cemlyn Bay	Playing	-	-	41
176	10	Cemaes and Porth yr Ogof	Playing	-	24	-
150	10	Cemaes	Playing	-	12	-
151	8	Cemaes	Playing	-	12	-
238	**7**	**Porth Padrig, Porth Llanlleiana, Hell's Mouth and other beaches**	**Playing**	-	-	**125**
273	10	Cemlyn Bay	Playing	-	-	26
284	7	Cemlyn Bay	Playing	-	-	5

Notes

Observations in bold indicate the high-rate individuals

The mean intertidal occupancy rate over sand based on the only high-rate observation is 180 h y^{-1}

The observed 97.5th percentile rate based on 7 observations for sand is 160 h y^{-1}

The mean intertidal occupancy rate over sand and stones based on the only high-rate observation is 125 h y^{-1}

The observed 97.5th percentile rate based on 4 observations for sand and stones is 119 h y^{-1}

Table 15. Children's intertidal occupancy rates in the Wylfa aquatic survey area (h y^{-1})

5-year-old age group

Observation number	Age (years)	Location	Activity	Rock	Sand	Sand and stones
317	**5**	**Cemaes**	**Playing**	-	**110**	-
318	**4**	**Cemaes**	**Playing**	-	**110**	-
321	**5**	**Cemaes**	**Playing**	-	**110**	-
322	**4**	**Cemaes**	**Playing**	-	**110**	-
323	**3**	**Cemaes**	**Playing**	-	**110**	-
99	4	Cemaes	Playing	-	48	-
198	6	Cemaes	Playing	-	41	-
		Cemlyn Bay	Playing	-	-	41
199	3	Cemaes	Playing	-	41	-
		Cemlyn Bay	Playing	-	-	41
358	3	Cemaes	Playing	-	24	-
		Poth Eilian	Playing	-	-	16
361	6	Cemaes	Playing	-	21	-
377	**5**	**Porth Padrig**	**Playing**	-	-	**231**
236	**4**	**Porth Padrig, Porth Llanlleiana, Hell's Mouth and other beaches**	**Playing**	-	-	**125**
237	**3**	**Porth Padrig, Porth Llanlleiana, Hell's Mouth and other beaches**	**Playing**	-	-	**125**
379	**6**	**Porth Padrig**	**Playing**	-	-	**115**
380	**4**	**Porth Padrig**	**Playing**	-	-	**115**
381	**3**	**Porth Padrig**	**Playing**	-	-	**115**
260	4	Cemlyn Bay	Playing	-	-	48
261	2	Cemlyn Bay	Playing	-	-	48
285	6	Cemlyn Bay	Playing	-	-	5

Notes

Observations in bold indicate the high-rate individuals

The mean intertidal occupancy rate over sand based on 5 high-rate observations is 110 h y^{-1}

The observed 97.5th percentile rate based on 10 observations for sand is 110 h y^{-1}

The mean intertidal occupancy rate over sand and stones based on 6 high-rate observations is 138 h y^{-1}

The observed 97.5th percentile rate based on 12 observations for sand and stones is 202 h y^{-1}

Table 15. Children's intertidal occupancy rates in the Wylfa aquatic survey area (h y^{-1})

1-year-old age group

Observation number	Age (years)	Location	Activity	Rock	Sand	Sand and stones
104	**1**	**Cemaes**	**Playing**	-	**6**	-

Notes

Observations in bold indicate the high-rate individuals

The mean intertidal occupancy rate over sand based on the only high-rate observation is 6 h y^{-1}

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

3-month-old age group

Observation number	Age (years)	Location	Activity	Rock	Sand	Sand and stones
286	**0.4**	**Cemlyn Bay**	**Playing**	-	-	**15**

Notes

Observations in bold indicate the high-rate individuals

The mean intertidal occupancy rate over sand and stones based on the only high-rate observation is 15 h y^{-1}

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

Table 16. Gamma dose rate measurements over intertidal substrates in the Wylfa aquatic survey area (µGy h $^{-1}$)

Location	NGR	Substrate	Gamma dose rate at 1 metre[a]
Hen Borth	SH 319 929	Sand	0.063
Cemlyn Bay (west)	SH 330 937	Mud and sand	0.057
Cemlyn Bay (east)	SH 336 931	Stones	0.054
Porth yr Ogof	SH 355 942	Sand	0.068
Porth yr Ogof	SH 356 942	Sand and stones	0.060
Cemaes	SH 372 938	Sand	0.054
Cemaes Harbour	SH 373 936	Mud and sand	0.091
Porth Padrig	SH 376 944	Sand and stones	0.058
Bull Bay slipway area	SH 427 944	Stones	0.098
Amlwch Harbour	SH 449 933	Mud, sand and stones	0.091
Amlwch Harbour	SH 450 934	Mud, sand and stones	0.096
Porth Eilian	SH 474 930	Sand	0.075
Porth Eilian	SH 476 930	Stones	0.076

Notes

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

Table 17. Adults' handling rates of fishing gear and sediment in the Wylfa aquatic survey area (h y $^{-1}$)

Observation number	Location	Activity	Fishing gear	Sediment
110	**Carmel Head to Point Lynas**	**Handling pots**	**1400**	-
111	**Carmel Head to Point Lynas**	**Handling pots**	**1400**	-
108	**Carmel Head to Point Lynas**	**Handling pots**	**1170**	-
	Cemaes	**Fixing moorings**	**-**	**300**
38	**Carmel Head to Point Lynas**	**Handling pots**	**936**	-
11	**Carmel Head to Point Lynas**	**Handling pots**	**825**	-
12	**Carmel Head to Point Lynas**	**Handling pots**	**800**	-
50	**Carmel Head to Point Lynas**	**Handling pots**	**550**	-
6	Carmel Head to Point Lynas	Handling pots	208	-
7	Carmel Head to Point Lynas	Handling pots	208	-
120	**Cemlyn Bay and Porth-y-pistyll**	**Bait digging and collecting mussels**	-	**132**
122	**Cemlyn Bay and west of Cemlyn Bay**	**Bait digging and collecting seaweed**	-	**109**
1	Amlwch Harbour	Bait digging	-	30
208	Between Carmel Head and Hen Borth	Collecting crabs	-	15
132	Cemaes	Collecting winkles	-	3

Notes

Observations in bold indicate the high-rate individuals

The mean fishing gear handling rate based on 7 high-rate observations is 1012 h y^{-1}

The observed 97.5th percentile rate based on 9 observations for fishing gear is 1400 h y^{-1}

The mean sediment handling rate based on 3 high-rate observations is 180 h y^{-1}

The observed 97.5th percentile rate based on 6 observations for sediment is 279 h y^{-1}

Table 18. Adults' occupancy rates in and on water in the Wylfa aquatic survey area (h y $^{-1}$)

Observation number	Location	Activity	In water	On water
120	Cemlyn Bay	Water skiing	96	-
	Cemlyn Bay to Wylfa Head	Boat angling	-	84
34	Carmel Head to Point Lynas	Diving	88	-
	Carmel Head to Point Lynas	On dive boat	-	675
35	Carmel Head to Point Lynas	Diving	88	-
	Carmel Head to Point Lynas	On dive boat	-	675
100	Cemaes Bay	Swimming	27	-
101	Cemaes Bay	Swimming	27	-
171	Hen Borth, Cemlyn Bay and Cemaes Bay	Kayaking	25	-
169	Wylfa Head	Angling from kayak	16	-
170	Wylfa Head	Angling from kayak	16	-
159	Carmel Head to Cemlyn Bay	Kayaking	12	-
160	Carmel Head to Cemlyn Bay	Kayaking	12	-
161	Carmel Head to Cemlyn Bay	Kayaking	12	-
162	Carmel Head to Cemlyn Bay	Kayaking	12	-
18	Carmel Head to Point Lynas	Diving	10	-
	Carmel Head to Point Lynas	Charter boat skipper	-	480
347	Poth Eilian	Kayaking	10	-
349	Poth Eilian	Kayaking	10	-
148	Cemaes Bay	Kayaking	8	-
149	Cemaes Bay	Kayaking	8	-
359	Cemaes Bay	Swimming	7	-
360	Cemaes Bay	Swimming	7	-
24	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
25	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
26	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
27	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
28	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
29	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
30	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
31	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
32	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
33	Carmel Head to Point Lynas	Diving	3	-
	Carmel Head to Point Lynas	On dive boat	-	8
92	Cemaes Bay	Swimming	2	-
93	Cemaes Bay	Swimming	2	-
102	Cemaes Bay	Swimming	1	-
103	Cemaes Bay	Swimming	1	-
110	Carmel Head to Point Lynas	Potting and boat angling	-	1480
111	Carmel Head to Point Lynas	Potting	-	1400
108	Carmel Head to Point Lynas	Charter boat skipper and potting	-	1383
38	Carmel Head to Point Lynas	Potting	-	1040
12	Carmel Head to Point Lynas	Potting	-	900
11	Carmel Head to Point Lynas	Potting	-	825
1	Amlwch	Boat angling	-	780
105	Bull Bay	Boat angling	-	624
94	Carmel Head to Point Lynas	Boat angling	-	576
50	Carmel Head to Point Lynas	Potting	-	550

Table 18. Adults' occupancy rates in and on water in the Wylfa aquatic survey area (h y $^{-1}$)

Observation number	Location	Activity	In water	On water
369	Carmel Head to Point Lynas	Power-boating	-	416
370	Carmel Head to Point Lynas	Power-boating	-	416
371	Carmel Head to Point Lynas	Power-boating	-	416
372	Carmel Head to Point Lynas	Power-boating	-	416
5	Cemaes Bay	Charter boat skipper	-	400
46	Carmel Head to Point Lynas	Boat angling	-	400
48	Carmel Head to Point Lynas	Boat angling	-	400
106	Carmel Head to Point Lynas	Boat angling	-	325
156	Amlwch to Wylfa Head	Boat angling	-	252
157	Amlwch to Wylfa Head	Boat angling	-	252
158	Amlwch to Wylfa Head	Boat angling	-	252
42	Bull Bay	Boat angling	-	231
6	Carmel Head to Point Lynas	Potting	-	208
7	Carmel Head to Point Lynas	Potting	-	208
62	Bull Bay	Rowing	-	151
63	Bull Bay	Rowing	-	151
64	Bull Bay	Rowing	-	151
65	Bull Bay	Rowing	-	151
66	Bull Bay	Rowing	-	151
67	Bull Bay	Rowing	-	151
68	Bull Bay	Rowing	-	151
69	Bull Bay	Rowing	-	151
60	Carmel Head to Point Lynas	Boat angling	-	150
166	Bull Bay	Rowing	-	100
9	Carmel Head to Point Lynas	Boat angling	-	90
52	Carmel Head to Point Lynas	Boat angling	-	84
122	Cemlyn Bay to Wylfa Head	Boat angling	-	84
14	Carmel Head to Point Lynas	Boat angling	-	80
16	Carmel Head to Point Lynas	Boat angling	-	80
264	Carmel Head to Point Lynas	Boat angling	-	60
20	Carmel Head to Point Lynas	Boat angling	-	52
70	Bull Bay	Rowing	-	52
71	Bull Bay	Rowing	-	52
72	Bull Bay	Rowing	-	52
73	Bull Bay	Rowing	-	52
74	Bull Bay	Rowing	-	52
75	Bull Bay	Rowing	-	52
76	Bull Bay	Rowing	-	52
77	Bull Bay	Rowing	-	52
78	Bull Bay	Rowing	-	52
79	Bull Bay	Rowing	-	52
80	Bull Bay	Rowing	-	52
81	Bull Bay	Rowing	-	52
54	Carmel Head to Point Lynas	Boat angling	-	42
324	Cemaes Bay to Point Lynas	Boat angling	-	40
325	Cemaes Bay to Point Lynas	Boat angling	-	40
340	Local wrecks and coastline	Boat angling	-	18
362	Cemaes Bay to Point Lynas	Power-boating	-	12
363	Cemaes Bay to Point Lynas	Power-boating	-	12
364	Cemaes Bay to Point Lynas	Power-boating	-	12
366	Cemaes Bay to Point Lynas	Power-boating	-	12
367	Cemaes Bay to Point Lynas	Power-boating	-	12
181	Various coastal rocks in shallow water	Collecting crabs by boat	-	11

Table 19. Children's occupancy rates in and on water in the Wylfa aquatic survey area (h y $^{-1}$)

Observation number	Age (years)	Location	Activity	In water	On water
15-year-old age group					
350	15	Poth Eilian	Kayaking	10	-
177	13	Porth yr Ogof	Swimming	6	-
178	13	Porth yr Ogof	Swimming	6	-
167	13	Bull Bay	Rowing	-	40
341	15	Local wrecks and coastline	Boat angling	-	18
342	13	Local wrecks and coastline	Boat angling	-	18
365	12	Cemaes Bay to Point Lynas	Power-boating	-	12
10-year-old age group					
355	9	Cemaes Bay	Swimming	60	-
284	7	Cemlyn Bay	Swimming	10	-
150	10	Cemaes Bay	Kayaking	8	-
151	8	Cemaes Bay	Kayaking	8	-
98	7	Cemaes Bay	Paddling	-	48
168	11	Near Bull Bay	Rowing	-	40
368	8	Cemaes Bay to Point Lynas	Power-boating	-	12
5-year-old age group					
285	6	Cemlyn Bay	Swimming	10	-
361	6	Cemaes Bay	Swimming	7	-
99	4	Cemaes Bay	Paddling	-	48

Table 20. Adults' consumption rates of green vegetables from the Wylfa terrestrial survey area (kg y $^{-1}$)

