

**Improving Urban
Waterway Health: local
public perceptions of
stormwater and the
Okeover Stream,
Christchurch**

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1 Introduction and Background

Environment Canterbury, the Regional Council, is currently running a programme called *Improving Urban Waterway Health*, which is included in the Long Term Council Community Plan and is intended to focus initially on Christchurch urban waterways and then move to other urban waterways throughout Canterbury.

This programme has many aspects and brings together projects led by different sections of Environment Canterbury, with the common goal to improve the health of urban waterways. The project that this phone survey is part of is called Community Education and Engagement, which has three components:

- 1) General awareness-raising.
- 2) Develop and pilot education and engagement tools at sub-catchment level at Okeover Stream with the University of Canterbury.
- 3) Acting on other opportunities as they arise.

The phone survey is part of component two, in which education and engagement tools will be developed with the local community and piloted on the Okeover Stream catchment, which is a sub-catchment of the Avon River. This component is being run jointly by Environment Canterbury and The University of Canterbury. It is hoped that component two will tell us whether many people in the local community do want to engage in actions to improve the health of their local waterways and how people might like to participate.

This phone survey serves multiple purposes. It will:

- 1) Inform as to whether or not people are interested in the health of their local stream;
- 2) Provide an understanding of the local community's current perceptions, knowledge and behaviour around the stream and stormwater;
- 3) Serve as an evaluation tool. It will provide a baseline of the local community's understanding and willingness to undertake activities to improve the health of Okeover Stream, which can be re-surveyed once tools have been rolled out.

Furthermore, the phone surveys serves as a method to recruit residents of the Okeover Stream catchment for focus group work, at which the local community's knowledge, perceptions and understanding of the stream and stormwater will be explored in more detail and potential education and engagement tools discussed with them before being rolled out.

Previous social research work done or contracted by Environment Canterbury has assisted in the development of this survey:

- A face-to-face survey among users (walkers, joggers, fishers) at the rivers: *Reality versus Perceptions: User Perceptions of the Avon and Heathcote Rivers* (2007) by Sarah Dodson, University of Canterbury.
- A phone survey of Christchurch residents about their perceptions and understanding of river and stormwater system and rating of importance of healthy city rivers and desire to be involved in any river improvement: *Market Research of The River Guardian Project – Perceptions among the General Public* prepared by Opinions Market Research Ltd for Environment Canterbury (2007).
- A literature review of approaches to education awareness raising and behaviour change around waterways: *Approaches to Public Involvement in the Management of Urban Rivers and Estuaries Behaviour Change Participation* by Taylor Bains & Associates for Environment Canterbury (2007).

2 Research Objectives

The primary initial objectives of the research among the Okeover Stream community are fivefold:

- Perceptions of the health of the Okeover Stream (Do residents believe the stream is polluted or healthy, to what extent, and what causes this state?)
- Understanding of the waterway and stormwater system (What is stormwater? Where does it come from? Where does it go?)
- Current behaviour around potential stormwater polluting activities.
- Desire to be involved in any stream improvement and if so, to what extent?
- Rating of the importance of the health of the city's rivers and perceived benefits.

2.1 Limitations

There are several limitations to this research. The limitations mainly refer to the sample selection and the sample's limited ability to represent all residents in the catchment area.

An address database for the catchment was generated by a summer scholarship student project, and this database showed 633 addresses. Initially, it was intended to obtain a representative sample from this address list for the phone survey. However, once this address database was merged with the Konnectics phone number database, only 243 of the 633 addresses were found to have phone numbers listed on the Konnectics database, therefore a census approach was followed.

The large percentage of missing phone numbers from the Konnectics database could be explained for the following reasons:

- First, a large proportion of the properties in this catchment are rental properties that are occupied by students. Students tend to move around frequently and therefore do not list their phone numbers. However, other rental properties, not occupied by students, are still less likely to be listed than permanent. Consequently, phone numbers for student and/or rental residencies are less likely to be included on the Konnectics database. Furthermore, the Konnectics database is only updated every three months, so the students or tenants that had only just moved in to their properties, with listed phone numbers, would not have been included on the database.
- Second, a large proportion of student residents no longer have land lines and rely on mobile phones, which meant they were not on the Konnectics database.
- Finally, this excluded people who requested not to have their phone numbers listed, were listed as private numbers or specifically stated not to be involved.

After comparing the summer student's database with the land parcels database (Vparcels) on Environment Canterbury's Mojo Geographic Information System (GIS) it appears that the student's database was missing some addresses of flats, or subdivided sections. After undertaking a catchment-wide address search in the GIS, it was found that the actual number of addresses in the catchment was closer to 700 than 633.

The limitations have meant the survey was biased towards home owners. However, the permanent residents of the catchment area are an important user group as they are more permanent members of the community, and therefore are the target group for initiatives that require a high level of community involvement.

Nevertheless, the next stage of the project, which involves running focus groups, will attempt to overcome this limitation by engaging with other groups of the community including students.

These focus groups will also incorporate the Okeover Catchment business community, who have not been part of the phone survey.

2.2 Research Approach

A telephone survey was adopted to conduct the survey. A sample of the survey can be viewed in Appendix 1.

The telephone surveys were conducted by five Commerce students from the University of Canterbury. The students were trained to conduct the survey and were supervised by Environment Canterbury and University of Canterbury staff.

The data collection period ran from Sunday 28 February until Thursday 4 March. During this period, interviews were conducted in both morning (9-11 AM) and evening (7-9 PM) sessions. On average, the survey took 12 minutes to complete.

Survey data was entered on a spreadsheet for data analysis. 10% of the data entry was manually audited by an independent person to check for human error.

3 Sample structure

This section provides an overview of the sample and sampling method. The sampling followed a census approach and involved contacting every household (for which phone records were available) in the Okeover catchment. A database was purchased from Konnectics, which provided 243 phone numbers of the 633 households in the catchment area. In total, 141 households were surveyed, which is a 50.4% response rate. The limitations of the sampling method are discussed in the previous section. These limitations might explain the homogeneity of the sample.

The sample achieved was as follows:

<i>Sex</i>	<i>%</i>
Male	47.5
Female	52.5

<i>Age bracket</i>	<i>%</i>
15-19	2.1
20-25	3.5
26-29	1.4
30-39	9.9
40-49	15.6
50-59	13.5
60-69	26.2
70+	27.7

<i>Property status</i>	<i>%</i>
Own	95
Rental	5

<i>Employment</i>	<i>%</i>
Tertiary student	5.7
High school student	2.1
Full time parent	7.8
Retired	39.7
Unemployed/Beneficiary	1.4
Part time paid employment	17.0
Full time paid employment	26.2

<i>Duration of residence</i>	<i>%</i>
1-5 years	24.1
5-10 years	22.7
10+ years	53.2

<i>Youngest dependent child</i>	<i>%</i>
No dependent children	70.2
Under 5	8.5
5-15	10.6
Over 15	10.6

<i>Ethnicity</i>	%	
NZ Maori	1.4	The Asian group had a count of 15 and included: Chinese (7), Indian (1), Korean (3), Nepalese (1), Sri Lankan (1), and Taiwanese (1).
NZ European	83.8	
Asian	10.6	
Other European	1.4	The other ethnicity group had a count of 4 and included: Australian (2), Canadian (1), and South African (1).
Other ethnicity	2.1	
Unanswered	0.7	

4 Summary of results

4.1 Awareness of Okeover Stream

Over two thirds of respondents (68%) said they had heard of Okeover Stream and when prompted to its location a further 20% said they had heard of the stream, 11% of the respondents did not know the stream.

