



Scotland's centre of expertise for waters

Impacts of winter 2015/16 flooding in and around Ballater and in the Garioch: overview of findings from Project Year 1





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Contents

1.	PROJECT DESCRIPTION	3
2.	CASE STUDY AREAS	3
3.	HOUSEHOLD SURVEY	4
	3.1. Survey design, sampling, administration and response rate	4
	3.2 Overview of key findings	5
	3.2.1 Response rate and key attributes of respondents	5
	3.2.2 Impacts of the winter 2015/16 flooding on respondents and their households	5
	3.2.3 Being aware of and preparing for flooding	6
	3.2.4 Sources of information relied upon	7
	3.2.5 Insurance cover	7
	3.2.6 One year on from the flooding	8
4.	BUSINESS SURVEY	8
	4.2 Garioch case study area Business Survey findings	9
	4.3 Ballater case study area Business Survey findings	10
5	INTERVIEWS	11
	5.1 Methodology	11
	5.2 Recruitment	11
	5.3 Recruited interviewees & attributes	12
	5.4 Interview procedure & analysis	12
	5.5 Key findings from the analysis of the Phase 1 interviews	12
6	REFERENCES	13

1 PROJECT DESCRIPTION

The purpose of the *Assessing the Impacts of Flooding* project is to better understand the impacts of flooding upon people and communities and to consider what types of support and advice are needed at different stages of a long term recovery. Over a 36 month period, the project will advance our understanding of these long term impacts, contribute to better flood risk management and make suggestions as to how personal and community resilience may be supported and enhanced.

Two communities in Aberdeenshire affected by flooding in December 2015/ January 2016 are the focus of the research. The Ballater area, in upper Deeside, experienced severe flooding for the first time in many years in late December 2015, flooding that was largely unexpected and which had a widespread impact on the community. The Garioch area (specifically Port Elphinstone and Kintore), on the River Don, has experienced many flood events and was badly flooded in early January 2016.

In year 1 of the project, data collection comprised three distinct elements:

- Household Survey conducted in both case study areas.
- Business Survey conducted in both case study areas

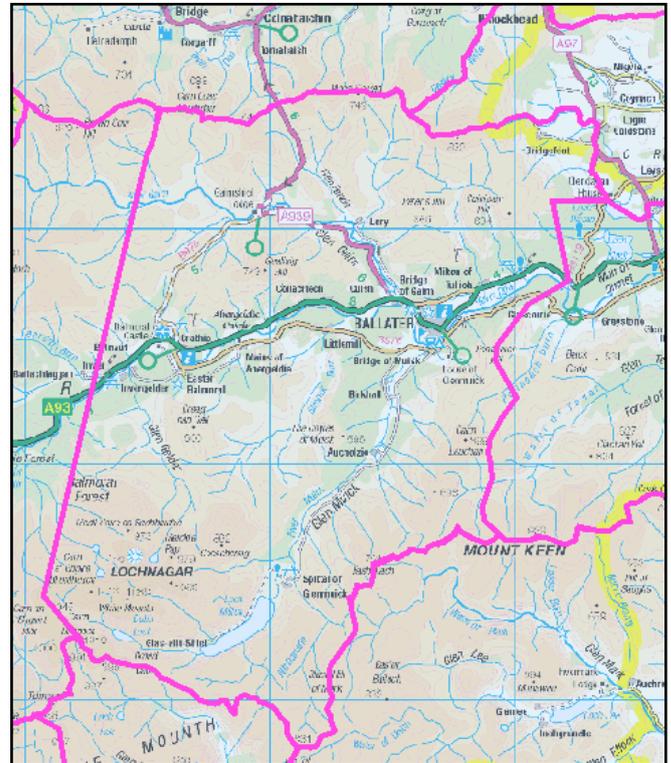
Interviews with residents and business owners/ managers in both case study areas, including interviews with those who were and were not directly affected by the winter 2015/16 flooding. This report provides information about the rationale and methodology supporting each data collection activity and an overview of key findings to date.

2 CASE STUDY AREAS

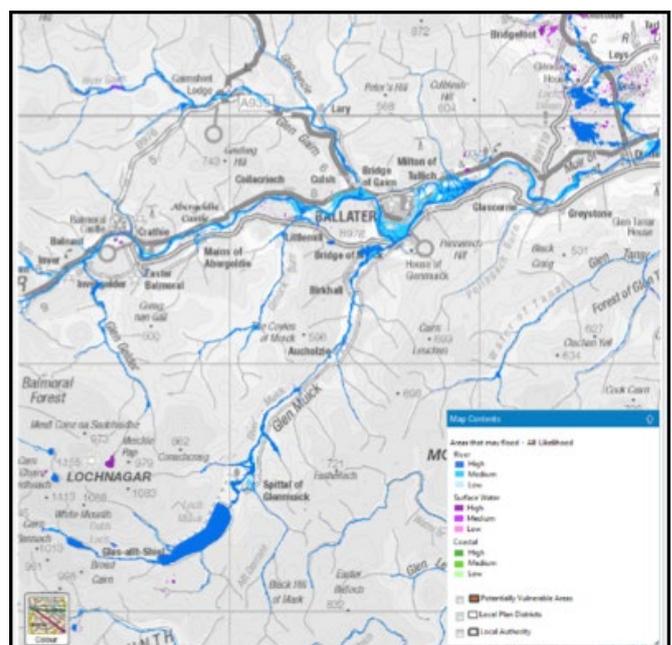
The Ballater case study comprises the area covered by Ballater and Crathie Community Council, which falls within Aberdeenshire Council Ward 15 Upper Deeside and Donside. In the immediate aftermath of the Ballater flooding the BBC reported 'hundreds of people evacuated from homes in Ballater, Aberdeenshire, due to flooding and power outage' (BBC 30 December 2015) and the Press and Journal reported on March 28th 2016 that around 300 Ballater properties had been flooded. Properties in 18 streets were affected (pers com, Aberdeenshire Council). It is not known how many properties in the rural areas of the Ballater and Crathie Community Council area (including Glenmuick, Glen Gairn, Crathie and Balmoral) were affected.