Observation number	Artichoke	Asparagus	Broccoli	Brussel sprout	Cabbage	Cauliflower	Courgettes	Cucumber	Herbs	Lettuce	Marrow	Rocket	Spinach	Total
122	**-**	**-**	**-**	**5.9**	**7.9**	**4.8**	**-**	**8.8**	**-**	**12.9**	**-**	**-**	**-**	**40.2**
123	**-**	**-**	**-**	**5.9**	**7.9**	**4.8**	**-**	**8.8**	**-**	**12.9**	**-**	**-**	**-**	**40.2**
278	**-**	**2.1**	**3.7**	**4.6**	**9.1**	**-**	**3.7**	**-**	**0.2**	**1.5**	**-**	**2.3**	**0.5**	**27.7**
277	**-**	**2.1**	**3.7**	**4.6**	**9.1**	**-**	**3.7**	**-**	**0.2**	**1.5**	**-**	**2.3**	**0.5**	**27.7**
116	**-**	**-**	**-**	**-**	**8.5**	**4.1**	**5.5**	**-**	**0.9**	**1.7**	**-**	**-**	**-**	**20.7**
117	**-**	**-**	**-**	**-**	**8.5**	**4.1**	**5.5**	**-**	**0.9**	**1.7**	**-**	**-**	**-**	**20.7**
268	**-**	**-**	**6.8**	**-**	**-**	**4.5**	**-**	**4.5**	**-**	**-**	**-**	**-**	**-**	**15.9**
269	**-**	**-**	**6.8**	**-**	**-**	**4.5**	**-**	**4.5**	**-**	**-**	**-**	**-**	**-**	**15.9**
270	**-**	**-**	**6.8**	**-**	**-**	**4.5**	**-**	**4.5**	**-**	**-**	**-**	**-**	**-**	**15.9**
218	7.2	-	-	-	3.7	-	-	-	-	-	-	-	2.0	12.9
219	7.2	-	-	-	3.7	-	-	-	-	-	-	-	2.0	12.9
227	-	-	-	-	8.7	-	-	-	-	-	2.6	-	-	11.3
228	-	-	-	-	8.7	-	-	-	-	-	2.6	-	-	11.3
229	-	-	-	-	8.7	-	-	-	-	-	2.6	-	-	11.3
230	-	-	-	-	8.7	-	-	-	-	-	2.6	-	-	11.3
190	-	-	-	-	-	-	7.4	-	-	-	-	-	-	7.4
191	-	-	-	-	-	-	7.4	-	-	-	-	-	-	7.4
225	-	-	-	-	-	-	-	5.1	0.1	-	-	-	-	5.2
226	-	-	-	-	-	-	-	5.1	0.1	-	-	-	-	5.2
124	-	-	-	0.7	0.9	0.6	-	1.0	-	1.5	-	-	-	4.7
125	-	-	-	0.7	0.9	0.6	-	1.0	-	1.5	-	-	-	4.7
292	-	-	-	-	-	-	-	-	-	1.7	-	0.9	1.0	3.5
291	-	-	-	-	-	-	-	-	-	1.7	-	0.9	1.0	3.5
245	-	-	-	-	1.2	-	-	-	-	0.6	-	-	-	1.8
246	-	-	-	-	1.2	-	-	-	-	0.6	-	-	-	1.8
247	-	-	-	-	1.2	-	-	-	-	0.6	-	-	-	1.8
248	-	-	-	-	1.2	-	-	-	-	0.6	-	-	-	1.8
249	-	-	-	-	1.2	-	-	-	-	0.6	-	-	-	1.8
223	-	-	-	-	-	-	-	1.8	-	-	-	-	-	1.8
224	-	-	-	-	-	-	-	1.8	-	-	-	-	-	1.8
258	-	-	-	-	-	-	-	-	-	0.5	-	-	-	0.5
259	-	-	-	-	-	-	-	-	-	0.5	-	-	-	0.5
262	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1
263	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1

Table 20. Adults' consumption rates of green vegetables from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Artichoke	Asparagus	Broccoli	Brussel sprout	Cabbage	Cauliflower	Courgettes	Cucumber	Herbs	Lettuce	Marrow	Rocket	Spinach	Total
264	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1
265	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1
266	-	-	-	-	-	-	-	-	0.03	-	-	-	-	0.03
267	-	-	-	-	-	-	-	-	0.03	-	-	-	-	0.03

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of green vegetables based on the 9 high-rate adult consumers is 25.0 kg y^{-1}

The observed 97.5th percentile rate based on 38 observations is 40.2 kg y^{-1}

Table 21. Adults' consumption rates of other vegetables from the Wylfa terrestrial survey area (kg y $^{-1}$)

Observation number	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Runner bean	Squash	Tomato	Total
116	**13.7**	**-**	**0.9**	**-**	**13.5**	**-**	**8.2**	**12.0**	**21.6**	**69.8**
117	**13.7**	**-**	**0.9**	**-**	**13.5**	**-**	**8.2**	**12.0**	**21.6**	**69.8**
277	**4.6**	**0.5**	**-**	**-**	**4.5**	**3.9**	**6.8**	**0.3**	**15.3**	**35.9**
278	**4.6**	**0.5**	**-**	**-**	**4.5**	**3.9**	**6.8**	**0.3**	**15.3**	**35.9**
122	**-**	**0.4**	**-**	**1.0**	**1.0**	**5.1**	**8.8**	**-**	**7.7**	**23.9**
123	**-**	**0.4**	**-**	**1.0**	**1.0**	**5.1**	**8.8**	**-**	**7.7**	**23.9**
223	**-**	**-**	**-**	**-**	**-**	**0.7**	**-**	**-**	**22.7**	**23.4**
224	**-**	**-**	**-**	**-**	**-**	**0.7**	**-**	**-**	**22.7**	**23.4**
225	-	-	-	-	-	-	-	-	18.0	18.0
226	-	-	-	-	-	-	-	-	18.0	18.0
227	6.5	-	-	-	3.2	-	-	-	-	9.7
228	6.5	-	-	-	3.2	-	-	-	-	9.7
229	6.5	-	-	-	3.2	-	-	-	-	9.7
230	6.5	-	-	-	3.2	-	-	-	-	9.7
279	-	-	-	-	9.0	-	-	-	-	9.0
280	-	-	-	-	9.0	-	-	-	-	9.0
190	7.3	-	-	-	-	-	-	0.2	-	7.5
191	7.3	-	-	-	-	-	-	0.2	-	7.5
192	-	-	-	-	1.0	-	3.0	-	2.8	6.8
193	-	-	-	-	1.0	-	3.0	-	2.8	6.8
194	-	-	-	-	1.0	-	3.0	-	2.8	6.8
195	-	-	-	-	1.0	-	3.0	-	2.8	6.8
200	-	-	-	-	1.0	-	3.0	-	2.8	6.8
201	-	-	-	-	1.0	-	3.0	-	2.8	6.8
241	2.3	-	-	-	1.1	-	-	-	2.7	6.1
242	2.3	-	-	-	1.1	-	-	-	2.7	6.1
243	2.3	-	-	-	1.1	-	-	-	2.7	6.1
244	2.3	-	-	-	1.1	-	-	-	2.7	6.1
189	-	-	-	-	-	-	-	-	5.4	5.4
245	-	-	-	-	0.9	-	-	-	4.3	5.2
246	-	-	-	-	0.9	-	-	-	4.3	5.2
247	-	-	-	-	0.9	-	-	-	4.3	5.2

Table 21. Adults' consumption rates of other vegetables from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Runner bean	Squash	Tomato	Total
248	-	-	-	-	0.9	-	-	-	4.3	5.2
249	-	-	-	-	0.9	-	-	-	4.3	5.2
268	-	-	-	-	-	-	-	-	4.8	4.8
269	-	-	-	-	-	-	-	-	4.8	4.8
270	-	-	-	-	-	-	-	-	4.8	4.8
281	-	-	-	-	4.5	-	-	-	-	4.5
258	-	-	-	-	-	-	-	-	4.3	4.3
259	-	-	-	-	-	-	-	-	4.3	4.3
291	-	-	-	-	-	-	3.9	-	-	3.9
292	-	-	-	-	-	-	3.9	-	-	3.9
124	-	0.05	-	0.1	0.1	0.6	1.0	-	0.9	2.8
125	-	0.05	-	0.1	0.1	0.6	1.0	-	0.9	2.8
218	-	-	-	2.2	-	-	-	-	-	2.2
219	-	-	-	2.2	-	-	-	-	-	2.2
262	-	-	-	-	-	-	-	-	1.6	1.6
263	-	-	-	-	-	-	-	-	1.6	1.6
264	-	-	-	-	-	-	-	-	1.6	1.6
265	-	-	-	-	-	-	-	-	1.6	1.6
266	-	-	-	-	-	-	-	-	0.4	0.4
267	-	-	-	-	-	-	-	-	0.4	0.4

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of other vegetables based on the 8 high-rate adult consumers is 38.2 kg y^{-1}

The observed 97.5th percentile rate based on 52 observations is 60.5 kg y^{-1}

Table 22. Adults' consumption rates of root vegetables from the Wylfa terrestrial survey area (kg y $^{-1}$)

Observation number	Beetroot	Carrot	Garlic	Leek	Onion	Parsnip	Radish	Spring onion	Swede	Turnip	Total
116	**15.3**	**19.4**	**4.5**	**7.0**	**-**	**7.2**	**-**	**2.0**	**-**	**-**	**55.4**
117	**15.3**	**19.4**	**4.5**	**7.0**	**-**	**7.2**	**-**	**2.0**	**-**	**-**	**55.4**
190	**13.1**	**3.6**	**-**	**14.4**	**14.4**	**5.8**	**-**	**-**	**-**	**-**	**51.3**
191	**13.1**	**3.6**	**-**	**14.4**	**14.4**	**5.8**	**-**	**-**	**-**	**-**	**51.3**
122	**10.6**	**15.5**	**-**	**-**	**15.5**	**-**	**-**	**0.4**	**-**	**-**	**42.0**
123	**10.6**	**15.5**	**-**	**-**	**15.5**	**-**	**-**	**0.4**	**-**	**-**	**42.0**
219	**7.9**	**3.2**	**1.3**	**7.9**	**14.4**	**3.5**	**-**	**-**	**-**	**3.5**	**41.6**
218	**7.9**	**3.2**	**1.3**	**7.9**	**14.4**	**3.5**	**-**	**-**	**-**	**3.5**	**41.6**
227	**5.9**	**12.9**	**-**	**-**	**-**	**-**	**-**	**-**	**9.7**	**-**	**28.4**
228	**5.9**	**12.9**	**-**	**-**	**-**	**-**	**-**	**-**	**9.7**	**-**	**28.4**
229	**5.9**	**12.9**	**-**	**-**	**-**	**-**	**-**	**-**	**9.7**	**-**	**28.4**
230	**5.9**	**12.9**	**-**	**-**	**-**	**-**	**-**	**-**	**9.7**	**-**	**28.4**
277	4.1	-	-	4.5	9.0	-	-	-	-	-	17.6
278	4.1	-	-	4.5	9.0	-	-	-	-	-	17.6
279	9.8	-	-	-	-	-	-	-	5.4	-	15.3
280	9.8	-	-	-	-	-	-	-	5.4	-	15.3
291	2.3	2.6	-	-	-	2.1	1.0	-	-	-	8.0
292	2.3	2.6	-	-	-	2.1	1.0	-	-	-	8.0
281	4.9	-	-	-	-	-	-	-	2.7	-	7.6
124	1.2	1.8	-	-	1.8	-	-	0.1	-	-	4.9
125	1.2	1.8	-	-	1.8	-	-	0.1	-	-	4.9
268	-	-	-	-	4.4	-	-	-	-	-	4.4
269	-	-	-	-	4.4	-	-	-	-	-	4.4
270	-	-	-	-	4.4	-	-	-	-	-	4.4
192	-	1.0	-	-	0.8	-	-	-	-	-	1.8
193	-	1.0	-	-	0.8	-	-	-	-	-	1.8
194	-	1.0	-	-	0.8	-	-	-	-	-	1.8
195	-	1.0	-	-	0.8	-	-	-	-	-	1.8
200	-	1.0	-	-	0.8	-	-	-	-	-	1.8
201	-	1.0	-	-	0.8	-	-	-	-	-	1.8
241	-	1.1	-	-	-	-	-	-	-	-	1.1
242	-	1.1	-	-	-	-	-	-	-	-	1.1

Table 22. Adults' consumption rates of root vegetables from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Beetroot	Carrot	Garlic	Leek	Onion	Parsnip	Radish	Spring onion	Swede	Turnip	Total
243	-	1.1	-	-	-	-	-	-	-	-	1.1
244	-	1.1	-	-	-	-	-	-	-	-	1.1
258	-	-	-	-	-	-	-	0.5	-	-	0.5
259	-	-	-	-	-	-	-	0.5	-	-	0.5

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of root vegetables based on the 12 high-rate adult consumers is 41.2 kg y^{-1}

The observed 97.5th percentile rate based on 36 observations is 55.4 kg y^{-1}

Table 23. Adults' consumption rates of potato from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Potato
227	**117.0**
228	**117.0**
229	**117.0**
230	**117.0**
218	**116.5**
219	**116.5**
116	**76.0**
117	**76.0**
126	**48.0**
190	36.4
191	36.4
279	36.4
280	36.4
268	30.2
269	30.2
270	30.2
277	27.3
278	27.3
127	24.0
122	19.6
123	19.6
281	18.2
271	11.4
272	11.4
245	10.9
246	10.9
247	10.9
248	10.9
249	10.9
225	6.8
226	6.8
192	6.1
193	6.1
194	6.1
195	6.1
200	6.1
201	6.1
189	6.1
241	4.6
242	4.6
243	4.6
244	4.6
124	2.3
125	2.3
258	2.0
259	2.0

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of potato based on the 9 high-rate adult consumers is 100.1 kg y^{-1}

The observed 97.5th percentile rate based on 46 observations is 117.0 kg y^{-1}

Table 24. Adults' consumption rates of domestic fruit from the Wylfa terrestrial survey area (kg y $^{-1}$)