4.2 Health of Okeover Stream

- A four-point scale was used to ask respondents what they thought of the Okeover stream health. 50% felt the stream is quite healthy (although only 3% stated very healthy). Alternatively, 35% felt the stream is not very healthy (with 1% stating not at all healthy) and 10% did not know.
- Visual appearance was the most common reason (28%) for explaining that a stream is healthy, with comments like “looks clean and fresh”, “well cared for”, and “nice to look at”. This was followed by water clarity, being clear (15%) and vegetation, native plants and the presence of vegetation was seen as a positive indicator of stream health (11%).
- Low water levels or no water flow was the most common reason for explaining why the stream was viewed as unhealthy, at 12%. The presence of rubbish (11%) was the second most frequent indicator of poor health followed by vegetation in terms of weeds, non-natives and it being an overgrown stream (9%).
- Rubbish was mentioned by over two thirds of the respondents as a cause of damage to the health of the stream. Polluted storm water, people, vegetation, and garden rubbish were also common causes of damage. However, rubbish was seen as the main cause of damage for 35.5% of the respondents.

4.3 Awareness campaign

When asked if they could recall anything in the media about rivers, streams and/or waterways, 56% recalled seeing/hearing something. Of those respondents, 21% remembered the information being about the health of a Canterbury river or stream. This response was followed by those that couldn't remember specific details, 16%.

4.4 Understanding of the river and stormwater system

Of those surveyed, 62% answered they knew where the water that runs-off their property goes and most responses were stormwater or waterway related, yet did not specify a stream. Again the majority knew that the Okeover stream flowed into the Avon River.

4.5 Potential stormwater polluting activities

There are a number of domestic activities that could generate polluted/contaminated stormwater, which could potentially negatively affect the streams that this stormwater flows into.

- In response to whether respondents wash their cars and where they do this, 65% wash their car and 53.9% of these do it on the driveway, while 9.2% do it on a grassy area.
- A small number of respondents, just under 6%, carry out car maintenance activities at home and the majority of these dispose of the waste fluids at a transfer station or rubbish dump.

- Just over half (53%) of the respondents clean their driveway. The majority (31%) do this by sweeping and picking up debris, although 5% sweep it onto the road and 15% wash it down with water. Very few respondents use chemicals or detergent.
- Nearly two thirds (62%) carry out painting at home. The two most common ways of washing paint brushes were using an inside sink (28%) or using an outside tap (23%).
- Disposing of leaf litter was done in a variety of ways and respondents mentioned doing more than one. The most common method was to put it into the green waste bin (86 responses), followed by composting (62 responses). 5 people indicated carrying out activities that could potentially result in leaf litter ending up in the stream, such as sweeping leaves onto the road.
- Just under a third (27%) of the respondents cleaned their roof. Half of these (13%) cleaned it with water and the same number (13%) used chemicals. However, specifics about whether respondents disconnected their stormwater pipes during this activity were not tested.

4.6 Improving the health of Okeover Stream

- The most commonly cited groups that should be responsible for improving the water quality and health of Okeover Stream were the City Council (45%), the local community (41%) and Environment Canterbury (38%). It is also interesting to note that some respondents thought the University of Canterbury is responsible (9%). No one thought that the Department of Conservation (DOC) was responsible.
- When asked about the importance of Okeover Stream health on a scale from 1-5 (1 being very important and 5 being not at all important), the majority (52%) of respondents indicated that the health of Okeover Stream was very important to them (1)¹. This was followed by 21% who indicated the health of the Okeover was important (2). 17% were neutral in their answer (3), while 6% said the health of Okeover Stream was not important (4) and 3% indicated that stream health was not at all important to them.
- None of the respondents thought that a healthy community stream brought them no benefits. Answers on perceived benefits varied; 54% indicated that it would have a general positive effect on the environment, but they were not specific about this. 41% mentioned that they would benefit from the pleasant aesthetics associated with a healthy community stream. 35% cited an increase in wildlife; this included fish and non-specified wildlife. 8% of respondents saw the presence of ducks as a benefit. Furthermore, 31% mentioned health and safety as a benefit. This included a reduced health and safety risk associated with the stream, such as Giardia, diseases from rats and healthier fish for eating. Further benefits included: an overall healthier river ecosystem (13%), being good for Christchurch's image (8%), improvement in vegetation (more natives, less weeds, 6%), and general community benefits (6%).
- Respondents were asked if there was anything they could do to improve the health of the stream. Most (46%) indicated that they did not think there was anything they could do. A third thought that they could help improve the health of the stream by not littering and by removing existing rubbish. Other frequently mentioned responses included prevention of stormwater pollution (13%), general environmental actions (being generally "green", 12%), and increasing awareness and knowledge of behaviours that affect stream health (8%).

¹ This indicates the corresponding score.

- Finally, respondents were asked to state, from a list, what they thought they would be willing to do to help improve water quality in rivers and streams. Most stated they would be prepared to ring an 0800 pollution hotline (79%), or talk to a friend or family about the things they can do (77%). Two thirds would change what they do around the home and talk to a neighbour about what you can do, and just under half (48%) would participate in an activity such as planting day. Just above a quarter (26%) were prepared to become a member of a stream health community group.

5 Research findings in detail

5.1 Okeover Stream

5.1.1 Awareness of the Okeover Stream

Respondents were asked whether they had heard of the Okeover Stream. If they responded no, they were told that this is the stream that runs through the north side of the University. If they then recognised the stream, this was recorded as a prompted yes.

<i>Awareness</i>	<i>%</i>
Yes	68.1
Prompted yes	19.9
No	11.3
Unanswered	0.7

68.1 % of respondents indicated they were aware of Okeover Stream and a further 19.9% recalled which stream the Okeover was when prompted. Consequently, there appears to be a high level of awareness of the Okeover Stream. However, the letter explaining this research that was sent out to residents prior this survey might have affected the results.

<i>Awareness by gender</i>	<i>Male %</i>	<i>Female %</i>
Yes	71.6	64.9
Prompted yes	17.9	21.6
No	9	13.5
Unanswered	1.5	-

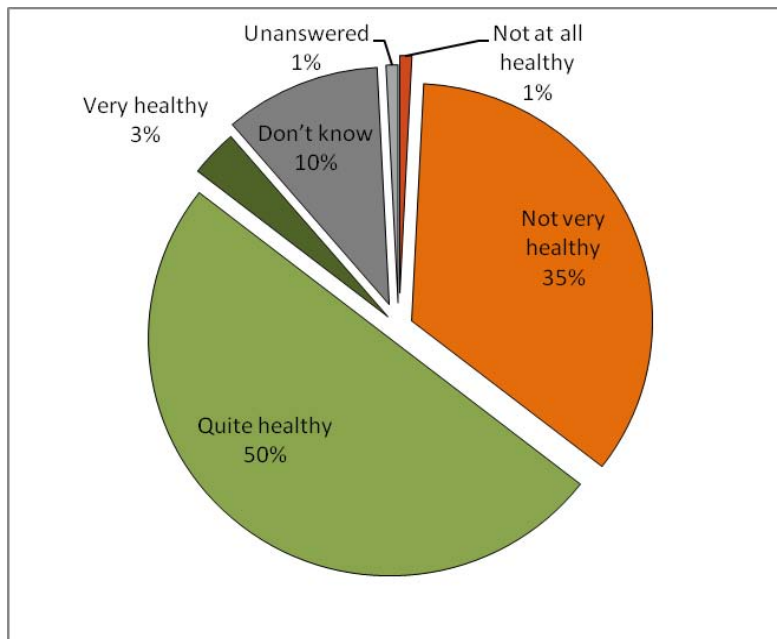
<i>Awareness by age²</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Yes	28.6	81.8	73.7	83.8	64.1
Prompted yes	35.7	4.5	21.1	8.1	25.6
No	35.7	13.6	5.3	8.1	10.3

5.1.2 Perceived health of Okeover Stream

Participants were asked (on a 4-point scale from very healthy to not at all healthy) how healthy they thought the Okeover Stream is. These results only include the yes and prompted yes answers to the previous question to ensure participants were answering about the health of the Okeover.

<i>Okeover health</i>	<i>%</i>
Not at all healthy	0.8
Not very healthy	34.7
Quite healthy	50
Very healthy	3.2
Don't know	10.5
Unanswered	0.8

² As there were not enough people under 30 to make the results valid, these age groups have been excluded from all analyses that compare age.