The Garioch case study comprises two adjacent communities, Port Elphinstone and Kintore. Both communities fall within Port Elphinstone and Kintore parish.

Community 1 comprises the area covered by the Port Elphinstone Primary School catchment area and a handful of properties directly adjacent to Port Elphinstone, on the east bank of the River Don and close to the confluence of the Rivers Urie and Don. Community 2 comprises the area covered by the Kintore Primary School catchment area that lies to the east of the A96 which bypasses Kintore.



Ballater and Crathie Community Council Area



SEPA Flood Map for the Ballater area

3 HOUSEHOLD SURVEY

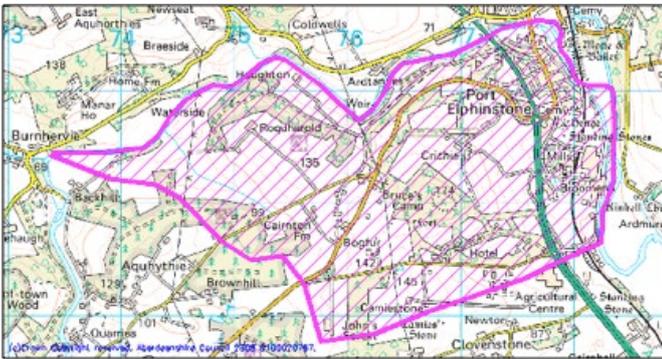
3.1 Survey design, sampling, administration and response rate

The household survey was designed to elicit attitudes and opinions from those directly affected by flooding and those who were not flooded themselves but who were affected by the disruption the flooding brought to their community. The survey included questions about previous flood experience; awareness of and preparedness for the flood event; household experiences of the flooding; impacts of the flood event in the immediate aftermath; information about any formal and informal help given or received following the flooding; and provided information that could inform planning for future flooding events. Two separate versions of the household survey were prepared, one for each case study area.

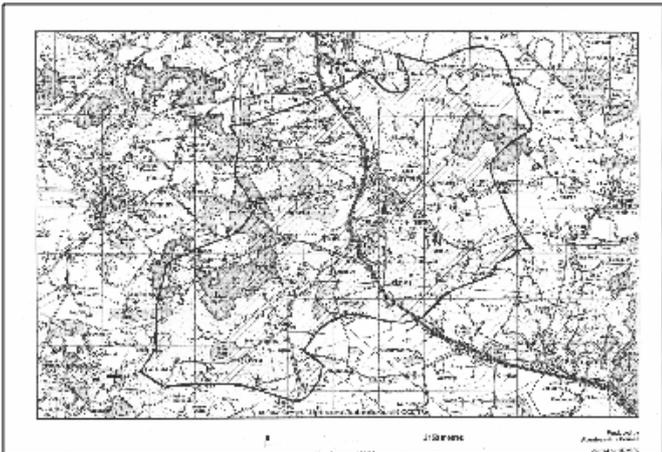
An innovative element of the survey was the use of questions asking respondents to consider various issues in terms of how things were before, during and after the winter 2015/16 flooding. This introduces a longitudinal dimension to the survey data that aligns with the longitudinal approach adopted for the interview-based phase of the research. Respondents were also asked to reflect on the sources of information they found most useful as the winter 2015/16 flooding unfolded, including questions on the use of online content, which could identify the potential role of online content in responses to future flood event.

A number of questions in the household survey replicated, or were based on questions used in previous research to allow a comparison with findings reported elsewhere. For example, some align with those used by Werrity *et al* in their 2007 study *Exploring the Social Impacts of Flood Risk and Flooding in Scotland*. Others are based on questions used in the Citizen's Advice Bureau's 2016 report *Bailed Out. Issues affecting flooded consumers and ability to access affordable insurance*, primarily those about household insurance.

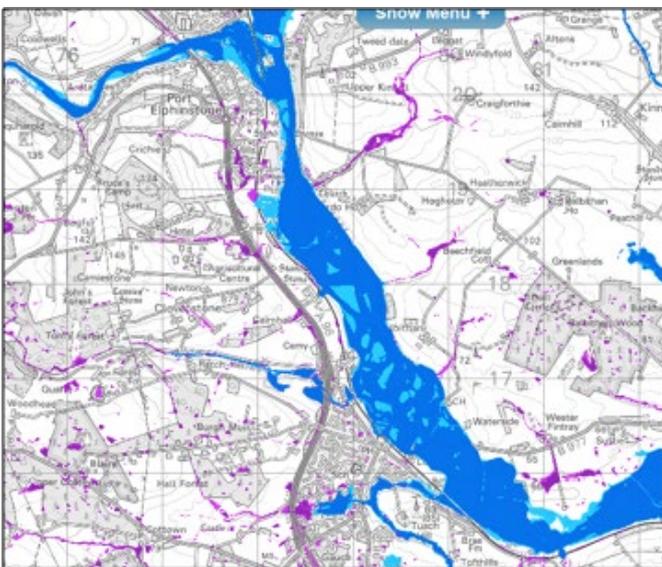
Four hundred hard copies of the household survey were distributed per case study area. The Garioch case study area comprises two adjacent but distinct communities, Port Elphinstone and Kintore and both were equally represented in the sampling frame. Many more households in Ballater had been flooded in winter 2015/16 than in Garioch. Households in flooded streets were oversampled in both communities in an effort to secure as high a number as possible of responses from flooded households. Most addresses were identified from the Open Electoral Register, the remainder were selected (a) in the field and (b) with reference to address finder to reflect the geographical distribution streets affected by flooding in both study areas.