Observation number	Apple	Blackberry	Blackcurrant	Blueberry	Cherry	Damson	Fig	Gooseberry	Greengage	Pear	Plum	Raspberry	Redcurrants	Rhubarb	Strawberry	Total
225	**38.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**38.1**
226	**38.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**38.1**
252	**23.4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**23.4**
253	**23.4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**23.4**
254	**23.4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**23.4**
218	**9.1**	**-**	**2.5**	**-**	**-**	**-**	**2.3**	**2.3**	**-**	**-**	**0.9**	**-**	**2.3**	**-**	**-**	**19.3**
219	**9.1**	**-**	**2.5**	**-**	**-**	**-**	**2.3**	**2.3**	**-**	**-**	**0.9**	**-**	**2.3**	**-**	**-**	**19.3**
268	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.3	11.3
269	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.3	11.3
270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.3	11.3
223	0.9	-	0.2	0.2	0.2	-	-	-	5.7	0.9	-	0.2	-	-	2.7	11.1
224	0.9	-	0.2	0.2	0.2	-	-	-	5.7	0.9	-	0.2	-	-	2.7	11.1
277	-	-	0.5	-	0.5	-	0.8	0.5	-	0.5	0.5	2.5	0.5	-	1.0	7.3
278	-	-	0.5	-	0.5	-	0.8	0.5	-	0.5	0.5	2.5	0.5	-	1.0	7.3
190	-	-	-	-	-	-	-	-	-	-	-	-	-	6.9	-	6.9
191	-	-	-	-	-	-	-	-	-	-	-	-	-	6.9	-	6.9
239	4.5	-	-	-	-	-	-	-	-	-	2.3	-	-	-	-	6.8
240	4.5	-	-	-	-	-	-	-	-	-	2.3	-	-	-	-	6.8
265	4.0	-	-	-	-	-	-	0.4	-	-	-	0.3	-	0.7	0.3	5.7
262	4.0	-	-	-	-	-	-	0.4	-	-	-	0.3	-	0.7	0.3	5.7
263	4.0	-	-	-	-	-	-	0.4	-	-	-	0.3	-	0.7	0.3	5.7
264	4.0	-	-	-	-	-	-	0.4	-	-	-	0.3	-	0.7	0.3	5.7
193	2.2	-	-	-	-	-	-	-	-	-	1.1	-	-	-	1.1	4.4
195	2.2	-	-	-	-	-	-	-	-	-	1.1	-	-	-	1.1	4.4
200	2.2	-	-	-	-	-	-	-	-	-	1.1	-	-	-	1.1	4.4
192	2.2	-	-	-	-	-	-	-	-	-	1.1	-	-	-	1.1	4.4
194	2.2	-	-	-	-	-	-	-	-	-	1.1	-	-	-	1.1	4.4
201	2.2	-	-	-	-	-	-	-	-	-	1.1	-	-	-	1.1	4.4
256	3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4
257	3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4
250	1.1	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	2.3
251	1.1	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	2.3
266	1.0	0.6	-	-	-	-	-	0.1	-	-	-	0.1	-	0.2	0.1	2.1
267	1.0	0.6	-	-	-	-	-	0.1	-	-	-	0.1	-	0.2	0.1	2.1
279	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8
280	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8
281	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9

Table 24. Adults' consumption rates of domestic fruit from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Apple	Blackberry	Blackcurrant	Blueberry	Cherry	Damson	Fig	Gooseberry	Greengage	Pear	Plum	Raspberry	Redcurrants	Rhubarb	Strawberry	Total
186	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	0.9
187	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	0.9
258	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-	0.4	0.7
259	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-	0.4	0.7
271	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7
272	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7
245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	0.7
246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	0.7
247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	0.7
248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	0.7
249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	0.7
143	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-	0.7
144	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-	0.7
145	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-	0.7
291	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3
292	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of domestic fruit based on the 7 high-rate adult consumers is 26.4 kg y^{-1}

The observed 97.5th percentile rate based on 53 observations is 33.7 kg y^{-1}

Table 25. Adults' consumption rates of milk from the Wylfa terrestrial survey area (l y^{-1})

Observation number	Cows' milk
256	**273.8**
257	**273.8**
114	**182.5**
115	**182.5**
192	**121.7**
194	**121.7**
195	**121.7**
200	**121.7**
201	**121.7**
220	**121.7**
221	**121.7**
222	**121.7**
204	88.7
205	88.7
202	44.3
203	44.3

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of milk based on the 12 high-rate adult consumers is 157.2 l y^{-1}

The observed 97.5th percentile rate based on 16 observations is 273.8 l y^{-1}

Table 26. Adults' consumption rates of pig meat from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Pork
132	**11.3**
133	**11.3**
134	**11.3**
135	**11.3**
192	**5.6**
193	**5.6**
194	**5.6**
195	**5.6**
200	**5.6**
201	**5.6**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of pig meat based on the 10 high-rate adult consumers is 7.9 kg y^{-1}

The observed 97.5th percentile rate based on 10 observations is 11.3 kg y^{-1}

Table 27. Adults' consumption rates of sheep meat from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Lamb/mutton
116	**28.3**
117	**28.3**
118	**20.6**
262	5.0
263	5.0
264	5.0
265	5.0
279	4.5
280	4.5
132	4.2
133	4.2
134	4.2
135	4.2
138	3.8
139	3.8
140	3.8
141	3.8
142	3.8
143	3.8
144	3.8
145	3.8
281	2.3
119	2.0
266	1.3
267	1.3

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of sheep meat based on the 3 high-rate adult consumers is 25.7 kg y^{-1}

The observed 97.5th percentile rate based on 25 observations is 28.3 kg y^{-1}

Table 28. Adults' consumption rates of poultry from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Chicken	Goose	Mallard	Partridge	Pheasant	Total
118	**-**	**-**	**4.5**	**-**	**-**	**4.5**
239	**-**	**-**	**-**	**-**	**4.5**	**4.5**
240	**-**	**-**	**-**	**-**	**4.5**	**4.5**
262	0.5	0.5	-	-	-	1.0
263	0.5	0.5	-	-	-	1.0
264	0.5	0.5	-	-	-	1.0
265	0.5	0.5	-	-	-	1.0
143	-	-	0.5	0.2	0.3	1.0
144	-	-	0.5	0.2	0.3	1.0
145	-	-	0.5	0.2	0.3	1.0
277	-	-	-	-	0.9	0.9
278	-	-	-	-	0.9	0.9
202	-	-	-	-	0.3	0.3
203	-	-	-	-	0.3	0.3
204	-	-	-	-	0.3	0.3
205	-	-	-	-	0.3	0.3
266	0.1	0.1	-	-	-	0.2
267	0.1	0.1	-	-	-	0.2

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of poultry based on the 3 high-rate adult consumers is 4.5 kg y^{-1}

The observed 97.5th percentile rate based on 18 observations is 4.5 kg y^{-1}

Table 29. Adults' consumption rates of eggs from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Chicken egg	Duck egg	Total
116	**53.4**	**-**	**53.4**
204	**20.7**	**-**	**20.7**
205	**20.7**	**-**	**20.7**
271	**20.5**	**-**	**20.5**
272	**20.5**	**-**	**20.5**
262	**18.5**	**-**	**18.5**
263	**18.5**	**-**	**18.5**
264	**18.5**	**-**	**18.5**
265	**18.5**	**-**	**18.5**
183	**18.4**	**-**	**18.4**
117	**17.8**	**-**	**17.8**
218	**17.8**	**-**	**17.8**
219	**17.8**	**-**	**17.8**
256	**17.8**	**-**	**17.8**
257	**17.8**	**-**	**17.8**
268	5.9	11.8	17.7
269	5.9	11.8	17.7
270	5.9	11.8	17.7
287	4.4	8.8	13.3
288	4.4	8.8	13.3
289	4.4	8.8	13.3
290	4.4	8.8	13.3
291	4.0	7.9	11.9
292	4.0	7.9	11.9
279	11.9	-	11.9
280	11.9	-	11.9
185	10.5	-	10.5
202	8.9	-	8.9
203	8.9	-	8.9
206	8.9	-	8.9
207	8.9	-	8.9
225	8.2	-	8.2
226	8.2	-	8.2
281	5.9	-	5.9
266	4.6	-	4.6
267	4.6	-	4.6
190	4.1	-	4.1
191	4.1	-	4.1
184	2.6	-	2.6
208	2.1	-	2.1
209	2.1	-	2.1
126	1.4	-	1.4
127	1.4	-	1.4
128	1.4	-	1.4
131	1.4	-	1.4
282	0.3	-	0.3
283	0.3	-	0.3

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of eggs based on the 15 high-rate adult consumers is 21.1 kg y^{-1}

The observed 97.5th percentile rate based on 47 observations is 20.7 kg y^{-1}

Table 30. Adults' consumption rates of wild/free foods from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Blackberry	Sloe	Total
279	**3.6**	**-**	**3.6**
280	**3.6**	**-**	**3.6**
262	**2.5**	**-**	**2.5**
263	**2.5**	**-**	**2.5**
264	**2.5**	**-**	**2.5**
265	**2.5**	**-**	**2.5**
218	**1.7**	**0.7**	**2.4**
219	**1.7**	**0.7**	**2.4**
227	**2.3**	**-**	**2.3**
228	**2.3**	**-**	**2.3**
256	**2.3**	**-**	**2.3**
257	**2.3**	**-**	**2.3**
281	**1.8**	**-**	**1.8**
241	**1.7**	**-**	**1.7**
242	**1.7**	**-**	**1.7**
243	**1.7**	**-**	**1.7**
244	**1.7**	**-**	**1.7**
116	**1.3**	**-**	**1.3**
117	**1.3**	**-**	**1.3**
225	1.1	-	1.1
226	1.1	-	1.1
190	0.7	-	0.7
191	0.7	-	0.7
208	0.7	-	0.7
209	0.7	-	0.7
143	-	0.7	0.7
144	-	0.7	0.7
145	-	0.7	0.7
192	0.6	-	0.6
193	0.6	-	0.6
194	0.6	-	0.6
195	0.6	-	0.6
200	0.6	-	0.6
201	0.6	-	0.6
138	0.5	-	0.5
139	0.5	-	0.5
140	0.5	-	0.5
141	0.5	-	0.5
142	0.5	-	0.5
212	0.5	-	0.5
213	0.5	-	0.5
275	0.5	-	0.5
276	0.5	-	0.5
186	0.3	-	0.3
187	0.3	-	0.3
126	0.2	-	0.2
127	0.2	-	0.2
128	0.2	-	0.2
131	0.2	-	0.2
132	0.2	-	0.2
133	0.2	-	0.2
134	0.2	-	0.2
135	0.2	-	0.2
282	0.2	-	0.2
283	0.2	-	0.2

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of wild/free foods based on the 19 high-rate adult consumers is 2.2 kg y^{-1}

The observed 97.5th percentile rate based on 55 observations is 3.2 kg y^{-1}

Table 31. Adults' consumption rates of rabbits/hares from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Rabbit
277	**1.1**
278	**1.1**
241	0.2
242	0.2
243	0.2
244	0.2

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of rabbits/hares based on the 2 high-rate adult consumers is 1.1 kg y^{-1}

The observed 97.5th percentile rate based on 6 observations is 1.1 kg y^{-1}

Table 32. Adults' consumption rates of honey from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Honey
218	**2.3**
219	**2.3**
190	**1.4**
193	**0.9**
207	0.5
256	0.5
257	0.5

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of honey based on the 4 high-rate adult consumers is 1.7 kg y^{-1}

The observed 97.5th percentile rate based on 7 observations is 2.3 kg y^{-1}

Table 33. Adults' consumption rates of wild fungi from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Mushrooms
262	**1.0**
263	**1.0**
264	**1.0**
265	**1.0**
118	**1.0**
228	**0.9**
239	**0.9**
240	**0.9**
132	**0.5**
133	**0.5**
134	**0.5**
135	**0.5**
143	**0.5**
144	**0.5**
145	**0.5**
225	**0.5**
226	**0.5**
256	**0.5**
257	**0.5**
277	**0.5**
278	**0.5**
241	**0.3**
242	**0.3**
243	**0.3**
244	**0.3**
126	0.3
127	0.3
128	0.3
131	0.3
268	0.3
269	0.3
270	0.3
266	0.3
267	0.3
212	0.2
213	0.2
218	0.2
219	0.2
275	0.2
276	0.2
138	0.2
139	0.2
140	0.2
141	0.2
142	0.2
258	0.1
259	0.1

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of wild fungi based on the 25 high-rate adult consumers is 0.6 kg y^{-1}

The observed 97.5th percentile rate based on 47 observations is 1.0 kg y^{-1}

Table 34. Adults' consumption rates of freshwater fish from the Wylfa terrestrial survey area (kg y^{-1})

Observation number	Rainbow trout
210	**2.5**
211	**2.5**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of freshwater fish based on the 2 high-rate adult consumers is 2.5 kg y^{-1}

The observed 97.5th percentile rate based on 2 observations is 2.5 kg y^{-1}

Table 35. Children's consumption rates of green vegetables from the Wylfa terrestrial survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Cabbage	Lettuce	Marrow	Rocket	Spinach	Total
294	**12**	**-**	**0.9**	**-**	**0.4**	**0.5**	**1.8**
293	**14**	**-**	**0.9**	**-**	**0.4**	**0.5**	**1.8**
295	**12**	**-**	**0.9**	**-**	**0.4**	**0.5**	**1.8**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of green vegetables based on the 3 high-rate 15-year-old age group consumers is 1.8 kg y^{-1}

The observed 97.5th percentile rate based on 3 observations is 1.8 kg y^{-1}

5-year-old age group

Observation number	Age	Cabbage	Lettuce	Marrow	Rocket	Spinach	Total
231	**4**	**0.9**	**-**	**0.3**	**-**	**-**	**1.1**
232	**3**	**0.9**	**-**	**0.3**	**-**	**-**	**1.1**
260	4	-	0.1	-	-	-	0.1
261	2	-	0.1	-	-	-	0.1

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of green vegetables based on the 2 high-rate 5-year-old age group consumers is 1.1 kg y^{-1}