More respondents (53%) felt the Okeover stream is healthy than not healthy (36%).

<i>Okeover health by sex</i>	<i>Male%</i>	<i>Female%</i>
Not at all healthy	-	1.6
Not very healthy	36.7	31.7
Quite healthy	53.3	47.6
Very healthy	1.7	4.8
Don't know	6.7	14.3
Unanswered	1.7	-

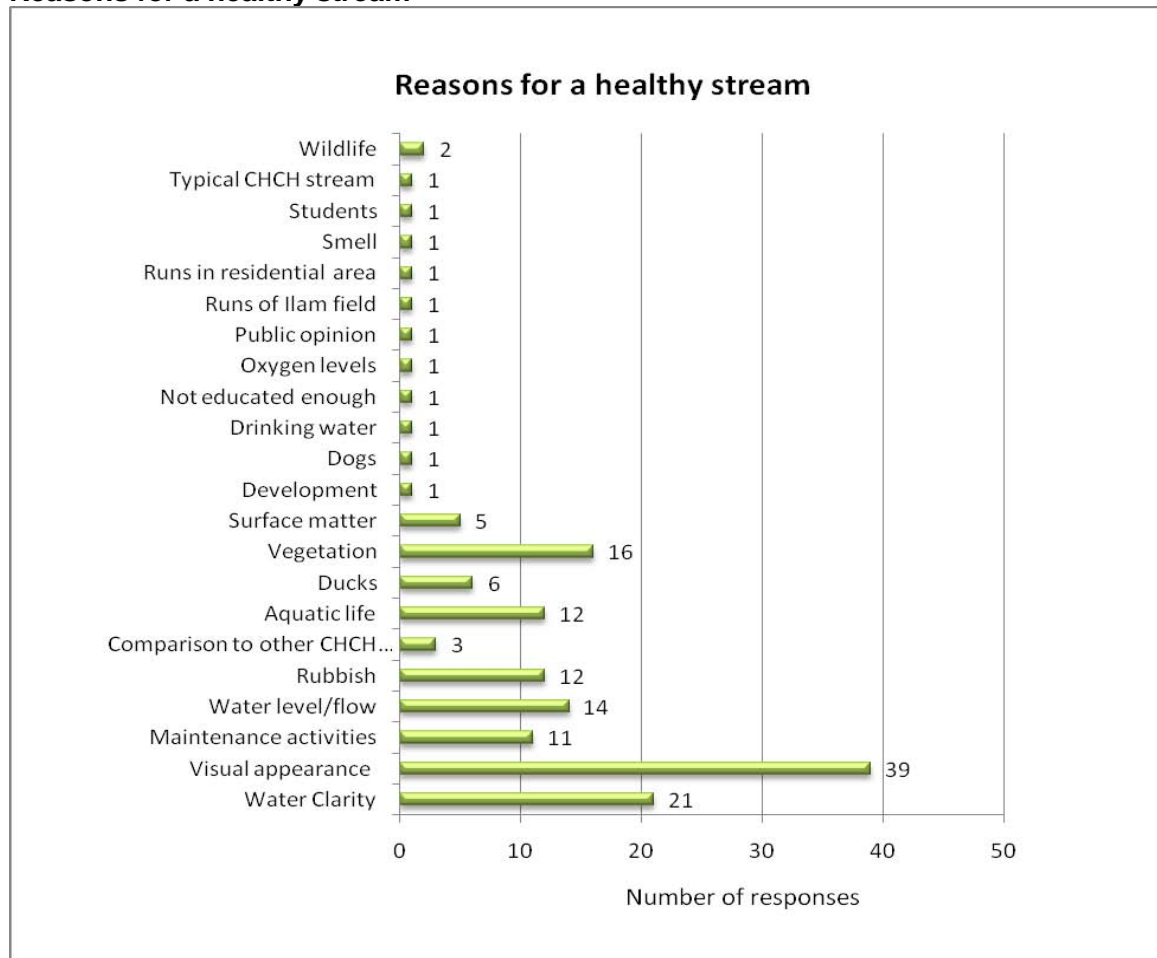
<i>Okeover health by age</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Not at all healthy ³	-	-	-	-	-
Not very healthy	44.4	15.8	16.7	38.2	40
Quite healthy	44.4	73.7	55.6	50	42.9
Very healthy	-	-	5.6	2.9	5.7
Don't know	11.1	10.5	22.2	5.9	11.4
Unanswered	-	-	-	2.9	-

³ There are no responses in this category because they were mentioned by respondents under 30 years of age.

5.1.3 Reasons for perceived health of Okeover Stream

Respondents were asked for the reasons for their answer on the healthiness of the Okeover Stream.

Reasons for a healthy stream



The main reason for a healthy stream was the visual appearance (27.7% of respondents)⁴, which refers to general visual appearance of the stream and its surroundings. Reasons why they thought the stream looked healthy for this category included:

- “Looks clean and fresh”
- “Well cared for”
- “It all looks good”
- “Nice to look at”

14.9% of respondents mentioned water clarity as an indicator for good stream health. Water clarity here referred to clear and “not milky” waters.

Vegetation was also seen as an indicator of good health of the streams (11.3%). Respondents referred to nice vegetation in general, native plants and merely the presence of vegetation as being a positive indicator of stream health. Interestingly, respondents who thought the stream was healthy did mention the abundance of weeds around the stream as an answer to this question.

⁴ For the more qualitative questions, the graphs show number of responses because respondents commonly mentioned more than one of the items presented, which would have led to a cumulative percentage above 100. However, the explanation of the graphs refers to the % of respondents who mentioned a particular item.

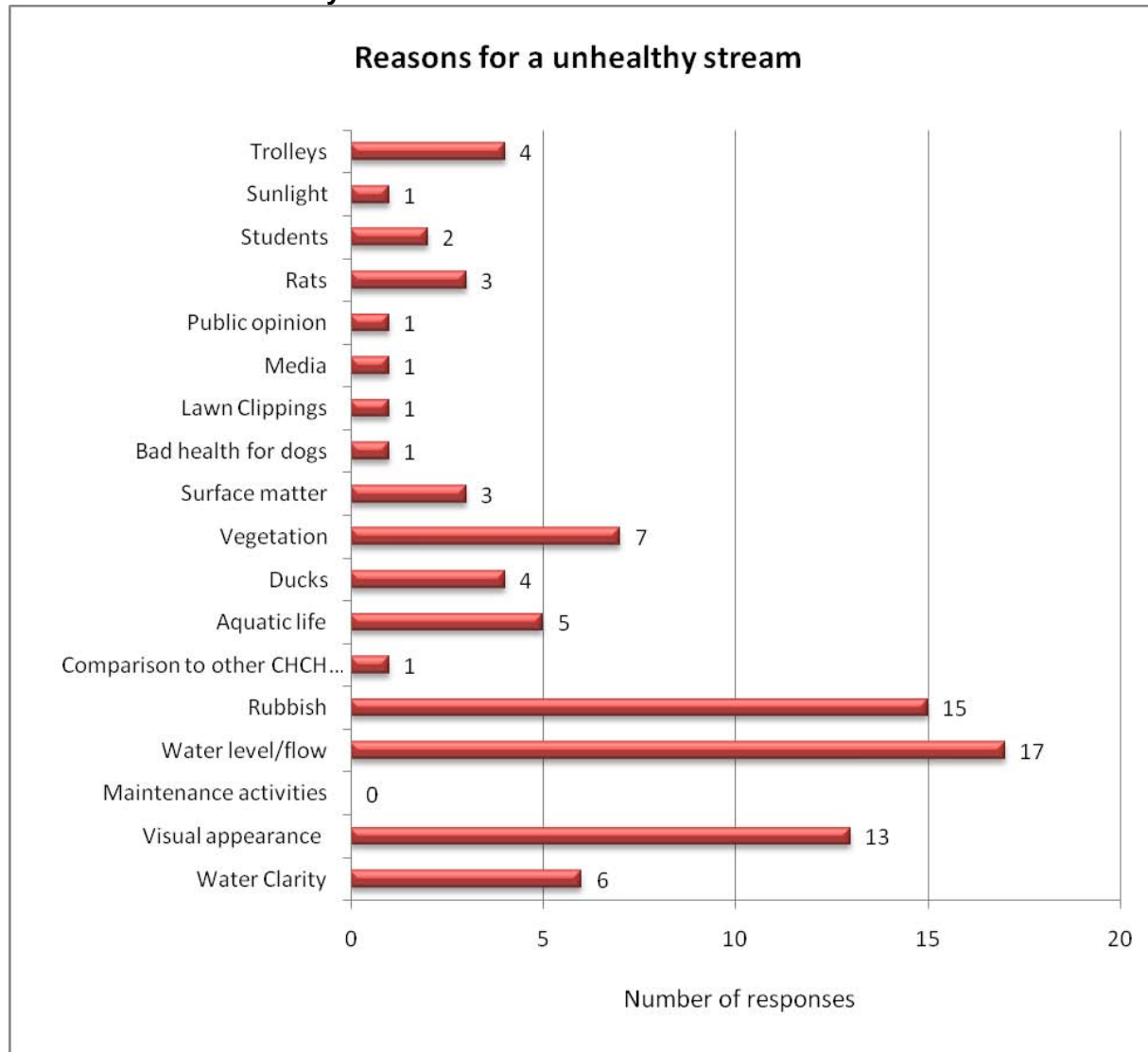
Water flow/level was also seen as an indicator of good stream health and was mentioned by 9.9% of respondents. Water flow/level mainly referred to high water levels and that the water was moving rather than stagnant. When referring to high water levels respondents indicated that having enough water is a healthy sign, while flooding is not.