Port Elphinstone Primary School Catchment Area



Kintore Primary School (pre 2017) catchment area



SEPA Flood Map for the Port Elphinstone and Kintore areas

Surveys in the Ballater case study area were administered at the beginning of April 2017. The survey covering letter requested that completed surveys be returned in the Freepost envelope provided within 3 weeks. A reminder letter was mailed, two weeks after the survey was distributed, to households known not to have responded. Surveys were mailed to Garioch addresses at the end of June 2017 and a reminder letter was sent three weeks later.

An online version of the household survey was launched to coincide with postal versions being mailed in both case study areas. The opportunity to complete a survey online was widely advertised locally (e.g. displaying posters in shops and other public places, articles in the local press, sharing details on the project webpage/Facebook page, etc.). It is unknown if those who completed the online version of the household survey had also received a hard copy. Details of the responses achieved are set out in Table 1.

In total, 277 useable Household Survey responses were received across the two case study areas. Similar numbers were received from Ballater (n = 144) and from Garioch (n = 133).

The homes of half the respondents to the survey (n = 131) were flooded in winter 2015/16. The homes of two thirds of respondents from Ballater (n = 89, 65.9%) had been flooded. Far fewer Garioch respondents had been flooded (n = 42, 34.1%).

Table 1: Responses to the household survey

	Completed surveys	Completed in hard copy	Completed online
Ballater	144	134	10
Garioch	133	119	14
Total	277	253	24

3.2 Overview of key findings

3.2.1 Response rate and key attributes of respondents

Response rate. 800 surveys were distributed, 400 in both the Ballater and Garioch case study areas. 253 completed surveys were returned (a 31.6% response rate). The online version of the survey received 24 submissions. The household survey data set comprises 277 completed and useable surveys with very similar returns for both case study areas.

Respondents directly affected by the winter 2015/16 flooding. 62% of respondents had been directly affected; and approximately half (51%) were flooded. The homes of 89 Ballater respondents, two thirds of the respondents from this case study area, were flooded. In Garioch the homes of 42 respondents, one third of all Garioch respondents,

were flooded. In Ballater only 20% of respondents reported that 'no property was flooded'. In Garioch many more respondents, 58.5%, had not had direct experience of their property (home, garden, outbuildings, car, land) flooding in winter 2015/16.

Demographic attributes of respondents. Slightly more men than women responded to the household survey. Almost half of the respondents were aged 65 and over; older adults are over-represented in both the Ballater and Garioch sub-samples. Half of all respondents were retired. 46% were employed, with self-employment being more common in Ballater than in Garioch. The income profiles of respondents from both study areas were similar and broadly in line with what would be associated with Aberdeenshire as a whole (Aberdeen City Council, 2015).

Attributes of respondents' homes. 96% of respondents had their main place of residence in the case study areas. Eleven respondents were second home owners, all but one were from Ballater. Three quarters of respondents were owner occupiers. A larger proportion of social tenants from Ballater than Garioch responded to the survey and in Ballater a larger proportion of flooded households were social tenants than was the case in Garioch. The homes of respondents were of a variety of types (detached, semi-detached, one storey, two or more stories etc.) and were of a variety of ages and construction types. There were no statistically significant differences between flooded households and non-flooded households or between all respondents from each case study areas with respect to type, age, tenure status, length of time lived in current house or house construction.

3.2.2 Impacts of the winter 2015/16 flooding on respondents and their households

Temporary accommodation. Of those respondents whose homes were flooded, most made use of temporary accommodation following the flooding. Two thirds of respondents from flooded homes were unable to return to their own homes for more than six months after the flooding. Respondents from Ballater were more likely than those from Garioch to have been out of their own homes for more than nine months. More than half of the respondents who used temporary accommodation stayed in more than one place whilst out of their own homes and the number of temporary places used increased with the length of time respondents were unable to return to their own home. Temporary accommodation was most commonly staying with friends or neighbours or renting privately. The location of temporary accommodation was most commonly near the respondent's home.

Time off work. A fifth (20.6%) of all the economically active respondents, 11 in Ballater and 10 in Garioch, were given time off work because their place of work was closed

due to the flooding. A quarter of employees took time off work because of the flooding, but only 6% of the self-employed respondents took time off. A third of the economically active respondents whose home was flooded took time off work with the same numbers being given paid compassionate leave and taking paid annual leave/using flexi-time accrued leave. Of the economically active respondents whose homes were flooded, a fifth took some unpaid leave from work.

Emergency grant funding. In total ninety one respondents, 42.3%, applied for and received a post-flooding emergency grant from Aberdeenshire Council. More Ballater than Garioch respondents applied for and received an emergency grant, 59 (56.5%) and 32 (36.4%) respectively. Recipients spent their grants on purchasing replacement household items (53 respondents), repairs and refurbishments to their home (23 respondents), covering additional living costs (19 respondents), covering additional costs associated with living in temporary accommodation (14 respondents) and installing flood defence/resilience measures (13 respondents).

Assistance before, during and after the flooding. Assistance was provided from a wide range of sources before, during and after the flooding to both those whose homes were and were not flooded in both case study areas. For those who were flooded, friends and neighbours in the locality were important sources of assistance in all three periods, peaking during and immediately after flooding. Formal assistance, from organisations including insurance companies, and the Scottish Flood Forum was most important for those who were flooded in the weeks that followed the flood events in both Ballater and Garioch. Respondents from Ballater were much more likely than those from Garioch to report that no assistance had been provided from any source immediately before the flooding.