The observed 97.5th percentile rate based on 4 observations is 1.1 kg y^{-1}

Table 36. Children's consumption rates of other vegetables from the Wylfa terrestrial survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Broad bean	Pea	Runner bean	Tomato	Total
196	**14**	**-**	**1.0**	**3.0**	**2.8**	**6.8**
293	14	-	-	1.9	-	1.9
294	12	-	-	1.9	-	1.9
295	12	-	-	1.9	-	1.9

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of other vegetables based on the only high-rate 15-year-old age group consumer is 6.8 kg y^{-1}

The observed 97.5th percentile rate based on 4 observations is 6.5 kg y^{-1}

10-year-old age group

Observation number	Age	Broad bean	Pea	Runner bean	Tomato	Total
197	**7**	**-**	**0.4**	**1.2**	**1.1**	**2.7**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of other vegetables based on the only 10-year-old age group consumer is 2.7 kg y^{-1}

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

5-year-old age group

Observation number	Age	Broad bean	Pea	Runner bean	Tomato	Total
198	**6**	**-**	**0.4**	**1.2**	**1.1**	**2.7**
199	**3**	**-**	**0.2**	**0.6**	**0.6**	**1.4**
260	**4**	**-**	**-**	**-**	**1.1**	**1.1**
261	**2**	**-**	**-**	**-**	**1.1**	**1.1**
231	**4**	**0.7**	**0.3**	**-**	**-**	**1.0**
232	**3**	**0.7**	**0.3**	**-**	**-**	**1.0**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of other vegetables based on the 6 high-rate 5-year-old age group consumers is 1.4 kg y^{-1}

The observed 97.5th percentile rate based on 6 observations is 2.6 kg y^{-1}

Table 37. Children's consumption rates of root vegetables from the Wylfa terrestrial survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Beetroot	Carrot	Onion	Parsnip	Radish	Swede	Total
293	**14**	**1.2**	**1.3**	**-**	**1.0**	**0.5**	**-**	**4.0**
294	**12**	**1.2**	**1.3**	**-**	**1.0**	**0.5**	**-**	**4.0**
295	**12**	**1.2**	**1.3**	**-**	**1.0**	**0.5**	**-**	**4.0**
196	**14**	**-**	**1.0**	**0.8**	**-**	**-**	**-**	**1.8**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of root vegetables based on the 4 high-rate 15-year-old age group consumers is 3.5 kg y^{-1}

The observed 97.5th percentile rate based on 4 observations is 4.0 kg y^{-1}

10-year-old age group

Observation number	Age	Beetroot	Carrot	Onion	Parsnip	Radish	Swede	Total
197	**7**	**-**	**0.4**	**0.3**	**-**	**-**	**-**	**0.7**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of root vegetables based on the only 10-year-old age group consumer is 0.7 kg y^{-1}

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

5-year-old age group

Observation number	Age	Beetroot	Carrot	Onion	Parsnip	Radish	Swede	Total
231	**4**	**0.6**	**1.3**	**-**	**-**	**-**	**1.0**	**2.8**
232	**3**	**0.6**	**1.3**	**-**	**-**	**-**	**1.0**	**2.8**
198	6	-	0.4	0.3	-	-	-	0.7
199	3	-	0.2	0.2	-	-	-	0.4

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of root vegetables based on the 2 high-rate 5-year-old age group consumers is 2.8 kg y^{-1}

The observed 97.5th percentile rate based on 4 observations is 2.8 kg y^{-1}

Table 38. Children's consumption rates of potato from the Wylfa terrestrial survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Potato
274	**14**	**11.4**
196	**14**	**6.1**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of potato based on the 2 high-rate 15-year-old age group consumers is 8.7 kg y^{-1}

The observed 97.5th percentile rate based on 2 observations is 11.2 kg y^{-1}

10-year-old age group

Observation number	Age	Potato
273	**10**	**11.4**
197	7	2.4

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of potato based on the only high-rate 10-year-old age group consumer is 11.4 kg y^{-1}

The observed 97.5th percentile rate based on 2 observations is 11.2 kg y^{-1}

5-year-old age group

Observation number	Age	Potato
231	**4**	**5.8**
232	**3**	**5.8**
198	**6**	**2.4**
199	3	1.2
260	4	0.5
261	2	0.5

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of potato based on the 3 high-rate 5-year-old age group consumers is 4.7 kg y^{-1}

The observed 97.5th percentile rate based on 6 observations is 5.8 kg y^{-1}

Table 39. Children's consumption rates of domestic fruit from the Wylfa terrestrial survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Apple	Blackberry	Plum	Strawberry	Total
196	**14**	**2.2**	**-**	**1.1**	**1.1**	**4.4**
274	14	-	0.7	-	-	0.7
293	14	-	0.1	-	-	0.1
294	12	-	0.1	-	-	0.1
295	12	-	0.1	-	-	0.1

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of domestic fruit based on the only high-rate 15-year-old age group consumer is 4.4 kg y^{-1}

The observed 97.5th percentile rate based on 5 observations is 4.0 kg y^{-1}

10-year-old age group

Observation number	Age	Apple	Blackberry	Plum	Strawberry	Total
197	**7**	**0.9**	**-**	**0.4**	**0.4**	**1.8**
188	**10**	**-**	**-**	**-**	**0.9**	**0.9**
273	**10**	**-**	**0.7**	**-**	**-**	**0.7**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of domestic fruit based on the 3 high-rate 10-year-old age group consumers is 1.1 kg y^{-1}

The observed 97.5th percentile rate based on 3 observations is 1.7 kg y^{-1}

5-year-old age group

Observation number	Age	Apple	Blackberry	Plum	Strawberry	Total
255	**6**	**5.9**	**-**	**-**	**-**	**5.9**
198	6	0.9	-	0.4	0.4	1.8
199	3	0.4	-	0.2	0.1	0.8
260	4	-	-	-	0.1	0.1
261	2	-	-	-	0.1	0.1

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of domestic fruit based on the only high-rate 5-year-old age group consumer is 5.9 kg y^{-1}

The observed 97.5th percentile rate based on 5 observations is 5.5 kg y^{-1}

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

15-year-old age group

Observation number	Age	Cow's milk
196	**14**	**121.7**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of milk based on the only 15-year-old age group consumer is 121.7 l y^{-1}

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

10-year-old age group

Observation number	Age	Cow's milk
197	**7**	**60.8**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of milk based on the only 10-year-old age group consumer is 60.8 l y^{-1}

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

5-year-old age group

Observation number	Age	Cow's milk
198	**6**	**60.8**
199	**3**	**30.4**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of milk based on the 2 high-rate 5-year-old age group consumers is 45.6 l y^{-1}

The observed 97.5th percentile rate based on 2 observations is 60.1 l y^{-1}

Table 41. Children's consumption rates of pig meat from the Wylfa terrestrial survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Pork
196	**14**	**5.6**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of pig meat based on the only 15-year-old age group consumer is 5.6 kg y^{-1}

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

10-year-old age group

Observation number	Age	Pork
197	**7**	**2.2**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of pig meat based on the only 10-year-old age group consumer is 2.2 kg y^{-1}

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

5-year-old age group

Observation number	Age	Pork
198	**6**	**2.2**
199	**3**	**1.1**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of pig meat based on the 2 high-rate 5-year-old age group consumers is 1.7 kg y^{-1}

The observed 97.5th percentile rate based on 2 observations is 2.2 kg y^{-1}

Table 42. Children's consumption rates of eggs from the Wylfa terrestrial survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Chicken egg	Duck egg	Total
274	**14**	**10.3**	**-**	**10.3**
293	**14**	**2.0**	**4.0**	**6.0**
294	**12**	**2.0**	**4.0**	**6.0**
295	**12**	**2.0**	**4.0**	**6.0**
129	15	1.4	-	1.4
130	14	1.4	-	1.4

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of eggs based on the 4 high-rate 15-year-old age group consumers is 7.0 kg y^{-1}

The observed 97.5th percentile rate based on 6 observations is 9.7 kg y^{-1}

10-year-old age group

Observation number	Age	Chicken egg	Duck egg	Total
273	**10**	**10.3**	**-**	**10.3**
284	7	0.3	-	0.3

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of eggs based on the only high-rate 10-year-old age group consumer is 10.3 kg y^{-1}

The observed 97.5th percentile rate based on 2 observations is 10.0 kg y^{-1}

5-year-old age group

Observation number	Age	Chicken egg	Duck egg	Total
285	**6**	**0.3**	**-**	**0.3**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of eggs based on the only 5-year-old age group consumer is 0.3 kg y^{-1}

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

Table 43. Children's consumption rates of wild/free foods from the Wylfa terrestrial survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Blackberry
196	**14**	**0.6**
129	**15**	**0.2**
130	**14**	**0.2**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of wild/free foods based on the 3 high-rate 15-year-old age group consumers is 0.3 kg y^{-1}

The observed 97.5th percentile rate based on 3 observations is 0.5 kg y^{-1}

10-year-old age group

Observation number	Age	Blackberry
188	**10**	**0.3**
284	**7**	**0.2**
197	**7**	**0.2**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of wild/free foods based on the 3 high-rate 10-year-old age group consumers is 0.3 kg y^{-1}

The observed 97.5th percentile rate based on 3 observations is 0.3 kg y^{-1}

5-year-old age group

Observation number	Age	Blackberry
285	**6**	**0.2**
198	**6**	**0.2**
199	**3**	**0.1**
260	**4**	**0.1**
261	**2**	**0.1**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of wild/free foods based on the 5 high-rate 5-year-old age group consumers is 0.1 kg y^{-1}

The observed 97.5th percentile rate based on 5 observations is 0.2 kg y^{-1}

Table 44. Children's consumption rates of wild fungi from the Wylfa terrestrial survey area (kg y^{-1})

15-year-old age group

Observation number	Age	Mushrooms
129	**15**	**0.3**
130	**14**	**0.3**

Notes

Observations in bold indicate the high-rate individuals

The mean consumption rate of wild fungi based on the 2 high-rate 15-year-old age group consumers is 0.3 kg y^{-1}

The observed 97.5th percentile rate based on 2 observations is 0.3 kg y^{-1}

Table 45. Percentage contribution each food type makes to its terrestrial food group for adults

Green vegetables	
Cabbage	***28.7 %***
Cucumber	13.4 %
Lettuce	12.1 %
Courgettes	9.4 %
Cauliflower	9.3 %
Broccoli	7.9 %
Brussel sprout	6.3 %
Artichoke	4.1 %
Marrow	2.9 %
Spinach	2.0 %
Rocket	1.8 %
Asparagus	1.2 %
Herbs	0.8 %

Other vegetables	
Tomato	45.7 %
Pea	15.7 %
Broad bean	***15.3 %***
Runner bean	13.4 %
Squash	4.5 %
Pepper	3.6 %
Mangetout	1.2 %
Chilli pepper	0.3 %
French bean	0.3 %

Root vegetables	
Beetroot	***25.2 %***
Carrot	24.7 %
Onion	20.6 %
Leek	10.9 %
Swede	8.4 %
Parsnip	5.9 %
Garlic	1.9 %
Turnip	1.1 %
Spring onion	0.9 %
Radish	0.3 %

Potato	
Potato	***100.0 %***

Domestic fruit	
Apple	***60.8 %***
Strawberry	15.2 %
Rhubarb	4.7 %
Plum	3.9 %
Greengages	3.1 %
Gooseberry	2.0 %
Raspberry	1.9 %
Blackcurrant	1.8 %
Fig	1.7 %
Redcurrants	1.5 %
Pear	1.4 %
Blackberry	1.1 %
Damson	0.6 %
Cherry	0.4 %
Blueberry	0.1 %

Milk	
Cows' milk	***100.0 %***

Sheep meat	
Lamb meat	100.0 %

Pig meat	
Pork meat	100.0 %

Poultry	
Pheasant	54.5 %
Mallards	24.4 %
Chicken	9.4 %
Goose	9.2 %
Partridge	2.5 %

Eggs	
Chicken egg	84.8 %
Duck egg	15.2 %

Wild/free foods	
Blackberry	***94.4 %***
Sloe	5.6 %

Rabbits/hares	
Rabbit	100.0 %

Honey	
Honey	***100.0 %***

Wild fungi	
Mushrooms	100.0 %

Freshwater fish	
Rainbow trout	100.0 %

Notes

Food types in emboldened italics were monitored by FSA in 2008 (EA, FSA, NIEA and SEPA, 2009).
Barley was also monitored.
Percentages are based on the consumption of all adults in the survey consuming that particular food group.