The state of rubbish in the stream was also seen as an indicator for stream health, as this was mentioned by 8.5% of respondents. Respondents indicated that the absence of rubbish indicated good stream health.

The presence of stream maintenance activities was also mentioned (by 7.8%) as an indicator of good stream health. Respondents referred to seeing people measure/test the water, City Council workers pulling out weeds, planting days, "signs protecting it from litter and harm", and the general presence of maintenance workers around the stream indicates the stream is looked after and therefore, should be healthy.

Furthermore, the presence of aquatic life (8.5%) and ducks (4.3%) as well as the absence of surface matter (for example, slime, 3.5%) and smell were also seen as indicators of a healthy stream.

Reasons for an unhealthy stream



The most frequently mentioned reason of why respondents thought the Okeover stream was not healthy was the water level and flow (12%). This referred to low water levels, stagnant or blocked water.

The presence of rubbish was the second-most frequently mentioned indicator of poor health (10.6%), which was followed by the general visual appearance of the stream (9.2%). This included the visual appearance of the surroundings as well as the stream itself and included statements like “it looks grubby.”

Vegetation was also seen as a reason why the stream was unhealthy (5%); this mainly referred to the presence of weeds, non-native plants and an overgrown stream.

Water clarity was also mentioned as an indicator of an unhealthy stream (4.3%). Respondents here referred to the lack of clarity and it was mentioned that the stream looks “grubby” or “milky”.

The presence of ducks (2.8%) and the lack of aquatic life (3.5%), such as fish were also reasons respondents perceived the Okeover to be not very healthy.

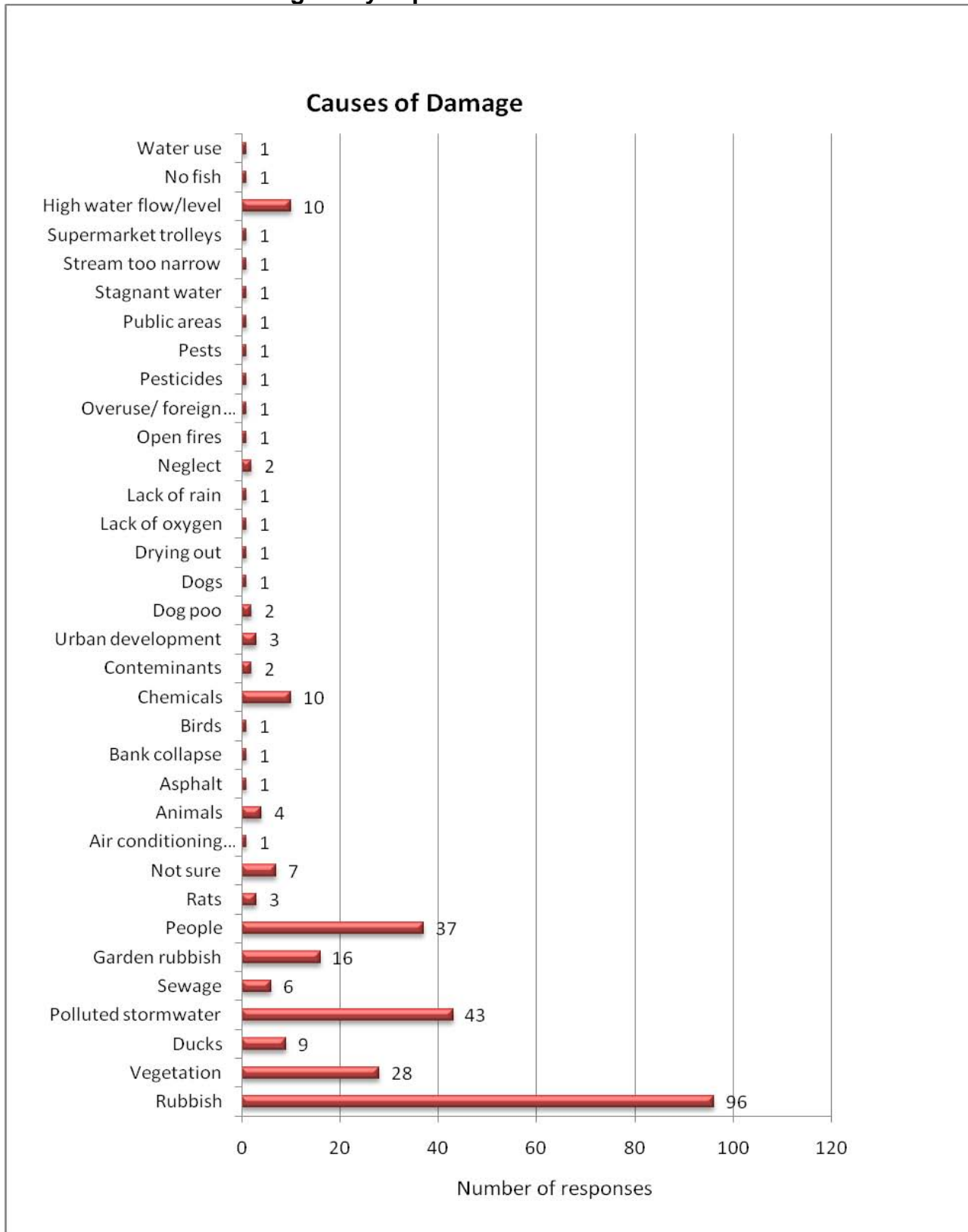
Indicators that were seen as good and bad by different respondents