Concerns about flooding. Most respondents rarely or never worried about flooding before winter 2015/16. After these events many more respondents, in both study areas, reported that they 'often worry' about flooding than they previously had. Unsurprisingly those respondents whose homes had flooded worried the most. Garioch respondents whose homes had flooded worried more about flooding now than did those who were flooded in Ballater.

3.2.3 Being aware of and preparing for flooding

Personal, direct experience of flooding before winter 2015/16. Respondents from the Garioch case study area were the most likely to have personal, direct experience of flooding before winter 2015/16, unsurprising given the flood history of this area. Thirty percent of respondents to the survey had experience of flooding prior to winter

2015/16, 24% of Ballater and 36.6% of Garioch respondents respectively. Some had experienced flooding in the place they currently lived in (31 respondents, 23 of whom lived in the Garioch case study area). Others had experience of flooding when living elsewhere (10 respondents). The gardens/outbuildings/garages of 12 Garioch and 3 Ballater respondents had been flooded before. The houses of three respondents who were flooded in winter 2015/16 had been flooded before.

Perceptions of flood risk in Ballater and Garioch – before winter 2015/16. Garioch respondents reported higher awareness of the potential risk of flooding in their area than Ballater respondents; fewer Garioch than Ballater respondents had never thought about flood risk in the case study area.

Awareness of SEPA's flood risk maps and of Floodline. At the time the Ballater and Garioch surveys were completed, most respondents (84.4%) were aware of SEPA's flood risk maps. Ballater respondents were slightly more likely than Garioch respondents not to be aware of these maps (19% compared with 14.1%). Only 2 Garioch respondents, 5% of those whose homes were flooded in winter 2015/16, were not aware of SEPA's flood risk maps at the time they completed the household survey. A much higher number of flooded Ballater respondents, 18 (21.4% of those whose homes were flooded in Ballater) were unaware of the flood risk maps when the household survey was completed. Awareness of Floodline was higher at the time respondents completed a household survey than it was before winter 2015/6 flooding in both case study areas i.e. it appears that people become more aware of Floodline when they have had direct experience of flooding in their community. Awareness has increased most in Ballater, especially amongst those respondents whose homes were flooded. Many more Garioch respondents whose homes were flooded had been registered to receive a local flood warning from Floodline before the 2015/6 flooding (46.3% compared with 13.4% respectively). Registrations to receive local flood warnings have increased notably since; in Ballater registrations have more than doubled and in Garioch registrations have increased by a third. Despite registrations amongst those whose homes had flooded increasing in both case study areas, those who were flooded in Garioch are more likely to be registered for a local flood warning than those in Ballater.

Being alerted to the risk of flooding. Watching river levels rising and being alerted by neighbours were the most common ways by which respondents were alerted to the risk of flooding during winter 2015/16. Garioch respondents were much more likely to have been alerted to the risk of flooding, by any method, than those from Ballater.

Flood resistance measures. Half of all respondents had not taken any flood resistance measures before the winter 2015/16 flooding. Respondents whose homes were flooded

in Garioch were much more likely than Ballater respondents to have taken at least one flood resistance measure before the flooding, likely a reflection of greater awareness of and/or previous experience of flood risk in parts of the Garioch case study area. During the winter 2015/16 flooding Ballater respondents whose homes were flooded were less likely than those in Garioch to have taken any flood resistance measures, perhaps reflecting more ready access to sand bags and removable flood guards in Garioch. After the winter 2015/16 flooding more Ballater than Garioch respondents had purchased removable flood guards for doors and/or windows.

Flood resilience measures before and during the winter 2015/16 flooding. During the winter 2015/16 flooding more Ballater respondents took no flood resilience measures than Garioch respondents. This could be because there was less time to respond to an imminent flood risk in Ballater, because Garioch respondents were more prepared to take action in advance of an imminent flood event or because more flood resilience items such as sand bags and removable flood guards were available for distribution in Garioch than in Ballater.

Flood resilience measures after the winter 2015/16 flooding. Respondents who rented their homes (special and private tenants) reported that they had been unable to take many flood resilience measures because they were tenants and thus not allowed to make changes such as moving electrical sockets themselves. Responses to the 'other, please state' option to the question about flood resilience revealed that a number of respondents in both Ballater and Garioch whose homes had been flooded have changed their practices to be better prepared in the event of future flooding.

3.2.4 Sources of information relied upon

Useful sources of information. Before the flooding weather forecasts, TV news and neighbours were the most useful sources of information for Ballater respondents. In Garioch, social media postings, radio news and announcements and watching river levels rising were the most useful. During the flooding Ballater respondents found neighbours, social media posts and TV news the most useful sources of information; in Garioch, social media posts, radio news and announcement and TV news were the most useful. Up to a month after the flooding TV news and social media posts were the most important sources of information in both case study areas. In Ballater, neighbours remained important source of information.

Difficulties obtaining information. Disruption associated with not having power and/or access to fixed and mobile telecommunications was common during and - most especially in Ballater - for up to a month after the flooding.