Table 46. Occupancy rates for adults and children in the Wylfa direct radiation survey area (h y $^{-1}$)

Observation Number	Age (years)	Indoor occupancy	Outdoor occupancy	Total occupancy
0 - 0.25 km zone				
296	U	807	807	1613
297	U	807	807	1613
298	U	306	306	612
303	U	210	210	420
304	U	210	210	420
305	U	210	210	420
306	U	210	210	420
307	U	210	210	420
299	U	96	96	192
300	U	96	96	192
301	U	96	96	192
302	U	96	96	192
87	30	-	146	146
179	31	-	78	78
169	33	-	32	32
170	32	-	32	32
180	31	-	30	30
91	55	-	16	16
206	69	-	12	12
>0.25 - 0.5 km zone				
256	U	-	730	730
257	U	-	730	730
308	43	-	274	274
120	28	-	24	24
177	13	-	18	18
178	13	-	18	18
174	44	-	12	12
175	13	-	12	12
176	10	-	12	12
>0.5 - 1 km zone				
185	91	8602	54	8656
283	35	8052	183	8235
286	0.4	8052	183	8235
288	43	7771	365	8136
287	60	5900	2080	7980
289	20	5900	2080	7980
189	67	7217	448	7665
290	17	6995	365	7360
292	34	7128	192	7320
187	37	6686	373	7059
284	7	6687	183	6870
285	6	6687	183	6870
282	52	5458	1352	6810
183	59	6446	112	6558
293	14	6133	204	6337
294	12	6133	204	6337
295	12	6133	204	6337
291	37	5943	238	6181
186	59	5422	315	5737
184	61	5679	56	5735
188	10	4634	193	4827

Notes
U = Unknown

Table 47. Analysis of occupancy rates for adults and children in the Wylfa direct radiation survey area

Number of hours	Number of observations
0 - 0.25 km zone	
8000 to 8760	0
7000 to 8000	0
6000 to 7000	0
5000 to 6000	0
4000 to 5000	0
3000 to 4000	0
2000 to 3000	0
1000 to 2000	2
0 to 1000	17
0 to 8760	**19**
>0.25 - 0.5 km zone	
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	9
0 to 8760	**9**
>0.5 - 1 km zone	
8000 to 8760	4
7000 to 8000	6
6000 to 7000	8
5000 to 6000	2
4000 to 5000	1
3000 to 4000	0
2000 to 3000	0
1000 to 2000	0
0 to 1000	0
0 to 8760	**21**

Table 48. Gamma dose rate measurements for the Wylfa direct radiation survey (µGy h $^{-1}$)

Business and residences

Location	Outdoor substrate	Outdoor gamma dose rate at 1 metre[a]	Indoor substrate	Indoor gamma dose rate at 1 metre[a]
Business 1	Grass	0.092	-	Not measured
Residence 1	Grass	0.083	-	Not measured
Residence 2	Grass	0.071	Concrete	0.085
Residence 3	Grass	0.079	Concrete	0.092
Residence 4	Grass	0.075	Concrete	0.071
Residence 5	Grass	0.082	Concrete	0.085
Residence 6	Grass	0.091	Wood	0.125

Notes

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

Backgrounds

	Location	NGR	Substrate	Background gamma dose rate at 1 metre
Background 1	West of Bryn Coch	SH 386 897	Rough grass	0.088
Background 2	North of Llyn Alaw reservoir	SH 397 876	Rough grass	0.066
Background 3	Porth Wen	SH 402 944	Rough grass	0.081
Background 4	North of Gorsedd Wygyr	SH 419 911	Rough grass	0.077
Background 5	Porth Eilian	SH 474 928	Rough grass	0.079

Table 49. Combinations of adult pathways for consideration in dose assessments in the Wylfa area

Combination number	Fish	Crustaceans	Molluscs	Marine plants/algae	Vegetables fertilised with seaweed	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
1	X	X																			X				X	X		X		
2	X	X																									X	X		
3																							X	X			X			
4	X		X																		X	X		X		X	X	X		X
5	X	X	X																		X				X			X		
6							X	X	X	X	X	X				X							X	X						
7						X	X	X	X				X		X	X														
8	X					X	X			X			X	X	X	X			X									X		
9[a]	X			X	X	X	X	X	X												X	X		X		X		X		
10						X	X	X	X	X					X	X		X	X											
11			X									X	X			X			X			X				X				
12																							X					X		
13																						X	X	X						X
14															X								X	X					X	X
15										X						X													X	X
16							X		X																				X	X
17							X	X	X	X		X				X		X												
18											X			X	X															
19															X							X							X	X
20		X													X	X						X				X				
21																				X										
22						X	X	X	X	X									X					X						
23						X	X		X	X					X	X			X				X							
24	X						X	X	X							X	X		X											
25										X	X				X	X		X	X											X
26									X	X					X									X						
27						X	X	X	X	X				X			X		X											
28							X	X	X	X			X		X	X														
29	X														X	X								X				X	X	X
30						X	X	X		X					X									X				X	X	X

Notes

The food groups and external exposure pathways marked with an asterisk are combined for the corresponding combination number.
For example, combination number 1 represents an individual (or individuals) from Annex 1 who had positive data in the following pathways; fish, crustaceans, intertidal occupancy over mud and sand, handling fishing gear, handling sediment and occupancy on water

[a] For those people consuming vegetables that have been fertilised with seaweed the green vegetables, other vegetables, root vegetables and potato shown in their respective columns are those that were fertilised with seaweed

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
1	M	38	**47.2**	4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	30	-	780	-	-
2	F	37	**47.2**	4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	M	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-
6	M	50	-	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	208	-	-	208	-	-
7	M	26	-	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	208	-	-	208	-	-
8	F	65	-	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	M	41	2.4	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	-	-
10	F	41	2.4	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	M	62	**17.9**	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**825**	-	-	825	-	-
12	M	25	**40.8**	**23.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**800**	-	-	900	-	-
13	F	25	**40.8**	**23.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	M	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	-	-
15	F	65	**25.5**	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	M	62	12.7	4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	-	-
17	F	62	12.7	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	M	50	2.8	**11.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	480	-	-
19	F	50	2.8	5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	M	49	5.5	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
21	F	49	5.5	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	F	17	5.5	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	M	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
25	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
26	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
27	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
28	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
29	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
30	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
31	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
32	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
33	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
34	M	30	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	675	-	-
35	M	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	675	-	-
36	M	U	2.8	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	F	U	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	M	52	5.3	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**936**	-	-	1040	-	-
39	F	52	5.3	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	F	20	5.3	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	F	17	5.3	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	M	65	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	231	-	-
43	F	65	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	F	U	14.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	M	U	14.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
46	M	28	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-
47	F	28	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	M	30	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-
49	F	30	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	M	57	**47.2**	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**550**	-	-	550	-	-
51	F	57	11.8	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	M	62	4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84	-	-
53	F	62	4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54	M	62	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-
55	F	62	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56	M	U	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	M	U	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58	F	U	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	F	U	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	M	46	3.4	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-
61	F	46	3.4	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	-	-
63	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	-	-
64	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	-	-
65	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	-	-
66	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
67	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	-	-
68	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	-	-
69	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	-	-
70	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
71	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
72	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
73	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
74	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
75	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
76	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
77	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
78	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
79	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
80	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
81	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-
82	M	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-
83	F	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-
84	M	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-
85	M	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	182	**182**	-	-	-	-	-	-
86	F	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	182	**182**	-	-	-	-	-	-
87	M	30	**17.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	146	-	-	-	-	-	-	-	146

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
88	M	27	**17.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
89	F	27	**17.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90	F	27	**17.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
91	M	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	16
92	M	17	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
93	F	17	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
94	M	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**336**	-	-	-	-	-	576	-	-
95	M	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	53	-	-	-	-	-	-
96	F	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	-	-	-	-	-	-	-
97	M	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	-	-	-	-	-	-	-
100	M	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63	-	-	-	27	-	-	-
101	F	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63	-	-	-	27	-	-	-
102	M	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	1	-	-	-
103	F	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	1	-	-	-
105	M	28	**43.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	624	-	-
106	M	63	**38.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	325	-	-
107	F	53	**19.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
108	M	59	5.6	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**390**	-	-	-	**1170**	**300**	-	1383	-	-
109	F	61	5.6	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	M	40	**26.0**	**13.0**	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	-	-	-	**1400**	-	-	1480	-	-
111	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1400**	-	-	1400	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
112	F	40	15.6	**7.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
114	M	59	-	-	-	-	-	-	-	-	-	**182.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115	F	57	-	-	-	-	-	-	-	-	-	**182.5**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
116	M	66	-	-	-	-	**20.7**	**69.8**	**55.4**	**76.0**	-	-	-	**28.3**	-	**53.4**	**1.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
117	F	64	-	-	-	-	**20.7**	**69.8**	**55.4**	**76.0**	-	-	-	**28.3**	-	**17.8**	**1.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
118	M	U	-	-	-	-	-	-	-	-	-	-	-	**20.6**	**4.5**	-	-	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-
119	F	U	-	-	-	-	-	-	-	-	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	M	28	10.7	-	**6.9**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	108	**412**	-	28	-	**132**	96	84	-	24
121	F	U	10.7	-	**6.9**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
122[a]	M	51	**18.4**	-	-	**0.5**	**40.2**	**23.9**	**42.0**	19.6	-	-	-	-	-	-	-	-	-	-	-	102	**978**	-	**237**	-	**109**	-	84	-	-
123[a]	F	43	**18.4**	-	-	-	**40.2**	**23.9**	**42.0**	19.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
124[a]	M	23	-	-	-	-	4.7	2.8	4.9	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
125[a]	F	18	-	-	-	-	4.7	2.8	4.9	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
126	M	50	-	-	-	-	-	-	-	**48.0**	-	-	-	-	-	1.4	0.2	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
127	F	43	-	-	-	-	-	-	-	24.0	-	-	-	-	-	1.4	0.2	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
128	M	18	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	0.2	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
131	F	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	0.2	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
132	M	57	-	-	0.3	-	-	-	-	-	-	-	**11.3**	4.2	-	-	0.2	-	-	**0.5**	-	-	3	-	-	-	3	-	-	-	-
133	M	22	-	-	-	-	-	-	-	-	-	-	**11.3**	4.2	-	-	0.2	-	-	**0.5**	-	-	-	-	-	-	-	-	-	-	-
134	M	30	-	-	-	-	-	-	-	-	-	-	**11.3**	4.2	-	-	0.2	-	-	**0.5**	-	-	-	-	-	-	-	-	-	-	-
135	M	28	-	-	-	-	-	-	-	-	-	-	**11.3**	4.2	-	-	0.2	-	-	**0.5**	-	-	-	-	-	-	-	-	-	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
136	F	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	-	**504**	-	-	-	-	-	-
137	M	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	-	**432**	-	-	-	-	-	-
138	U	U	-	-	-	-	-	-	-	-	-	-	-	3.8	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
139	U	U	-	-	-	-	-	-	-	-	-	-	-	3.8	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
140	U	U	-	-	-	-	-	-	-	-	-	-	-	3.8	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
141	U	U	-	-	-	-	-	-	-	-	-	-	-	3.8	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
142	U	U	-	-	-	-	-	-	-	-	-	-	-	3.8	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
143	M	U	-	-	-	-	-	-	-	-	0.7	-	-	3.8	1.0	-	0.7	-	-	**0.5**	-	-	-	-	-	-	-	-	-	-	-
144	F	U	-	-	-	-	-	-	-	-	0.7	-	-	3.8	1.0	-	0.7	-	-	**0.5**	-	-	-	-	-	-	-	-	-	-	-
145	M	U	-	-	-	-	-	-	-	-	0.7	-	-	3.8	1.0	-	0.7	-	-	**0.5**	-	-	-	-	-	-	-	-	-	-	-
146	M	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
147	F	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
148	M	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	15	-	-	8	-	-	-
149	F	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	8	-	-	-
152	M	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-
153	F	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-
154	M	54	4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
155	F	54	4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
156	M	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	252	-	-
157	M	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	252	-	-
158	M	40	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	252	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
159	M	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
160	M	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
161	M	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
162	F	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
163	M	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	16	-	-	-	-	-	-
164	F	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	16	-	-	-	-	-	-
165	F	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	-	-	-
166	M	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	100	-	-
169	M	33	6.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	16	-	-	32
170	M	32	6.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	16	-	-	32
171	M	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	48	-	-	25	-	-	-
172	F	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	48	-	-	-	-	-	-
173	M	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-
174	F	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	12
179	M	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	183	**183**	-	-	-	-	-	78
180	F	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	183	**183**	-	-	-	-	-	30
181	M	59	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-
182	F	58	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
183	F	59	-	-	-	-	-	-	-	-	-	-	-	-	-	**18.4**	-	-	-	-	-	-	-	120	10	-	-	-	-	6446	112
184	M	61	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	120	10	-	-	-	-	5679	56
185	M	91	-	-	-	-	-	-	-	-	-	-	-	-	-	10.5	-	-	-	-	-	-	-	-	-	-	-	-	-	8602	54