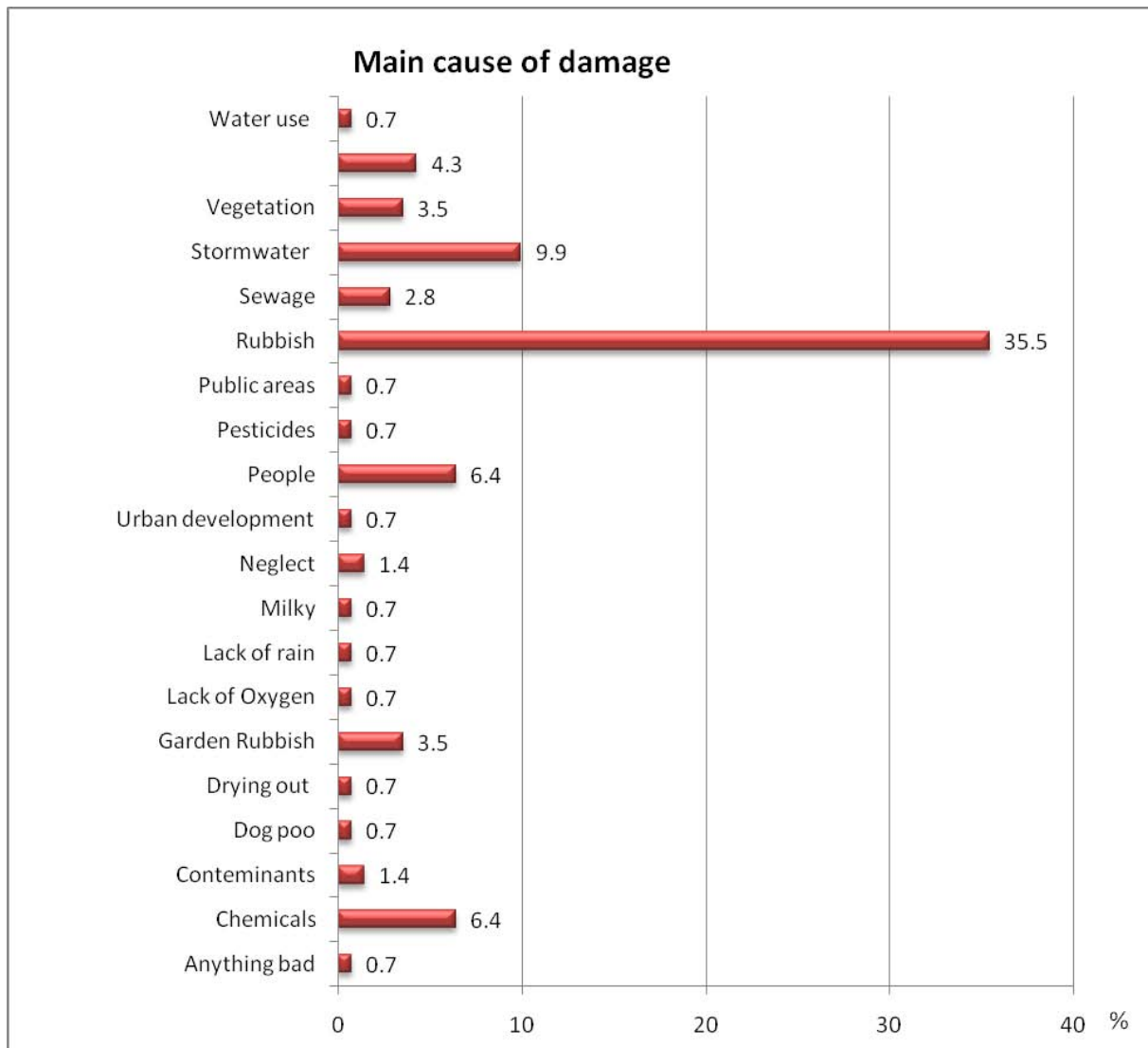
The following common reasons were seen as indicators of both good and bad stream health:

<i>Indicator</i>	<i>Good</i>	<i>Bad</i>
Water flow/level	<ul style="list-style-type: none"> • High water level • Flowing water 	<ul style="list-style-type: none"> • Low water level • Stagnant water
Visual appearance	<ul style="list-style-type: none"> • Overall tidy looking stream • Nice surroundings 	<ul style="list-style-type: none"> • “Grubby” looking stream • Uncared for/ not groomed surroundings
Vegetation	<ul style="list-style-type: none"> • Native plants • Presence of vegetation • Nice looking vegetation 	<ul style="list-style-type: none"> • Presence of weeds • Overgrown stream • Non-native plants
Water clarity	<ul style="list-style-type: none"> • Clear • “Not milky” 	<ul style="list-style-type: none"> • “Grubby” • “Milky”
Aquatic life	<ul style="list-style-type: none"> • Presence of fish and other aquatic life 	<ul style="list-style-type: none"> • Lack of fish and other aquatic life
Ducks	<ul style="list-style-type: none"> • Presence of ducks 	<ul style="list-style-type: none"> • Presence of ducks

The table illustrates that most of the indicators mentioned in the survey could either have a positive or negative impact on stream health, depending on the attributes of the indicators. The presence of ducks was the only indicator which was seen as an indicator of both good and bad stream health.

5.1.4 Factors that negatively impact the health of Okeover stream





Respondents were asked what they thought are causes of damage to the health of Okeover Stream. They were then asked which of the causes of damage they thought had the most effect. The most common response was rubbish, as this was mentioned by 68.1% of the respondents and seen as the main cause of damage by 35.5%.

Polluted stormwater, people, vegetation, and garden rubbish were also common causes of damage. These were not as strongly seen as the main cause of damage as rubbish was.

5.1.5 Importance of Okeover Stream health to respondents

Respondents were asked how important the health of Okeover Stream was to them on a scale from 1 to 5, 1 being very important and 5 being not at all important. The majority (52%) of respondents indicated that the health of Okeover Stream was very important to them (1)⁵. This was followed by 21% who indicated the health of the Okeover was important (2). 17% were neutral in their answer (3), while 6% said the health of Okeover Stream was not important (4) and 3% indicated the health was not at all important to them. Overall, the mean was 1.87, showing that in general, respondents were concerned with the health of the Okeover stream.

⁵ This indicates the corresponding score.

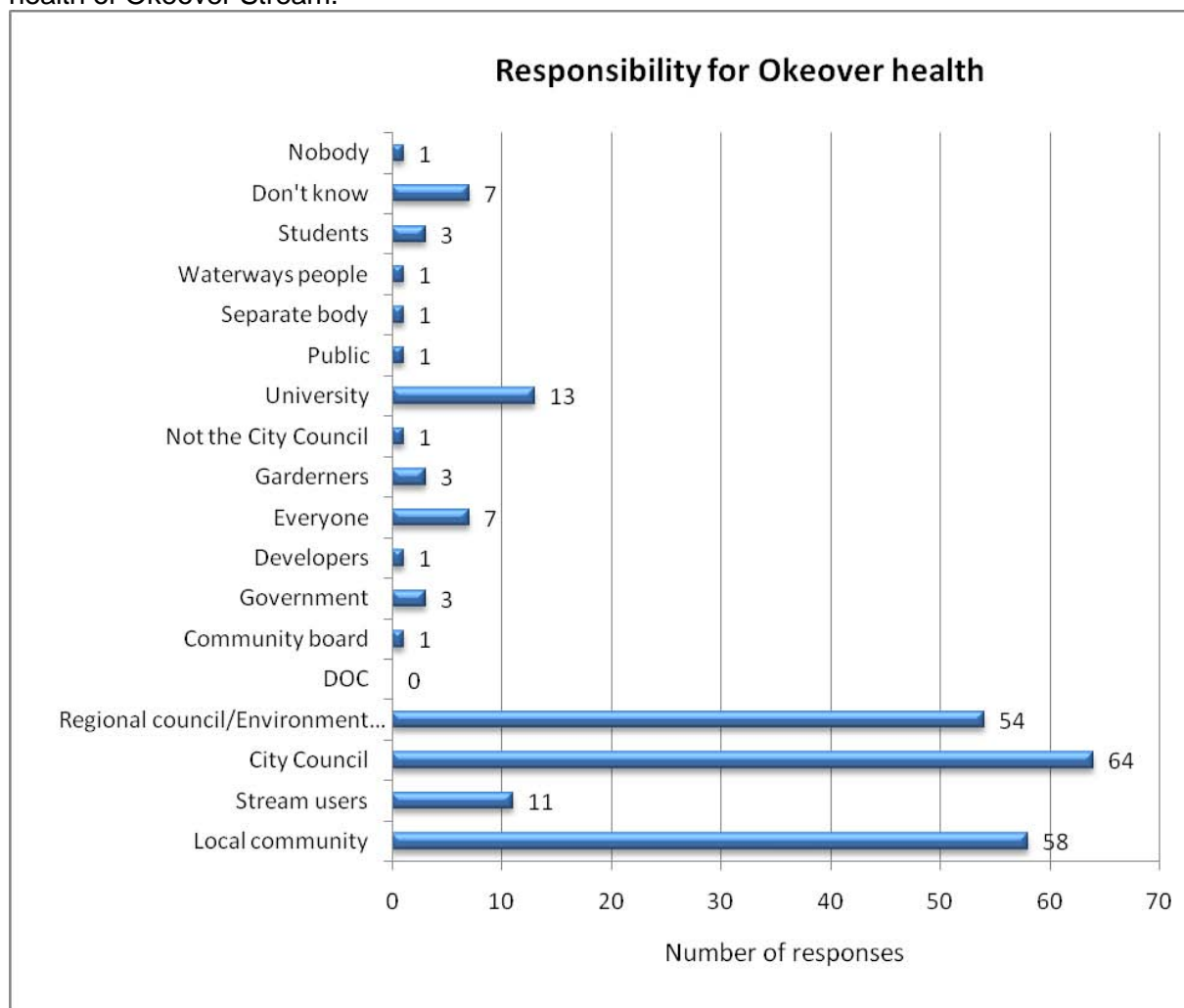
The tables below summarise stream importance by gender and age of the respondents.