During the flooding 44.9% of respondents were without a home telephone connection, 65.9% had no electricity at their home and 47.4% had no functioning home broadband. Coupled with the fact that 26.9% had no functioning mobile Internet signal and 21.7% had lost the ability to make or receive mobile phone or text messaging services, the disruption to utilities would have made it difficult for many respondents to obtain information such as TV news as the flood event unfolded. Many respondents would also have been unable to send and/or receive updates, offers for help and general messages voicing concerns and offering support from friends and family. With utilities being out of operation it would also be difficult to get in touch with emergency services and, post flooding, with insurance companies. Disruption to utilities continued for up to a month after the flooding for a sizeable minority of respondents: 29.7% had no home telephone, 26.3% were without electricity in their home, and 28% did not have functioning home broadband. In Ballater 17.3% of respondents had no mobile internet signal for up to a month after and thus did not have their telecommunications option available as an alternative to a home phone line.

Online sources of information. Before and during the flooding Garioch respondents were more likely than Ballater respondents to use online sources of information. Those who used online sources of information in Ballater made most use of online Met Office or another providers weather forecasts (24%), Facebook, SEPA's website and online news from a TV broadcaster (all 14.8%). In Garioch more than half of respondents used Facebook (especially the Aberdeenshire Facebook group 'Fubar'), Met Office or another weather forecast was used by 46.7% and online news from a TV broadcaster was used by 31.5%. Imminent flooding in Garioch was well reported in the local press and 28.3% of Garioch respondents had obtained information from online local news providers (e.g. the local evening paper, the Evening Express). The only difference in the use of online sources of information between respondents whose homes were flooded and those whose homes were not flooded was that flooded households were the most likely to make use of information on SEPA's website after the winter 2015/16 flooding.

The trustworthiness of information. The most trusted sources of information were officials who knocked on the door and information disseminated by Police Scotland and by SEPA. Garioch respondents were more likely than Ballater respondents to regard these information sources as highly trustworthy.

3.2.5 Insurance cover

Insurance cover. Almost all respondents held the same type of home insurance before and after the winter 2-15/16

flooding. Combined contents and building insurance that included cover for flood damage was held by 70.8% of respondents before and 72% of respondents after the winter 2015/16 flooding. A contents only policy was most commonly held before and after the winter 2015/16 flooding by respondents who rented their home (social and private renters).

Insurance claims. Of those respondents whose homes were flooded in winter 2015/16, 37.2% made claims in excess of £60,000.

Securing insurance in an area that has experienced flooding. Most respondents found their home insurance payments affordable, but a quarter reported that payments were just manageable, something that could only be afforded by making savings elsewhere. Although Ballater and Garioch households are, on average, more affluent than the average Scottish household, these areas are also home to a sizeable minority of households on low incomes whose financial challenges associated with flooding should not be overlooked or ignored by assumptions that all Aberdeenshire residents are comparatively affluent.

3.2.6 One year on from the flooding

Respondents were asked to identify what impact a number of issues associated with flooding had had on them, as an individual. Ballater respondents reported being more seriously affected than Garioch respondents by the discomfort or inconvenience they experienced while returning their property to its pre-flood condition (e.g. dealing with builders, decorators, etc.), and were also the most severely affected by the time and effort required to repair and renovate post-flooding. Deterioration in physical health was reported by many respondents (59.3%) and this negative impact was most severely felt by Garioch respondents.

Respondents were invited to describe 'other' things associated with flooding that had a significant impact on them; twenty seven respondents provided a response to this question and listed forty two things they felt had significantly impacted upon them during the previous year. These responses highlighted serious negative effects associated with homes being repaired (for seven respondents), six respondents directly linked the death or serious illness of loved ones to the flooding), and four respondents, all from Garioch, noted challenges they had experienced dealing with officials and statutory bodies, challenges that suggest tensions between the expectations of some local residents and the decisions made by officials

and statutory bodies. The impacts of the flooding on the wider community are illustrated by references made to feelings of 'survivor guilt' (people whose homes were not flooded felt guilty that they did not experience the disruption and upset friends and neighbours whose homes were flooded went through), and the stress experienced by those whose homes were not flooded but who provided help and support to those who were.

4 BUSINESS SURVEY

The project had resources to deploy a postal survey to 50 businesses in both of the two case study areas. In addition, an online version of the survey was prepared for both case study areas and its availability advertised in a variety of media (e.g. posters in local shops, advert in local press, and notification on project Facebook page). Details of businesses operating in both areas were identified from scrutiny of entries in Yell.com, Near.com, Facebook and media reports of the winter 2015/16 flooding in which some businesses affected by the flooding were named. These business (152 in Ballater, 185 in Garioch, of which 47 were in Port Elphinstone and 138 were in Kintore) were classified according to the using the fourteen business categories used by the Scottish Government in the *Rural Scotland Key Facts* sections on the Economy¹ (Scottish Government, 2015). These comprised the sampling frame for the postal survey, from which a sample was derived to reflect the following parameters:

- (a) to proportionally represent businesses according to the relative importance of each of the 14 businesses categories in each case study areas
- (b) the streets of Ballater/ Port Elphinstone and Kintore known to have been flooded in winter 2015/16
- (c) those business located in the 'rural' areas within the two case study areas in an attempt to capture land based businesses affected by the flooding
- (d) the Garioch sample was split into two parts so that 25 were from the Port Elphinstone area and 25 from the Kintore area.