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
186	M	59	-	-	-	-	-	-	-	-	0.9	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	5422	315
187	F	37	-	-	-	-	-	-	-	-	0.9	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	6686	373
189	F	67	-	-	-	-	-	5.4	-	6.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7217	448
190	M	73	-	-	-	-	7.4	7.5	**51.3**	36.4	6.9	-	-	-	-	4.1	0.7	-	**1.4**	-	-	-	-	-	-	-	-	-	-	-	-
191	F	42	-	-	-	-	7.4	7.5	**51.3**	36.4	6.9	-	-	-	-	4.1	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
192	M	61	-	-	-	-	-	6.8	1.8	6.1	4.4	**121.7**	**5.6**	-	-	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
193	F	54	-	-	-	-	-	6.8	1.8	6.1	4.4	-	**5.6**	-	-	-	0.6	-	**0.9**	-	-	-	-	-	-	-	-	-	-	-	-
194	F	34	-	-	-	-	-	6.8	1.8	6.1	4.4	**121.7**	**5.6**	-	-	-	0.6	-	-	-	-	-	-	41	41	-	-	-	-	-	-
195	M	37	-	-	-	-	-	6.8	1.8	6.1	4.4	**121.7**	**5.6**	-	-	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	F	21	-	-	-	-	-	6.8	1.8	6.1	4.4	**121.7**	**5.6**	-	-	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
201	M	25	-	-	-	-	-	6.8	1.8	6.1	4.4	**121.7**	**5.6**	-	-	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
202	M	65	-	-	-	-	-	-	-	-	-	44.3	-	-	0.3	8.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	F	U	-	-	-	-	-	-	-	-	-	44.3	-	-	0.3	8.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
204	F	39	-	-	-	-	-	-	-	-	-	88.7	-	-	0.3	**20.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
205	M	U	-	-	-	-	-	-	-	-	-	88.7	-	-	0.3	**20.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
206	M	69	-	-	-	-	-	-	-	-	-	-	-	-	-	8.9	-	-	-	-	-	-	24	-	-	-	-	-	-	-	12
207	F	70	-	-	-	-	-	-	-	-	-	-	-	-	-	8.9	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
208	M	36	-	0.5	-	-	-	-	-	-	-	-	-	-	-	2.1	0.7	-	-	-	-	-	15	-	-	-	15	-	-	-	-
209	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
210	M	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**2.5**	-	-	-	-	-	-	-	-	-	-
211	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**2.5**	-	-	-	-	-	-	-	-	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
212	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
213	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
214	M	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	-	34	-	-	-	-	-	-
215	F	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34	-	-	-	-	-	-
216	M	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	-	-	-	-	-	-
217	M	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7	-	-	-	-	-	-
218	M	U	-	-	-	-	12.9	2.2	**41.6**	**116.5**	**19.3**	-	-	-	-	**17.8**	**2.4**	-	**2.3**	0.2	-	-	-	-	-	-	-	-	-	-	-
219	F	U	-	-	-	-	12.9	2.2	**41.6**	**116.5**	**19.3**	-	-	-	-	**17.8**	**2.4**	-	**2.3**	0.2	-	-	-	-	-	-	-	-	-	-	-
220	M	U	-	-	-	-	-	-	-	-	-	**121.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
221	F	U	-	-	-	-	-	-	-	-	-	**121.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
222	M	U	-	-	-	-	-	-	-	-	-	**121.7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
223	M	62	-	-	-	-	1.8	**23.4**	-	-	11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-
224	F	61	-	-	-	-	1.8	**23.4**	-	-	11.1	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-	-	-	-	-	-
225	M	71	-	-	-	-	5.2	18.0	-	6.8	**38.1**	-	-	-	-	8.2	1.1	-	-	**0.5**	-	-	-	6	-	-	-	-	-	-	-
226	F	69	-	-	-	-	5.2	18.0	-	6.8	**38.1**	-	-	-	-	8.2	1.1	-	-	**0.5**	-	-	-	6	-	-	-	-	-	-	-
227	M	60	-	-	-	-	11.3	9.7	**28.4**	**117.0**	-	-	-	-	-	-	**2.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
228	F	57	-	-	-	-	11.3	9.7	**28.4**	**117.0**	-	-	-	-	-	-	**2.3**	-	-	**0.9**	-	-	-	-	-	-	-	-	-	-	-
229	F	33	-	-	-	-	11.3	9.7	**28.4**	**117.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
230	M	33	-	-	-	-	11.3	9.7	**28.4**	**117.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
233	F	65	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	-	-	-	-	-	-
234	M	U	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	-	-	-	-	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
235	F	U	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	-	-	-	-	-	-
239	M	83	-	-	-	-	-	-	-	-	6.8	-	-	-	**4.5**	-	-	-	-	**0.9**	-	-	-	-	-	-	-	-	-	-	-
240	F	81	-	-	-	-	-	-	-	-	6.8	-	-	-	**4.5**	-	-	-	-	**0.9**	-	-	-	-	-	-	-	-	-	-	-
241	M	65	1.7	-	-	-	-	6.1	1.1	4.6	-	-	-	-	-	-	**1.7**	0.2	-	**0.3**	-	-	-	-	-	-	-	-	-	-	-
242	F	64	-	-	-	-	-	6.1	1.1	4.6	-	-	-	-	-	-	**1.7**	0.2	-	**0.3**	-	-	-	-	-	-	-	-	-	-	-
243	M	38	-	-	-	-	-	6.1	1.1	4.6	-	-	-	-	-	-	**1.7**	0.2	-	**0.3**	-	-	-	-	-	-	-	-	-	-	-
244	F	32	-	-	-	-	-	6.1	1.1	4.6	-	-	-	-	-	-	**1.7**	0.2	-	**0.3**	-	-	-	-	-	-	-	-	-	-	-
245	M	56	-	-	-	-	1.8	5.2	-	10.9	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
246	F	54	-	-	-	-	1.8	5.2	-	10.9	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
247	M	26	-	-	-	-	1.8	5.2	-	10.9	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
248	M	22	-	-	-	-	1.8	5.2	-	10.9	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
249	F	24	-	-	-	-	1.8	5.2	-	10.9	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	M	70	-	-	-	-	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
251	F	69	-	-	-	-	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	**210**	-	-	-	-	-	-
252	M	49	6.8	-	-	-	-	-	-	-	**23.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
253	F	49	6.8	-	-	-	-	-	-	-	**23.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
254	M	21	6.8	-	-	-	-	-	-	-	**23.4**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
256	M	U	-	-	-	-	-	-	-	-	3.4	**273.8**	-	-	-	**17.8**	**2.3**	-	0.5	**0.5**	-	-	-	-	-	-	-	-	-	-	730
257	M	U	-	-	-	-	-	-	-	-	3.4	**273.8**	-	-	-	**17.8**	**2.3**	-	0.5	**0.5**	-	-	-	-	-	-	-	-	-	-	730
258	M	34	-	-	-	-	0.5	4.3	0.5	2.0	0.7	-	-	-	-	-	-	-	-	0.1	-	-	-	-	48	-	-	-	-	-	-
259	F	34	-	-	-	-	0.5	4.3	0.5	2.0	0.7	-	-	-	-	-	-	-	-	0.1	-	-	-	-	48	-	-	-	-	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
262	M	49	2.9	-	-	-	0.1	1.6	-	-	5.7	-	-	5.0	1.0	**18.5**	**2.5**	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-
263	F	54	2.9	-	-	-	0.1	1.6	-	-	5.7	-	-	5.0	1.0	**18.5**	**2.5**	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-
264	M	24	2.9	-	-	-	0.1	1.6	-	-	5.7	-	-	5.0	1.0	**18.5**	**2.5**	-	-	**1.0**	-	-	-	-	-	-	-	-	60	-	-
265	M	19	2.9	-	-	-	0.1	1.6	-	-	5.7	-	-	5.0	1.0	**18.5**	**2.5**	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-
266	M	76	0.7	-	-	-	0.03	0.4	-	-	2.1	-	-	1.3	0.2	4.6	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
267	M	25	0.7	-	-	-	0.03	0.4	-	-	2.1	-	-	1.3	0.2	4.6	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
268	M	61	-	-	-	-	**15.9**	4.8	4.4	30.2	11.3	-	-	-	-	17.7	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
269	F	62	-	-	-	-	**15.9**	4.8	4.4	30.2	11.3	-	-	-	-	17.7	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
270	M	42	-	-	-	-	**15.9**	4.8	4.4	30.2	11.3	-	-	-	-	17.7	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-
271	M	30	-	-	-	-	-	-	-	11.4	0.7	-	-	-	-	**20.5**	-	-	-	-	-	-	-	-	26	-	-	-	-	-	-
272	F	28	-	-	-	-	-	-	-	11.4	0.7	-	-	-	-	**20.5**	-	-	-	-	-	-	-	-	26	-	-	-	-	-	-
275	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
276	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
277	M	69	-	-	-	-	**27.7**	**35.9**	17.6	27.3	7.3	-	-	-	0.9	-	-	**1.1**	-	**0.5**	-	-	-	-	-	-	-	-	-	-	-
278	F	65	-	-	-	-	**27.7**	**35.9**	17.6	27.3	7.3	-	-	-	0.9	-	-	**1.1**	-	**0.5**	-	-	-	-	-	-	-	-	-	-	-
279	F	52	-	-	-	-	-	9.0	15.3	36.4	1.8	-	-	4.5	-	11.9	**3.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
280	M	58	-	-	-	-	-	9.0	15.3	36.4	1.8	-	-	4.5	-	11.9	**3.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
281	M	20	-	-	-	-	-	4.5	7.6	18.2	0.9	-	-	2.3	-	5.9	**1.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
282	M	52	0.9	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0.2	-	-	-	-	-	-	-	15	-	-	-	-	5458	1352
283	F	35	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0.2	-	-	-	-	-	-	-	15	-	-	-	-	8052	183
287	M	60	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	250	-	-	-	-	-	-	5900	2080

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
288	F	43	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	-	-	-	7771	365
289	M	20	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	-	-	-	5900	2080
290	F	17	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	150	-	-	-	-	-	-	6995	365
291	M	37	-	-	-	-	3.5	3.9	8.0	-	0.3	-	-	-	-	11.9	-	-	-	-	-	-	-	-	6	-	-	-	-	5943	238
292	F	34	-	-	-	-	3.5	3.9	8.0	-	0.3	-	-	-	-	11.9	-	-	-	-	-	-	-	-	6	-	-	-	-	7128	192
296	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	807	807
297	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	807	807
298	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	306	306
299	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	96
300	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	96
301	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	96
302	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	96
303	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210	210
304	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210	210
305	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210	210
306	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210	210
307	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210	210
308	F	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	274
309	F	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**730**	-	-	-	-	-	-	-
310	F	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	230	-	-	-	-	-	-	-
311	M	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**274**	-	-	-	-	-	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
312	F	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**274**	-	-	-	-	-	-	-
313	M	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-	-	-	-	-	-
314	F	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130	-	-	-	-	-	-	-
315	M	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110	-	-	-	-	-	-	-
316	F	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110	-	-	-	-	-	-	-
319	M	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110	-	-	-	-	-	-	-
320	F	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110	-	-	-	-	-	-	-
324	M	65	10.4	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-
325	M	43	10.4	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-
326	F	41	10.4	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
329	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-
330	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-
331	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-
332	M	44	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-
333	F	42	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
334	M	56	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-
335	M	29	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-
336	M	28	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-
337	M	42	4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78	-	-	-	-	-	-	-	-
339	F	18	4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
340	M	40	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	156	-	-	-	-	-	18	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
343	F	38	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
344	F	18	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
345	M	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-
346	F	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-
347	M	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	10	-	-	-
348	F	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	10	-	-	-
349	M	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	10	-	-	-
351	M	33	**20.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	156	-	-	-	-	-	-	-	-
352	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	192	-	-	-	-	-	-	-	-
353	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	192	-	-	-	-	-	-	-	-
354	F	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-	-	-	-	-	-
356	M	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	16	-	-	-	-	-	-
357	F	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	16	-	-	-	-	-	-
359	M	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	7	-	-	-
360	F	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	7	-	-	-
362	M	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
363	F	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
364	F	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
366	M	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
367	F	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
369	M	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	416	-	-

Annex 1. Adults' consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Molluscs	Marine plants/algae	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over mud and sand	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Handling fishing gear	Handling sediment	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
370	F	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	416	-	-
371	M	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	416	-	-
372	F	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	416	-	-
373	F	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	-	-	-	-	-	-	-
374	F	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**313**	-	-	-	-	-	-	-
375	M	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**473**	-	-	-	-	-	-	-
376	F	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**231**	-	-	-	-	-	-
378	F	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	115	-	-	-	-	-	-

Notes

Observations in bold indicate the high-rate individuals

U = Unknown

[a] For observation numbers 122 - 125, the green vegetables, other vegetables, root vegetables and potato were fertilised with seaweed

Annex 2. Children's consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Eggs	Wild/free foods	Wild fungi	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
15-year-old age group																					
23	M	13	**5.5**	**1.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
129	M	15	-	-	-	-	-	-	-	-	-	1.4	**0.2**	**0.3**	-	-	-	-	-	-	-
130	M	14	-	-	-	-	-	-	-	-	-	1.4	**0.2**	**0.3**	-	-	-	-	-	-	-
167	M	13	-	-	-	-	-	-	-	-	-	-	-	-	-	**48**	-	-	40	-	-
175	M	13	-	-	-	-	-	-	-	-	-	-	-	-	-	**24**	-	-	-	-	12
177	F	13	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	6	-	-	18
178	F	13	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	6	-	-	18
196	F	14	-	-	-	**6.8**	**1.8**	**6.1**	**4.4**	**121.7**	**5.6**	-	**0.6**	-	-	**41**	**41**	-	-	-	-
274	M	14	-	-	-	-	-	**11.4**	0.7	-	-	**10.3**	-	-	-	-	**26**	-	-	-	-
293	M	14	-	-	**1.8**	1.9	**4.0**	-	0.1	-	-	**6.0**	-	-	-	-	6	-	-	6133	204
294	F	12	-	-	**1.8**	1.9	**4.0**	-	0.1	-	-	**6.0**	-	-	-	-	6	-	-	6133	204
295	F	12	-	-	**1.8**	1.9	**4.0**	-	0.1	-	-	**6.0**	-	-	-	-	6	-	-	6133	204
338	M	13	**4.4**	-	-	-	-	-	-	-	-	-	-	-	**78**	-	-	-	-	-	-
341	M	15	**5.1**	-	-	-	-	-	-	-	-	-	-	-	**156**	-	-	-	18	-	-
342	M	13	**5.1**	-	-	-	-	-	-	-	-	-	-	-	**156**	-	-	-	18	-	-
350	F	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**40**	10	-	-	-
365	F	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
10-year-old age group																					
3	M	11	**23.6**	**4.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98	F	7	-	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	48	-	-
113	F	10	**10.4**	**5.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
150	F	10	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	8	-	-	-
151	M	8	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	8	-	-	-
168	M	11	-	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	40	-	-
176	M	10	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	12
188	M	10	-	-	-	-	-	-	**0.9**	-	-	-	**0.3**	-	-	-	-	-	-	4634	193
197	F	7	-	-	-	**2.7**	**0.7**	2.4	**1.8**	**60.8**	**2.2**	-	**0.2**	-	-	41	41	-	-	-	-
238	M	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**125**	-	-	-	-
273	F	10	-	-	-	-	-	**11.4**	**0.7**	-	-	**10.3**	-	-	-	-	26	-	-	-	-
284	F	7	-	-	-	-	-	-	-	-	-	0.3	**0.2**	-	-	-	5	10	-	6687	183
327	F	11	5.2	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
328	F	9	5.2	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
355	F	9	-	-	-	-	-	-	-	-	-	-	-	-	-	**180**	-	60	-	-	-
368	F	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-

Annex 2. Children's consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) in the Wylfa area