<i>Stream importance (sex)</i>	<i>Male</i>	<i>Female</i>
Mean (on 1-5 scale)	2.04	1.71
Modal answer	1	1

<i>Stream importance (age)</i>	<i>30-39</i>	<i>40-49</i>	<i>50-59</i>	<i>60-69</i>	<i>70+</i>
Mean (on 1-5 scale)	2.5	1.68	2.21	1.66	1.74
Modal answer	1	1	1	1	1

5.1.6 Responsibility for Okeover health

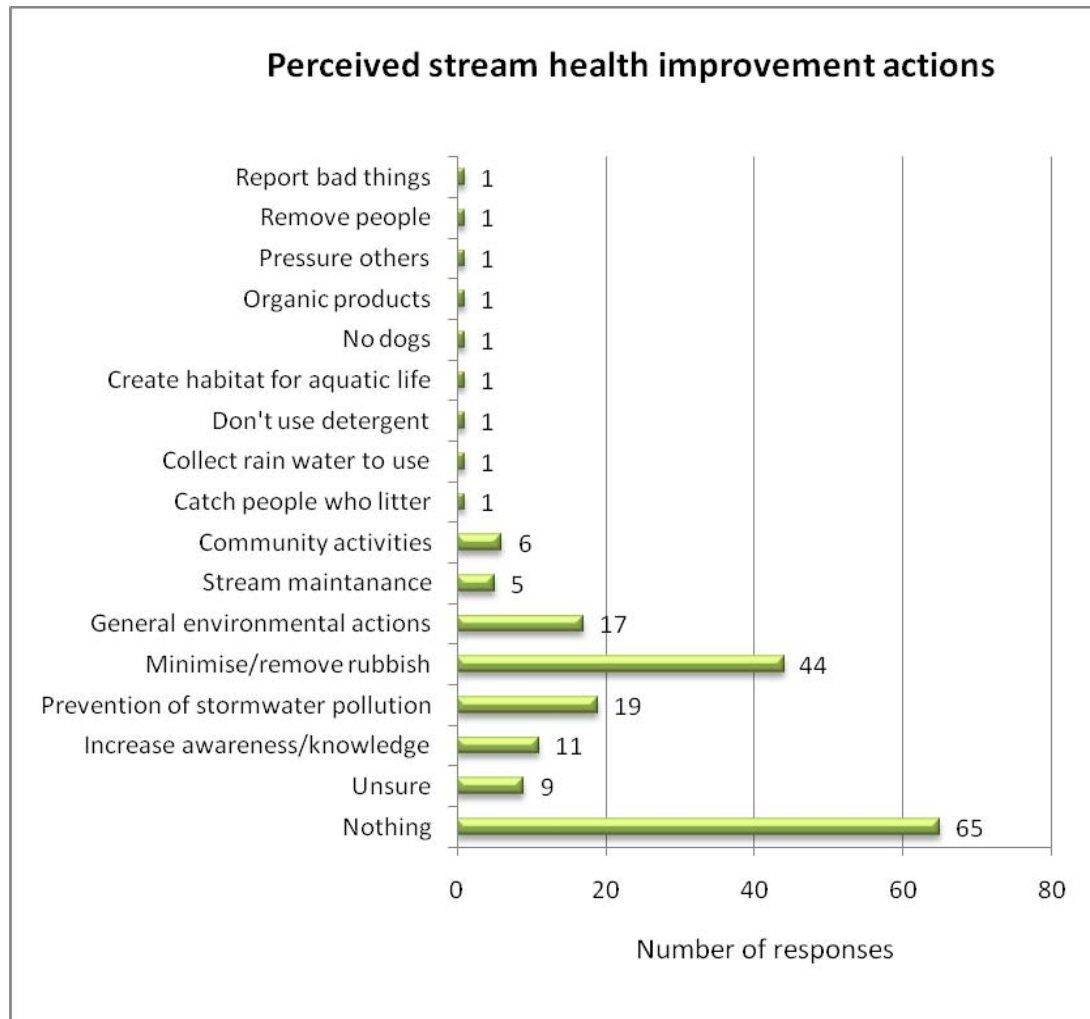
Respondents were asked who they thought is responsible for improving the water quality and health of Okeover Stream.



The most commonly cited groups that should be responsible for improving the water quality and health of Okeover Stream were the City Council (45%), the local community (41%) and Environment Canterbury (38%). It is also interesting to note that some respondents thought the University of Canterbury is responsible (9%). No one thought that the Department of Conservation (DOC) was responsible.

5.1.7 Respondent impact on stream health

Respondent were asked, by means of an open-ended response, whether they felt there was anything they could do to improve the health or minimise their impact on the Okeover stream.



46% of respondents indicated that they did not think there was anything they could do to positively affect the health of the streams (nothing). 31% thought that they could help improve the health of the stream by not littering and removing existing rubbish. Other more frequently mentioned responses included prevention of stormwater pollution (13%), general environmental actions (being generally “green”, 12%), and increasing awareness and knowledge of behaviours that affect stream health (8%).

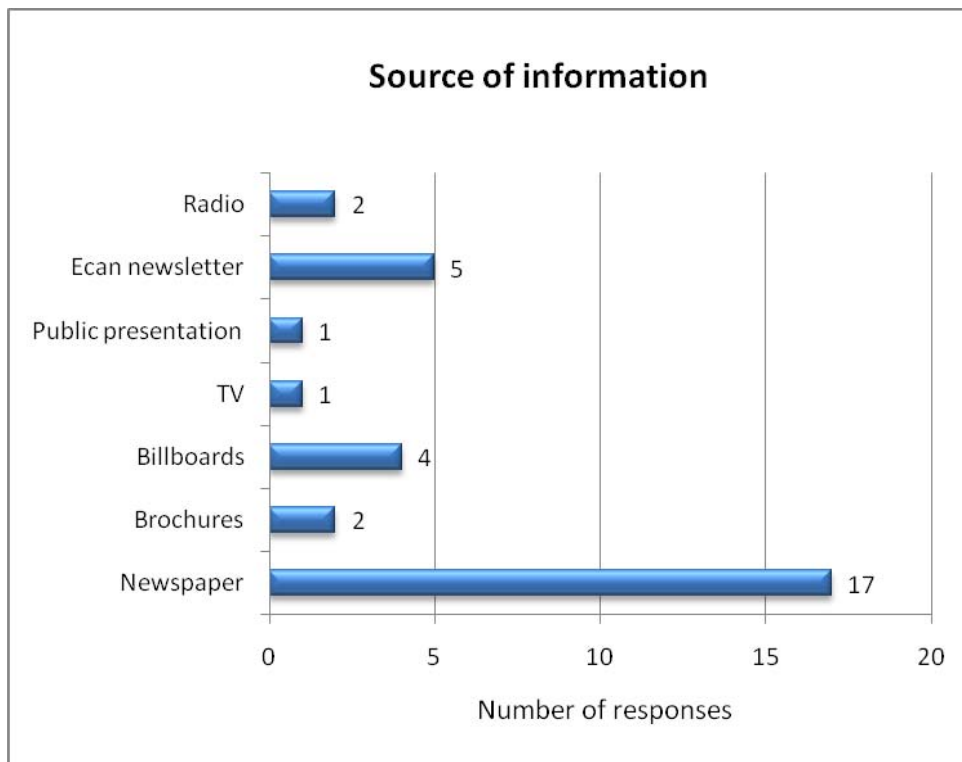
5.2 Awareness campaign

Respondents were asked whether they recalled seeing or hearing anything in the past few months about Christchurch’s rivers, streams and/or waterways in the media. Participants were also asked what they remembered hearing/seeing.