In remote rural Scotland, approximately a fifth of those who are economically active are self-employed, many of whom run a business from their home. In an attempt to capture such businesses, each copy of the Household Survey that was administered in Ballater had a Business Survey included in the documentation householders received. Sixteen Business Surveys were completed and returned alongside a Household Survey. The proportion of self-employed in the

¹ The 14 business categories are: Public/charity; Education, health and social work; Other activities (arts, publishing, photography, genealogists, places of worship); Financial, insurance, solicitors and real estate; Accommodation, catering or beverage only services; Transport, storage and communication (including post offices); Construction/Planning; Manufacturing; Agriculture, forestry and fishing; Wholesale, retail and repair (including car repairs); Tourism; Hair/beauty/fitness; Home improvements, Joinery, Plumbing; and IT, technology, business services

Garioch study area was known to be much lower, and in light of the low number of Business Surveys returned with household surveys (16 out of the 400 that were distributed) it was decided that including a copy alongside the Garioch Household Survey was not worthwhile. Instead the Garioch Household Survey participant information sheet was amended to note that if recipients ran a business there was an opportunity of them to complete the Business Survey online. Unfortunately no online responses were received to the Garioch Business Survey. The responses achieved are set out in Table 2.

	Completed and returned with a Household Survey	Mailed	Completed online
Ballater	16/400	10/50	2
Garioch	na	6/50	0
TOTAL	16	16	2

In total 32 useable completed Business Surveys were returned. The difference in numbers returned from Ballater and Garioch (28 and 6 respectively) mean that comparative analysis is not appropriate.

4.2 Garioch case study area Business Survey findings

Six useable responses to the Garioch Business Survey were received. All were completed and returned following the Garioch Business Survey mailing, a 12% response rate. None were completed online. The respondents represented five of the business categories used to compile the sampling frame (see Figure 1). One business, a farm shop, straddles two categories. Two businesses were run from within Port Elphinstone, three from within Kintore, and one from within five miles of Port Elphinstone/Kintore. Two of the six businesses were run from their owner's home.

- Agriculture, Forestry and Fishing: Farm; Farm Shop (n = 2)
- Education, health and social work: Counselling and therapies for trauma (n = 1)
- Manufacturing: Blacksmith's business (n = 1)
- Other activities: Childminding (n = 1)
- Wholesale, retail and repair: Post Office/ General Store; Farm Shop (n = 2)

Figure 1 Types of business for which a completed survey was received

Respondents were invited to provide responses based on the experiences of their *main* business. Four respondents only ran a single business, two ran more than one but did not specify how many. One business had been operating for 1-5 years, two had operated for 6-10 years, one had operated for 11-20 years and two had operated for more than 20 years. Four businesses provided an estimate of their annual turnover, this totalled £368,500. None of the respondents to the Garioch Business Survey reported that the winter 2015/16 floods had had a detrimental impact on their 2016 business turnover. Only one of the responding businesses was directly affected by the flooding – land owned or rented by this business was flooded. This land was not usable for between 1-4 weeks after the flooding.

Before winter 2015/16, only one of the six Garioch businesses that responded to the survey felt their business premises could be adversely affected by flooding. After the flooding, three thought they could be adversely affected.

Only two businesses took action to protect their main business premises before the winter 2015/16 flooding; one was located in Port Elphinstone, one in Kintore. Three businesses took action during the flooding, one of which was located in Kintore and two were located in Port Elphinstone. The actions taken are reported in Table 3.

	Before the winter 2015/16 flooding	During the winter 2015/16 flooding
Respondent took no action	4	3
Deployed sandbags they purchased	0	0
Deployed flood guards or other defences they purchased	0	0
Deployed Council sandbags	0	1
Deployed Council flood guards or other defences	0	0
Moved stock or equipment upstairs (if possible)	0	1
Moved stock or equipment out of business premises	0	0
Staff vacated premises	0	0
Livestock were moved	1	1
Business vehicles were moved to higher ground	0	0
Other action taken*	0	0

In the week following the flooding one Garioch business was affected by disruption to utilities, one had fewer local customers than normal and two were affected by other reasons associated with the wider disruption in the area. Longer term disruption was not experienced by any Garioch businesses that responded to the survey. No staff salaries had to be paid whilst the businesses ability to trade was disrupted by the flooding.

None of the Garioch business applied for Emergency Grant Funding although two were aware that this funding was available. One business applied for but did not receive Additional Business Compensation; two businesses were aware of this funding source but did not apply.

4.3 Ballater case study area Business Survey findings

Twenty eight useable responses to the Ballater Business Survey were received. Sixteen were completed and returned alongside a Household Survey, ten were returned following the Business Survey mailing (a 20% response rate to this mailing) and two were completed online. The respondents represented ten of the fourteen business categories used to compile the sampling frame. Some businesses straddle two categories (Figure 2).

- Accommodation and catering : 2 x Bed and Breakfasts; Caravan site; Commercial landlord; Guest House; Self-catering holiday let; cafe (n = 7)
- Agriculture, Forestry and Fishing: Trout Fishery; Sporting estate with tourism (n = 2)
- Education, health and social work: Optician (n = 1)
- Financial, insurance, solicitors and real estate: Solicitor, Accountant and financial services (n = 2)
- Hair, beauty, fitness: Golf Club (n = 1)
- Home improvements, Joinery, Plumbing: glaziers workshop (n = 1)
- Other: 2 x publishing services; artist (n = 3)
- Tourism: Trout Fishery; Sporting estate with tourism; Golf Club (n =)
- Transport, storage and communication: Garage
- Wholesale, retail and repair: 3 x Retail outlets; Gift Shop; Butchers and caterers; home furnishings; interior design/decoration; Laundry (n = 8)
- Not stated: (n = 1)

Figure 2 Types of business for which a completed survey was received

Most businesses (n = 23) were run from within Ballater, three from close to Ballater and three from more than 11 miles away. Eleven businesses were run from their owners' home.

Respondents were invited to provided responses based on the experiences of their *main* business. Most respondents only ran a single business. Four respondents ran their main and one other business, one respondent did not report how many other businesses they ran. Eighteen businesses provided an estimate of their annual turnover, this totalled £5,888,000.