Observation number	Sex	Age (years)	Fish	Crustaceans	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Eggs	Wild/free foods	Wild fungi	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
5-year-old age group																					
4	F	2	**7.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	F	4	-	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	48	-	-
198	M	6	-	-	-	**2.7**	0.7	**2.4**	1.8	**60.8**	**2.2**	-	**0.2**	-	-	41	41	-	-	-	-
199	M	3	-	-	-	**1.4**	0.4	1.2	0.8	**30.4**	**1.1**	-	**0.1**	-	-	41	41	-	-	-	-
231	M	4	-	-	**1.1**	**1.0**	**2.8**	**5.8**	-	-	-	-	-	-	-	-	-	-	-	-	-
232	M	3	-	-	**1.1**	**1.0**	**2.8**	**5.8**	-	-	-	-	-	-	-	-	-	-	-	-	-
236	F	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**125**	-	-	-	-
237	F	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**125**	-	-	-	-
255	F	6	1.7	-	-	-	-	-	**5.9**	-	-	-	-	-	-	-	-	-	-	-	-
260	M	4	-	-	0.1	**1.1**	-	0.5	0.1	-	-	-	**0.1**	-	-	-	48	-	-	-	-
261	F	2	-	-	0.1	**1.1**	-	0.5	0.1	-	-	-	**0.1**	-	-	-	48	-	-	-	-
285	M	6	-	-	-	-	-	-	-	-	-	**0.3**	**0.2**	-	-	-	5	10	-	6687	183
317	M	5	-	-	-	-	-	-	-	-	-	-	-	-	-	**110**	-	-	-	-	-
318	M	4	-	-	-	-	-	-	-	-	-	-	-	-	-	**110**	-	-	-	-	-
321	M	5	-	-	-	-	-	-	-	-	-	-	-	-	-	**110**	-	-	-	-	-
322	M	4	-	-	-	-	-	-	-	-	-	-	-	-	-	**110**	-	-	-	-	-
323	M	3	-	-	-	-	-	-	-	-	-	-	-	-	-	**110**	-	-	-	-	-
358	M	3	-	-	-	-	-	-	-	-	-	-	-	-	-	24	16	-	-	-	-
361	M	6	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	7	-	-	-
377	M	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**231**	-	-	-	-
379	M	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**115**	-	-	-	-
380	F	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**115**	-	-	-	-
381	F	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**115**	-	-	-	-
1-year-old age group																					
104	F	1	-	-	-	-	-	-	-	-	-	-	-	-	-	**6**	-	-	-	-	-
3-month-old age group																					
286	F	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**15**	-	-	8052	183

Notes

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

Notes

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

[b]Ratios were derived from Smith and Jones, (2003) which presented data for infants and children.

[c]Ratios were derived from FSA data for wild fruit and nuts for infants and 10-yr-old children.

[d]Game includes rabbits/hares and venison.

Annex 5. Consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) for women of childbearing age in the Wylfa area, for use in foetal dose assessments

Observation number	Sex	Age (years)[b]	Fish	Crustaceans	Molluscs	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
2	F	37	47.2	4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	F	41	2.4	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	F	25	40.8	23.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	F	17	5.5	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
33	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	-	-
37	F	U	2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	F	20	5.3	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	F	17	5.3	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	F	U	14.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	F	28	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	F	30	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58	F	U	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	F	U	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
89	F	27	17.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90	F	27	17.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
93	F	17	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
96	F	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	-	-	-	-	-
103	F	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	1	-	-	-
112	F	40	15.6	7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
119	F	U	-	-	-	-	-	-	-	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Annex 5. Consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) for women of childbearing age in the Wylfa area, for use in foetal dose assessments

Observation number	Sex	Age (years)[b]	Fish	Crustaceans	Molluscs	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
121	F	U	10.7	-	6.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123[a]	F	43	18.4	-	-	40.2	23.9	42.0	19.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
125[a]	F	18	-	-	-	4.7	2.8	4.9	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
127	F	43	-	-	-	-	-	-	24.0	-	-	-	-	-	1.4	0.2	-	-	0.3	-	-	-	-	-	-	-	-
131	F	19	-	-	-	-	-	-	-	-	-	-	-	-	1.4	0.2	-	-	0.3	-	-	-	-	-	-	-	-
136	F	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	-	504	-	-	-	-
144	F	U	-	-	-	-	-	-	-	0.7	-	-	3.8	1.0	-	0.7	-	-	0.5	-	-	-	-	-	-	-	-
149	F	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	8	-	-	-
162	F	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-
165	F	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	-
172	F	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	48	-	-	-	-
174	F	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	12
180	F	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	183	183	-	-	-	30
187	F	37	-	-	-	-	-	-	-	0.9	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	-	6686	373
191	F	42	-	-	-	7.4	7.5	51.3	36.4	6.9	-	-	-	-	4.1	0.7	-	-	-	-	-	-	-	-	-	-	-
194	F	34	-	-	-	-	6.8	1.8	6.1	4.4	121.7	5.6	-	-	-	0.6	-	-	-	-	-	41	41	-	-	-	-
200	F	21	-	-	-	-	6.8	1.8	6.1	4.4	121.7	5.6	-	-	-	0.6	-	-	-	-	-	-	-	-	-	-	-
203	F	U	-	-	-	-	-	-	-	-	44.3	-	-	0.3	8.9	-	-	-	-	-	-	-	-	-	-	-	-
204	F	39	-	-	-	-	-	-	-	-	88.7	-	-	0.3	20.7	-	-	-	-	-	-	-	-	-	-	-	-
209	F	U	-	-	-	-	-	-	-	-	-	-	-	-	2.1	0.7	-	-	-	-	-	-	-	-	-	-	-
211	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-	-	-	-	-
212	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-

Annex 5. Consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) for women of childbearing age in the Wylfa area, for use in foetal dose assessments

Observation number	Sex	Age (years)[b]	Fish	Crustaceans	Molluscs	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
219	F	U	-	-	-	12.9	2.2	41.6	116.5	19.3	-	-	-	-	17.8	2.4	-	2.3	0.2	-	-	-	-	-	-	-	-
221	F	U	-	-	-	-	-	-	-	-	121.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
229	F	33	-	-	-	11.3	9.7	28.4	117.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
235	F	U	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	-	-	-	-
244	F	32	-	-	-	-	6.1	1.1	4.6	-	-	-	-	-	-	1.7	0.2	-	0.3	-	-	-	-	-	-	-	-
249	F	24	-	-	-	1.8	5.2	-	10.9	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
259	F	34	-	-	-	0.5	4.3	0.5	2.0	0.7	-	-	-	-	-	-	-	-	0.1	-	-	-	48	-	-	-	-
272	F	28	-	-	-	-	-	-	11.4	0.7	-	-	-	-	20.5	-	-	-	-	-	-	-	26	-	-	-	-
275	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-
283	F	35	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0.2	-	-	-	-	-	-	15	-	-	8052	183
288	F	43	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	7771	365
290	F	17	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	150	-	-	-	-	6995	365
292	F	34	-	-	-	3.5	3.9	8.0	-	0.3	-	-	-	-	11.9	-	-	-	-	-	-	-	6	-	-	7128	192
308	F	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	274
316	F	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110	-	-	-	-	-
320	F	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110	-	-	-	-	-
326	F	41	10.4	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
333	F	42	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
339	F	18	4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
343	F	38	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
344	F	18	5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
348	F	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	10	-	-	-

Annex 5. Consumption rates (kg y^{-1} or l y^{-1}) and occupancy rates (h y^{-1}) for women of childbearing age in the Wylfa area, for use in foetal dose assessments

Observation number	Sex	Age (years)[b]	Fish	Crustaceans	Molluscs	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Freshwater fish	Intertidal occupancy over rock	Intertidal occupancy over sand	Intertidal occupancy over sand and stones	Occupancy in water	Occupancy on water	Indoor occupancy within 1 km of the site perimeter fence	Outdoor occupancy within 1 km of the site perimeter fence
354	F	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	-	-	-	-	-
357	F	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	16	-	-	-	-
363	F	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
364	F	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
367	F	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-
370	F	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	416	-	-
372	F	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	416	-	-
374	F	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	313	-	-	-	-	-
376	F	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	231	-	-	-	-
378	F	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	115	-	-	-	-

Notes

U = Unknown

[a] For these consumers the green vegetables, other vegetables, root vegetables and potato were fertilised with seaweed

[b] 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 Wylfa area

Profile Name	Number of individuals	Pathway Name: Crustaceans	Direct radiation[a]	Eggs	Fish - Freshwater	Fish - Sea	Fruit - Domestic	Fruit and nuts - Wild	Gamma ext - Sediment[b]	Honey	Marine plants/algae	Meat - Game[c]	Meat - Pig	Meat - Poultry	Meat - Sheep	Milk	Mollusca	Mushrooms	Occupancy IN water	Occupancy ON water	Plume (IN; 0-0.25km)[d]	Plume (MID; >0.25-0.5km)[d]	Plume (OUT; >0.5-1km)[d]	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes	Vegetables - Root
		kg	-	kg	kg	kg	kg	kg	h	kg	kg	kg	kg	kg	kg	l	kg	kg	h	h	h	h	h	kg	kg	kg	kg
Crustacean consumers	**5**	15.8	-	-	-	25.2	-	-	20	-	-	-	-	-	-	-	0.1	-	-	570	-	-	-	-	-	-	-
Occupants for direct radiation	**38**	-	1	4	-	1.1	0.2	0.1	30	-	-	-	-	-	-	14.4	0.2	-	-	-	190	50	2670	0.2	0.3	0.2	0.4
Egg consumers	**15**	-	0.2	21.1	-	0.8	4.6	1.5	10	0.4	-	-	-	0.3	5.1	48.3	-	0.4	-	-	-	100	440	4.5	10	27.2	12.9
Freshwater fish consumers	**2**	-	-	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea fish consumers	**18**	4.3	0.1	-	-	28.8	-	-	20	-	-	-	-	-	-	-	-	-	-	310	10	-	-	4.5	2.7	2.2	4.7
Domestic fruit consumers	**7**	-	-	7.4	-	2.9	26.4	1	-	0.6	-	-	-	-	-	-	-	0.2	-	-	-	-	-	5.2	5.8	35.2	11.9
Wild fruit and nut consumers	**19**	-	0.1	12.9	-	0.7	3.8	2.2	-	0.3	-	-	-	0.2	4.6	28.8	-	0.4	-	-	-	80	-	4.7	11.4	38.3	15.4
Occupants for exposure - sediment	**13**	0.2	0.2	-	-	1.8	-	-	400	-	-	-	-	-	-	-	-	-	-	110	10	-	-	3.1	1.8	1.5	3.2
Honey consumers	**4**	-	-	9.9	-	-	12.5	1.5	-	1.7	-	-	1.4	-	-	-	-	0.1	-	-	-	-	-	8.3	4.7	68.9	34.1
Marine plants/algae consumers	**1**	-	-	-	-	18.4	-	-	340	-	0.5	-	-	-	-	-	-	-	-	80	-	-	-	40.2	23.9	19.6	42
Game meat consumers	**2**	-	-	-	-	-	7.3	-	-	-	-	1.1	-	0.9	-	-	-	0.5	-	-	-	-	-	27.7	35.9	27.3	17.6
Pig meat consumers	**10**	-	-	-	-	-	2.6	0.4	10	0.1	-	-	7.9	-	1.7	60.8	-	0.2	-	-	-	-	-	-	4.1	3.6	1.1
Poultry meat consumers	**3**	-	-	-	-	-	4.5	-	-	-	-	-	-	4.5	6.9	-	-	0.9	-	-	-	-	-	-	-	-	-
Sheep meat consumers	**3**	-	-	23.7	-	-	-	0.8	-	-	-	-	-	1.5	25.7	-	-	0.3	-	-	-	-	-	13.8	46.5	50.7	36.9
Milk consumers	**12**	-	0.2	3	-	-	2.4	0.6	10	0.1	-	-	2.3	-	-	157.2	-	0.1	-	-	-	120	-	-	2.9	2.5	0.8
Mollusc consumers	**2**	-	0.5	-	-	10.7	-	-	70	-	-	-	-	-	-	-	6.9	-	50	40	-	10	-	-	-	-	-
Mushroom consumers	**25**	-	0.1	5	-	0.5	5.4	1.2	-	-	-	0.1	1.8	0.9	2.8	21.9	-	0.6	-	-	-	60	-	3.1	5.9	8.1	2.7
Occupancy IN water	**3**	-	0.3	-	-	4.5	-	-	50	-	-	-	-	-	-	-	2.3	-	90	480	-	10	-	-	-	-	-
Occupancy ON water	**12**	4.4	-	-	-	19.7	-	-	40	-	-	-	-	-	-	-	-	-	10	910	-	-	-	-	-	-	-
Occupants for plume pathways (inner area)	**3**	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1280	-	-	-	-	-	-
Occupants for plume pathways (mid area)	**3**	-	1	11.9	-	-	2.3	1.5	-	0.3	-	-	-	-	-	182.5	-	0.3	-	-	-	580	-	-	-	-	-
Occupants for plume pathways (outer area)	**14**	-	1	7.8	-	0.1	0.2	0.1	20	-	-	-	-	-	-	-	-	-	-	-	-	-	7240	0.5	0.9	0.4	1.1
Green vegetable consumers	**9**	-	-	13.8	-	4.1	5.4	0.3	40	-	0.1	0.3	-	0.2	6.3	-	-	0.2	-	10	-	-	-	25	30.4	37.4	27
Other domestic vegetable consumers	**8**	-	-	8.9	-	4.6	4.6	0.3	50	-	0.1	0.3	-	0.2	7.1	-	-	0.1	-	10	-	-	-	22.6	38.2	30.7	28.7
Potato consumers	**9**	-	-	12	-	-	4.3	1.3	-	0.5	-	-	-	-	6.3	-	-	0.2	-	-	-	-	-	12.5	20.3	100	34.2
Root vegetable consumers	**12**	-	-	9.6	-	3.1	4.4	1.1	30	0.5	-	-	-	-	4.7	-	-	0.1	-	10	-	-	-	17.3	20.5	80.4	41.2

Notes

[a]Expressed as the proportion of the profile members who are exposed to direct radiation.