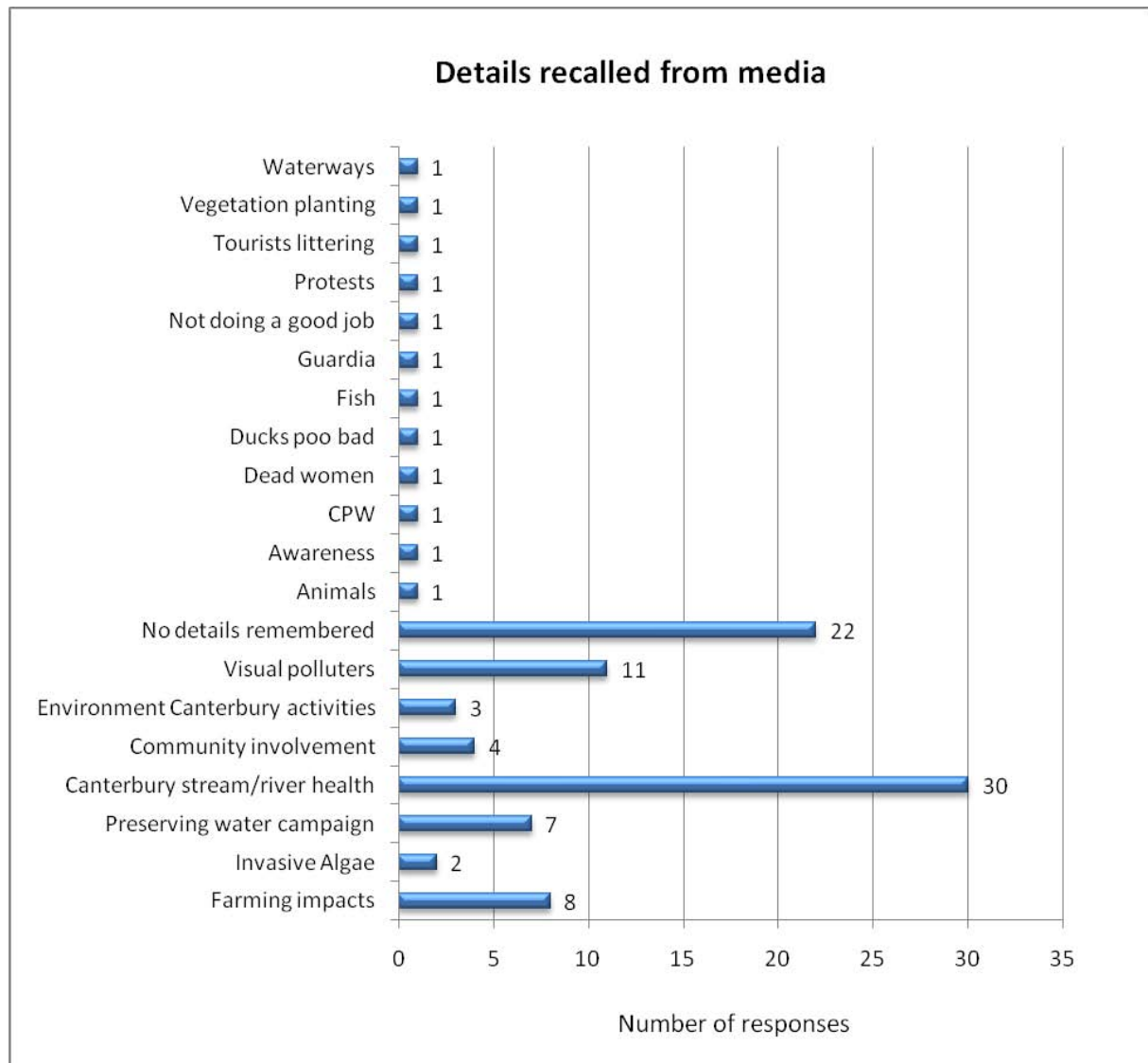
<i>Recall</i>	<i>%</i>
Yes	56
No	44

<i>Recall</i>	<i>Male %</i>	<i>Female %</i>
Yes	53.7	58.1
No	46.3	41.9

<i>Recall</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Yes	35.7	45.5	57.9	64.9	64.1
No	64.3	54.5	42.1	35.1	35.9



Some respondents answered by indicating the source of the information they saw/heard, which included newspaper articles, Environment Canterbury’s newsletters, billboards, brochures, the radio, television and public presentation. The majority that mentioned the source mentioned newspapers. However, the respondents were not asked to recall the source.



When asked what details respondents recalled seeing in the media, the most common response was information about the health of a Canterbury river or stream (21%). Furthermore, many of the respondents remembered seeing/hearing something, but they could not remember specific details (16%). Other common responses included visual polluters (such as rubbish, 8%), the impacts of farming (6%), and a preserving water campaign (5%).

5.3 Potential stormwater polluting activities

This section explores respondents' behaviour for activities that could potentially be polluting their stormwater. Therefore, a specific section of the survey was put in to gauge behaviour that residents could be doing in and around their home/property, which could affect the stream via stormwater contaminations. Participants were asked to answer questions honestly, yet a positivity bias⁶ needs to be considered when interpreting the results.

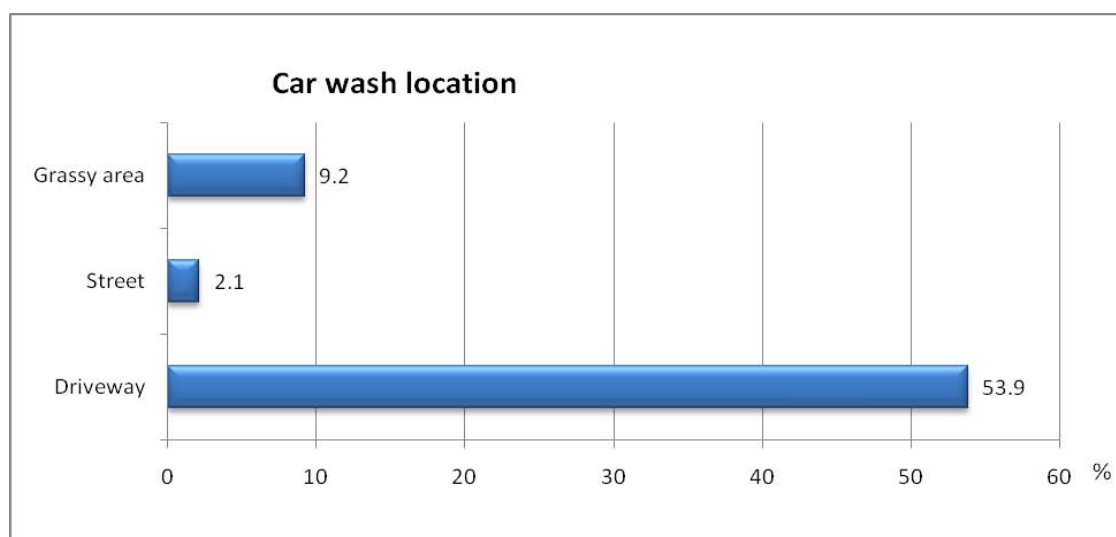
5.3.1 Car washing behaviour

Respondents were asked whether they washed their car at home, and if so, were asked details about the specific location of this activity.