Only five of the twenty eight responding businesses reported that the winter 2015/16 floods had not had a detrimental impact on their 2016 business turnover. Nineteen reported a more than 10% reduction in turnover, and nine reported that their turnover has decreased by more than 30%. Reductions in turnover were not confined to businesses that were flooded: the impact of fewer tourists and a decline in local trade in the months following the flooding was widespread. The financial losses to local business associated with the winter 2015-16 flooding in the Ballater area was considerable. Although only 18 respondents provided an estimate of their annual turnover and an indication of their 2015-16 loses directly attributable to the flooding, these losses fall in the range £780,000 - £1,190,000.

The responding businesses were affected by the flooding in different ways, the most common impact being that commercial premises were flooded. Amongst the respondents were three whose business was run from home and whose home was flooded.

Six businesses took action to protect their main business premises before the flooding and thirteen took action during the flooding. Two businesses took no action and reported that there was 'no time for action' and 'too late, it was all ruined in the flood'.

Half of the responding businesses did not experience any disruption to their ability to trade following the flooding, but fourteen did. Of these, six could not trade for more than 3 months and one was still not trading at the time of the survey, seventeen months after the flooding. For those business that were not directly affected, indirect impacts were felt, most noticeably both a downturn in local customers and loss of tourist trade that some business felt they still needed to re-establish almost a year and a half after the flooding.

Eleven responding business had applied for and received Emergency Grant Funding and seven had applied for and received Additional Business Compensation. Both forms of financial assistance were used for similar activities including refurbishment of commercial premises, clearing premises / sites post flooding, staff wages, dehumidifiers etc. to dry

out property, other maintenance and the installation of flood defences. Three businesses received financial assistance from other sources, including Foundation Scotland and from other local business and residents.

Respondents to the survey were asked to report what they thought the most significant challenges their business had to overcome following the flooding. Six broad themes were identified:

- (i) Loss of trade/ custom (for thirteen businesses)
- (ii) Impacts of dealing with insurance companies and tradespeople during post-flooding refurbishments etc. (for nine businesses)
- (iii) Having to re-establish business (for 6 businesses)
- (iv) Renovations and refurbishment (for four businesses)
- (v) Drop in income, difficulties in paying staff salaries and cash flow problems (for three businesses)
- (vi) Clean up operations (for two businesses)

5 INTERVIEWS

This project includes three phases of semi-structured interviews with the same individuals being interviewed in each successive year to allow changes through time to be identified. The first phase took place between May and October 2017, commencing after more than a year had elapsed since the flooding. The second phase of interviews will be conducted in 2018 and the third phase is scheduled to take place in 2019, a full four years after the winter 2015/16 flooding. Although there have been other UK studies (e.g. Werrity *et al*, 2007; Carroll *et al*, 2008 & Medd *et al*, 2014) considering the impacts of flooding on individuals, these research projects have not adopted a long-term perspective. This study, by adopting a longitudinal perspective, is thus unique and will generate information about the long term impacts of flooding for the first time.

In this section, results from the first phase of interviews are reported. The first phase of interviews was conducted with individuals who both lived in and/or held prominent positions within the case study communities and with local business owners/ managers in Ballater and Garioch. Forty interviews were conducted in Ballater, 37 in Garioch. In the subsequent phases fewer interviews will be conducted in each case study areas: at least 25 interviewees in each area will take part in all three phases of interviews. The interviews were designed to elicit detailed, autobiographical accounts of the short and longer term impacts of the flooding. Interviewees were selected purposively to be illustrative of the attributes of those living in the case study

area communities (in terms of age, gender, household composition, house tenure, economic status etc.). The interviewees include those who were directly affected by the flooding, including people who had been displaced from their homes because their property was badly flooded, and individuals who lived in the case study areas and were affected by the wider disruption the flooding brought about.

5.1 Methodology

The interviews were conducted between May and October 2017, 16 to 22 months after the winter 2015/16 flooding had affected the two case study communities. The interview topic guide was informed by a rapid literature review and input from the project steering group (who included representatives from Scottish Government's Flooding and Resilience teams, Scottish Environment Protection Agency, Aberdeenshire Council, Scottish Flood Forum and the National Health Service). Pilot interviews were conducted with volunteer interviewees who did not live in the case study areas, but who had direct experience of flooding during the last 10 years. Their feedback informed review and refinement of the interview topic guide, reinforced how traumatic an experience such as flooding can be and highlighted the importance of interviews being conducted with extreme sensitivity.

The final interview topic guide covered three broad themes:

- attributes of the interviewee's household;
- interviewee's experiences of the winter 2015/16 flooding (including immediately before, on the day of the flooding, the immediate aftermath and in the months that followed); and
- impacts of the flooding on the individual interviewee, their household and wider community

5.2 Recruitment

Interviewees were recruited via six methods, as described below.

1. Following-up contact details provided in responses to the Household and Business surveys by participants who had volunteered to participate further in the project.
2. A "snow-balling" approach, where interviewees or other key informants from the case study communities (e.g. local minister, members of the local community council) suggested potential participants and obtained consent for their contact details to be given to the project team.
3. Following up expressions of interest to participate in the research received from members of the public who had contacted the project team after becoming aware of the

research via various forms of publicity including an article in *The Scotsman*, short articles about the study published in local newspapers (*The Deeside Piper* and *The Inverurie Herald*), a radio interview with one of the project leads broadcast on the BBC Radio Scotland programme *Out of Doors*, as well information on the project's *Facebook* page (www.facebook.com/floodingimpact/).