[b]Gamma ext - sediment includes occupancy over mud and sand; sand; and sand and stones

[c]Game meat includes rabbits/hares

[d]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 15-year-old age group in the Wylfa area

		Pathway Name																		
Profile Name	**Number of individuals**	**Crustacea**	**Direct radiation[a]**	**Eggs**	**Fish - Sea**	**Fruit - Domestic**	**Fruit and nuts - Wild**	**Gamma ext - Sediment[b]**	**Meat - Pig**	**Milk**	**Mushrooms**	**Occupancy IN water**	**Occupancy ON water**	**Plume (MID; >0.25-0.5km)[d]**	**Plume (OUT; >0.5-1km)[d]**	**Vegetables - Green**	**Vegetables - Other Domestic**	**Vegetables - Potatoes**	**Vegetables - Root**
		kg	-	kg	kg	kg	kg	h	kg	l	kg	h	h	h	h	kg	kg	kg	kg
Crustacean consumers	**1**	1.2	-	-	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Occupants for direct radiation	**6**	-	1	3	-	0.1	-	10	-	-	-	-	-	10	3170	0.9	1	-	2
Egg consumers	**4**	-	0.8	7	-	0.3	-	10	-	-	-	-	-	-	4750	1.3	1.5	2.8	3
Sea fish consumers	**4**	0.3	-	-	5	-	-	-	-	-	-	-	10	-	-	-	-	-	-
Domestic fruit consumers	**1**	-	-	-	-	4.4	0.6	82	5.6	121.7	-	-	-	-	-	-	6.8	6.1	1.8
Wild fruit and nut consumers	**3**	-	-	0.9	-	1.5	0.3	30	1.9	40.6	0.2	-	-	-	-	-	2.3	2	0.6
Occupants for exposure - sediment	**3**	-	-	-	-	1.5	0.2	60	1.9	40.6	-	-	10	-	-	-	2.3	2	0.6
Pig meat consumers	**1**	-	-	-	-	4.4	0.6	80	5.6	121.7	-	-	-	-	-	-	6.8	6.1	1.8
Milk consumers	**1**	-	-	-	-	4.4	0.6	80	5.6	121.7	-	-	-	-	-	-	6.8	6.1	1.8
Mushroom consumers	**2**	-	-	1.4	-	-	0.2	-	-	-	0.3	-	-	-	-	-	-	-	-
Occupancy IN water	**3**	-	0.7	-	-	-	-	20	-	-	-	10	-	10	-	-	-	-	-
Occupancy ON water	**3**	-	-	-	3.4	-	-	20	-	-	-	-	30	-	-	-	-	-	-
Occupants for plume pathways (mid area)	**3**	-	1	-	-	-	-	20	-	-	-	-	-	20	-	-	-	-	-
Occupants for plume pathways (outer area)	**3**	-	1	6	-	0.1	-	10	-	-	-	-	-	-	6340	1.8	1.9	-	4
Green vegetable consumers	**3**	-	1	6	-	0.1	-	10	-	-	-	-	-	-	6340	1.8	1.9	-	4
Other domestic vegetable consumers	**1**	-	-	-	-	4.4	0.6	82	5.6	121.7	-	-	-	-	-	-	6.8	6.1	1.8
Potato consumers	**2**	-	-	5.1	-	2.5	0.3	50	2.8	60.8	-	-	-	-	-	-	3.4	8.7	0.9
Root vegetable consumers	**4**	-	0.8	4.5	-	1.2	0.1	20	1.4	30.4	-	-	-	-	4750	1.3	3.2	1.5	3.5

Notes

[a]Expressed as the proportion of the profile members who are exposed to direct radiation.

[b]Gamma ext - sediment includes occupancy over sand; and sand and stones

[d]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 10-year-old age group in the Wylfa area

Profile Name	Number of individuals	Pathway Name: Crustacea	Direct radiation[a]	Eggs	Fish - Sea	Fruit - Domestic	Fruit and nuts - Wild	Gamma ext - Sediment[b]	Meat - Pig	Milk	Occupancy IN water	Occupancy ON water	Plume (MID; >0.25-0.5km)[d]	Plume (OUT; >0.5-1km)[d]	Vegetables - Other Domestic	Vegetables - Potatoes	Vegetables - Root
		kg	-	kg	kg	kg	kg	h	kg	l	h	h	h	h	kg	kg	kg
Crustacean consumers	**2**	5	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-
Occupants for direct radiation	**3**	-	1	0.1	-	0.3	0.2	10	-	-	-	-	-	3900	-	-	-
Egg consumers	**1**	-	-	10.3	-	0.7	-	26	-	-	-	-	-	-	-	11.4	-
Sea fish consumers	**2**	5	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-
Domestic fruit consumers	**3**	-	0.3	3.4	-	1.1	0.2	40	0.7	20.3	-	-	-	1610	0.9	4.6	0.2
Wild fruit and nut consumers	**3**	-	0.7	0.1	-	0.9	0.3	30	0.7	20.3	-	-	-	3900	0.9	0.8	0.2
Occupants for exposure - sediment	**3**	-	-	-	-	0.6	0.1	130	0.7	20.3	20	-	-	-	0.9	0.8	0.2
Pig meat consumers	**1**	-	-	-	-	1.8	0.2	80	2.2	60.8	-	-	-	-	2.7	2.4	0.7
Milk consumers	**1**	-	-	-	-	1.8	0.2	80	2.2	60.8	-	-	-	-	2.7	2.4	0.7
Occupancy IN water	**4**	-	0.3	0.1	-	-	0.1	50	-	-	20	-	-	1720	-	-	-
Occupancy ON water	**2**	-	-	-	-	-	-	50	-	-	-	40	-	-	-	-	-
Occupants for plume pathways (mid area)	**1**	-	1	-	-	-	-	20	-	-	-	-	10	-	-	-	-
Occupants for plume pathways (outer area)	**2**	-	1	0.1	-	0.5	0.3	-	-	-	10	-	-	5850	-	-	-
Other domestic vegetable consumers	**1**	-	-	-	-	1.8	0.2	80	2.2	60.8	-	-	-	-	2.7	2.4	0.7
Potato consumers	**1**	-	-	10.3	-	0.7	-	26	-	-	-	-	-	-	-	11.4	-
Root vegetable consumers	**1**	-	-	-	-	1.8	0.2	80	2.2	60.8	-	-	-	-	2.7	2.4	0.7

Notes

[a]Expressed as the proportion of the profile members who are exposed to direct radiation.

[b]Gamma ext - sediment includes occupancy over sand; and sand and stones

[d]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 9. Summary of profiles for children in the 5-year-old age group in the Wylfa area

		Pathway Name														
Profile Name	**Number of individuals**	**Direct radiation[a]**	**Eggs**	**Fish - Sea**	**Fruit - Domestic**	**Fruit and nuts - Wild**	**Gamma ext - Sediment[b]**	**Meat - Pig**	**Milk**	**Occupancy IN water**	**Occupancy ON water**	**Plume (OUT; >0.5-1km)[d]**	**Vegetables - Green**	**Vegetables - Other Domestic**	**Vegetables - Potatoes**	**Vegetables - Root**
		-	kg	kg	kg	kg	h	kg	l	h	h	h	kg	kg	kg	kg
Occupants for direct radiation	**1**	1	0.3	-	-	0.2	10	-	-	10	-	6870	-	-	-	-
Egg consumers	**1**	1	0.3	-	-	0.2	10	-	-	10	-	6870	-	-	-	-
Sea fish consumers	**1**	-	-	7.1	-	-	-	-	-	-	-	-	-	-	-	-
Domestic fruit consumers	**1**	-	-	1.7	5.9	-	-	-	-	-	-	-	-	-	-	-
Wild fruit and nut consumers	**5**	0.2	0.1	-	0.5	0.1	50	0.7	18.3	-	-	1370	-	1.3	0.9	0.2
Occupants for exposure - sediment	**13**	-	-	-	0.2	-	120	0.3	7	-	-	-	-	0.3	0.3	0.1
Pig meat consumers	**2**	-	-	-	1.3	0.2	80	1.7	45.6	-	-	-	-	2.1	1.8	0.5
Milk consumers	**2**	-	-	-	1.3	0.2	80	1.7	45.6	-	-	-	-	2.1	1.8	0.5
Occupancy IN water	**2**	0.5	0.1	-	-	0.1	10	-	-	10	-	3440	-	-	-	-
Occupancy ON water	**1**	-	-	-	-	-	50	-	-	-	50	-	-	-	-	-
Occupants for plume pathways (outer area)	**1**	1	0.3	-	-	0.2	10	-	-	10	-	6870	-	-	-	-
Green vegetable consumers	**2**	-	-	-	-	-	-	-	-	-	-	-	1.1	1	5.8	2.8
Other domestic vegetable consumers	**6**	-	-	-	0.4	0.1	40	0.6	15.2	-	-	-	0.4	1.4	2.7	1.1
Potato consumers	**3**	-	-	-	0.6	0.1	30	0.7	20.3	-	-	-	0.8	1.6	4.7	2.1
Root vegetable consumers	**2**	-	-	-	-	-	-	-	-	-	-	-	1.1	1	5.8	2.8

Notes

[a]Expressed as the proportion of the profile members who are exposed to direct radiation.

[b]Gamma ext - sediment includes occupancy over sand; and sand and stones

[d]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 10. Summary of profiles for women of childbearing age in the Wylfa area, for use in foetal dose assessments

Profile Name	Number of individuals	Pathway Name: Crustacea	Direct radiation[a]	Eggs	Fish - Fresh	Fish - Sea	Fruit - Domestic	Fruit and nuts - Wild	Gamma ext - Sediment[b]	Honey	Meat - Game[c]	Meat - Pig	Meat - Poultry	Meat - Sheep	Milk	Mollusca	Mushrooms	Occupancy IN water	Occupancy ON water	Plume (IN; 0-0.25km)[d]	Plume (MID; >0.25-0.5km)[d]	Plume (OUT; >0.5-1km)[d]	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes	Vegetables - Root
		kg	-	kg	kg	kg	kg	kg	h	kg	kg	kg	kg	kg	l	kg	kg	h	h	h	h	h	kg	kg	kg	kg
Crustacean consumers	**2**	15.6	-	-	-	28.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Occupants for direct radiation	**8**	-	1	4.8	-	-	0.1	0.1	50	-	-	-	-	-	-	-	-	-	-	-	40	4760	0.4	0.5	-	1
Egg consumers	**7**	-	0.4	15.2	-	-	2.9	0.3	-	0.3	-	-	0.1	-	19	-	-	-	-	-	-	3260	2.4	0.9	18.3	7.1
Freshwater fish consumers	**1**	-	-	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sea fish consumers	**5**	5.6	-	-	-	28.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	4.8	3.9	8.4
Domestic fruit consumers	**2**	-	-	10.9	-	-	13.1	1.5	-	1.1	-	-	-	-	-	-	0.1	-	-	-	-	-	10.1	4.8	76.4	46.4
Wild fruit and nut consumers	**2**	-	-	8.9	-	-	9.6	2	-	1.1	0.1	-	-	-	-	-	0.3	-	-	-	-	-	6.5	4.1	60.5	21.4
Occupants for exposure - sediment	**5**	-	0.2	-	-	-	-	-	330	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-
Honey consumers	**1**	-	-	17.8	-	-	19.3	2.4	-	2.3	-	-	-	-	-	-	0.2	-	-	-	-	-	12.9	2.2	116.5	41.6
Game meat consumers	**1**	-	-	-	-	-	-	1.7	-	-	0.2	-	-	-	-	-	0.3	-	-	-	-	-	-	6.1	4.6	1.1
Pig meat consumers	**2**	-	-	-	-	-	4.4	0.6	40	-	-	5.6	-	-	121.7	-	-	-	-	-	-	-	-	6.8	6.1	1.8
Poultry meat consumers	**3**	-	-	9.9	-	-	0.2	0.2	-	-	-	-	0.5	1.3	44.3	-	0.2	-	-	-	-	-	-	-	-	-
Sheep meat consumers	**2**	-	-	-	-	-	0.3	0.3	-	-	-	-	0.5	2.9	-	-	0.2	-	-	-	-	-	-	-	-	-
Milk consumers	**5**	-	-	5.9	-	-	1.8	0.2	20	-	-	2.2	0.1	-	99.6	-	-	-	-	-	-	-	-	2.7	2.4	0.7
Mollusc consumers	**1**	-	-	-	-	10.7	-	-	-	-	-	-	-	-	-	6.9	-	-	-	-	-	-	-	-	-	-
Mushroom consumers	**7**	-	-	2.9	-	-	2.8	0.9	-	0.3	-	-	0.1	0.5	-	-	0.3	-	-	-	-	-	1.8	1.2	20.7	6.1
Occupancy IN water	**3**	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
Occupancy ON water	**2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	420	-	-	-	-	-	-	-
Occupants for plume pathways (inner area)	**1**	-	1	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-
Occupants for plume pathways (mid area)	**2**	-	1	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	140	-	-	-	-	-
Occupants for plume pathways (outer area)	**5**	-	1	7.7	-	-	0.2	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	7620	0.7	0.8	-	1.6
Green vegetable consumers	**5**	-	-	4.4	-	3.7	5.2	0.6	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	15.3	9.2	58.3	33.6
Other domestic vegetable consumers	**2**	-	-	-	-	9.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25.8	16.8	68.3	35.2
Potato consumers	**2**	-	-	8.9	-	-	9.6	1.2	-	1.1	-	-	-	-	-	-	0.1	-	-	-	-	-	12.1	5.9	116.7	35
Root vegetable consumers	**4**	-	-	5.5	-	4.6	6.5	0.8	-	0.6	-	-	-	-	-	-	0.1	-	-	-	-	-	17.9	10.8	72.4	40.8

Notes

[a]Expressed as the proportion of the profile members who are exposed to direct radiation.

[b]Gamma ext - sediment includes occupancy over sand; and sand and stones

[c]Game meat includes rabbits/hares

[d]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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