4. Displaying recruitment posters in many public places, including shops and cafés, in both case study areas and following up enquiries received by members of the public who read these materials.
5. Issuing a call for participants at a community event about the winter 2015/16 flooding in Ballater.
6. Reviewing news reports available online (e.g. BBC News articles, Press and Journal articles) and scrutiny of public social media posts about the winter 2015/16 flooding in Ballater and in Garioch to identify potential participants from those who were featured in reports as having been affected.

5.3 Recruited interviewees & attributes

In total, 77 interviews were conducted. Most interviews (60) were conducted with a single person; 17 interviews were with couples. The views of 94 people were thus recorded by the research team. More women than men were interviewed and the majority of interviewees were aged over 40. Most interviewees had experienced their home being flooded. Interviewees represented varied socio-economic and demographic attributes in terms of home ownership, level of education and employment status. All but a couple of the Ballater interviewees lived in Ballater itself (second home owners whose property had been flooded were interviewed). All but one interviewee from the Garioch area lived in either Port Elphinstone or Kintore. One lived in Inverurie, which lies on the opposite side of the River Don to Port Elphinstone, and was interviewed because this individual had been central to organising and coordinating assistance for Garioch flood victims.

5.4 Interview procedure & analysis

Interviewees were provided with a participant information sheet and provided informed consent prior to their interview taking place. The interviews were conducted by one of two members of the research team who each led approximately half of the interviews conducted in each case study area. This ensured consistency in approach. Most interviews were between one and one and a half hours in duration. The majority of interviews were conducted in the homes of interviewees, some were held at a location more convenient for the interviewee or were conducted over the phone. All

but one of the interviews were recorded and transcribed in full. The exception was an interview that took place outside, resulting in background noise that meant transcription would have been very difficult: thorough notes were written up after this interview. The content of each transcribed interview was coded under themes (18 themes were used in all, but not all applied to content in each interview), including 'The day of the flood', 'The days following the flood', 'Action about current or future flooding', 'Voluntary and statutory agencies, service providers and community groups', 'Temporary accommodation' and 'Health and wellbeing'. Each code was then analysed, informing the preliminary key findings which are discussed below.

5.5 Key findings from the analysis of the Phase 1 interviews

People in the water: In both Ballater and Garioch there were accounts of people (both from the emergency services and members of the community) being in the flood waters, some of whom were old and vulnerable. Some interviewees stated that they were almost swept away by the sheer force of the water. It is remarkable that no lives were lost in either case study area on the day of the floods.

Insurance: The homes and business premises of the majority of interviewees were covered by insurance. Interviewees experiences post-flooding with insurance companies and associated parties related to the renovation process were very varied.

Health and Wellbeing: Many reports of the flooding affecting health and wellbeing were given. One example of this was increased stress, which many interviewees discussed as being associated with being flooded, or living within a flooded community and being indirectly affected by the aftermath of the winter 2015/16 flooding. The main sources of stress were: seeing a home or community destroyed by the flooding; dealing with companies involved in renovating a property; staying in temporary accommodation; receiving adequate support and/ or counselling from friends, family or relatives or professionals; and heavy rainfall invoking feelings of worry. Other aspects of mental and physical health were discussed as being affected by the flooding, as well as "survivor guilt", felt among both those whose homes were and were not flooded.

Temporary Accommodation: Interviewees who had used temporary accommodation noted how unsettling it was for them and other members of their household. The disruption was most acute for interviewees who had been in temporary accommodation for the longest period of time, and for those who had stayed in multiple places. Challenges associated with securing accommodation that would accommodate pets, finding accommodation in a suitable place for continuing to travel to work and to their own property, as

well as difficulties in being able to feel as relaxed as one would in their own home were discussed by interviewees.

Community: In both Ballater and Garioch, the local communities pulled together during the flooding: justifying many accounts describing the presence of “community spirit”. Overall, quick voluntary responses were made by members of the community to help flood victims in both areas, including organising the provision of emergency accommodation on the night of the flood and the successive co-ordination of donations. Some interviewees felt that improvements could be made by local responses. The experiences of winter 2015/16 have left the communities affected by flooding better prepared to respond to a future emergency situation.

Statutory and Voluntary agencies: The presence of members from these agencies at the time of the flood was important for interviewees. Absences in attendance were noted, yet awareness of resources being spread thinly due to floods elsewhere was also appreciated. Interviewees felt that statutory agencies need to be in attendance during an emergency situation such as flooding and that they need to be visible and proactive. It is imperative that clarity is provided to communities as to what the roles and responsibilities of statutory and voluntary agencies are. It is also crucial that promises are not made to community members that cannot be kept.

Emergency Grant Funding: The distribution of emergency grant funding from the Scottish Government intended to help households directly affected by flooding was co-ordinated by local councils. The availability of emergency grants was viewed positively. Many interviewees stated that the flood led to additional expenses, over and above those covered by insurance. There was misunderstanding and disagreements between some landlords and tenants regarding which party was eligible to receive and/ or claim emergency grant funding.

Co-produced responses: There were calls from interviewees for statutory agencies to work more effectively with the local community, to develop co-produced options that were supported and viewed positively by the community. Such a call was most noticeable in Garioch where there was a perception that nothing has changed since 2002 when the community last experienced a serious flood.

Public figures: In the aftermath of the winter 2015/16 flooding both the Ballater and Garioch areas were visited by prominent public figures including Prince Charles, the First Minister Nicola Sturgeon and the then local MP Alex Salmond. Visits by public figures were thought to have boosted morale.

This brief overview of findings from the Year 1 interviews provides an insight into the wealth of information gathered so far, and which will provide the foundation for the two remaining data collection phases and will be used to inform

policy recommendations at the end of this 3-year project. The researchers would like to take this opportunity to thank everyone who has participated so far.

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