<i>Wash car</i>	<i>%</i>
Yes	65.2
No	34.8

<i>Wash car</i>	<i>Male %</i>	<i>Female %</i>
Yes	67.2	63.5
No	32.8	36.5

<i>Wash car</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Yes	42.9	59.1	57.9	86.5	64.1
No	57.1	40.9	42.1	13.5	35.9



5.3.2 Car maintenance behaviour

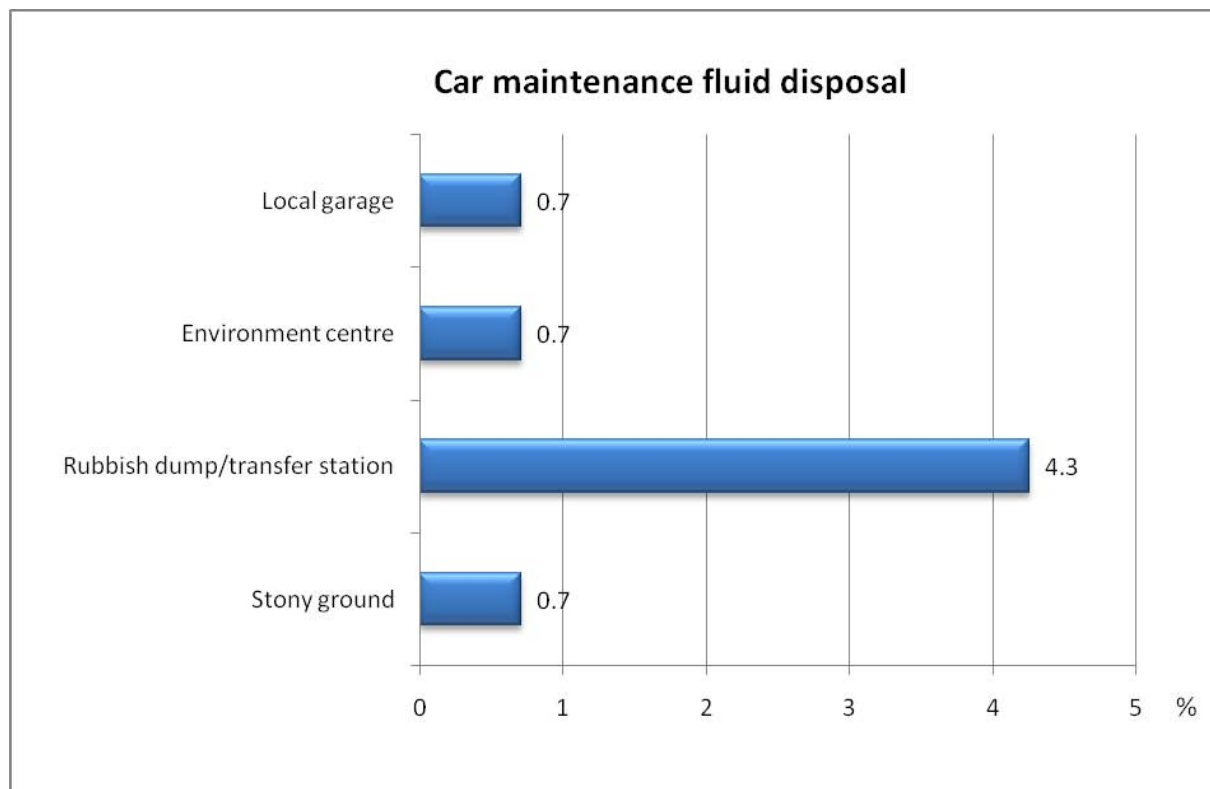
Respondents were asked whether they do any car maintenance activities at home, and if so, were asked where they disposed of the maintenance fluids, such as oil.

<i>Car maintenance activities</i>	<i>%</i>
Yes	5.7
No	94.3

⁶ The tendency for individuals to self-report environmental responsibility.

<i>Car maintenance activities</i>	<i>Male %</i>	<i>Female %</i>
Yes	9	2.7
No	91	97.3

<i>Car maintenance activities</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Yes	0	9.1	5.3	10.8	2.6
No	100	90.9	94.7	89.4	97.4



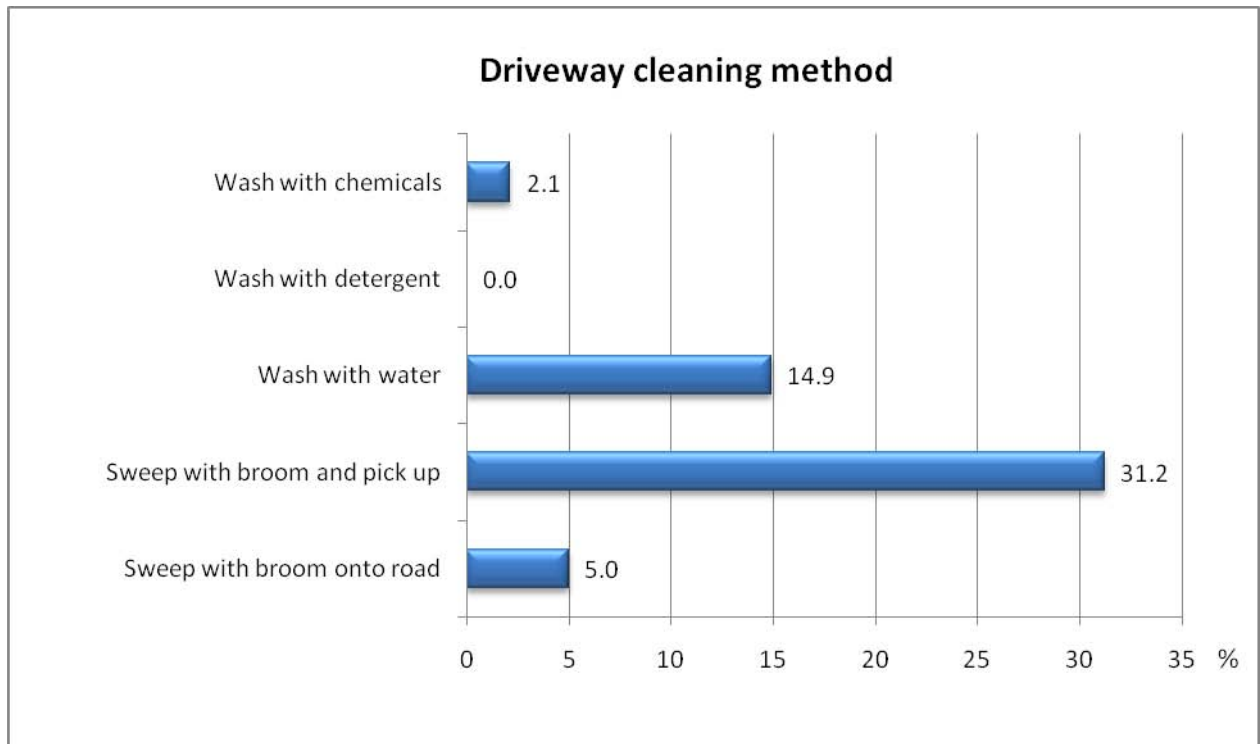
5.3.3 Driveway cleaning behaviour

Respondents were asked whether they cleaned their driveway, and if so, how they did this.

<i>Driveway cleaning</i>	<i>%</i>
Yes	53.2
No	46.8

<i>Driveway cleaning</i>	<i>Male %</i>	<i>Female %</i>
Yes	56.7	50
No	43.3	50

<i>Driveway cleaning</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Yes	57.1	40.9	52.6	59.5	64.1
No	42.9	59.1	47.4	40.5	35.9



5.3.4 Paint brush cleaning behaviour

Respondents were asked whether they painted at home, and if so, where they washed their brushes.

<i>Painting activities</i>	<i>%</i>
Yes	61.7
No	38.3

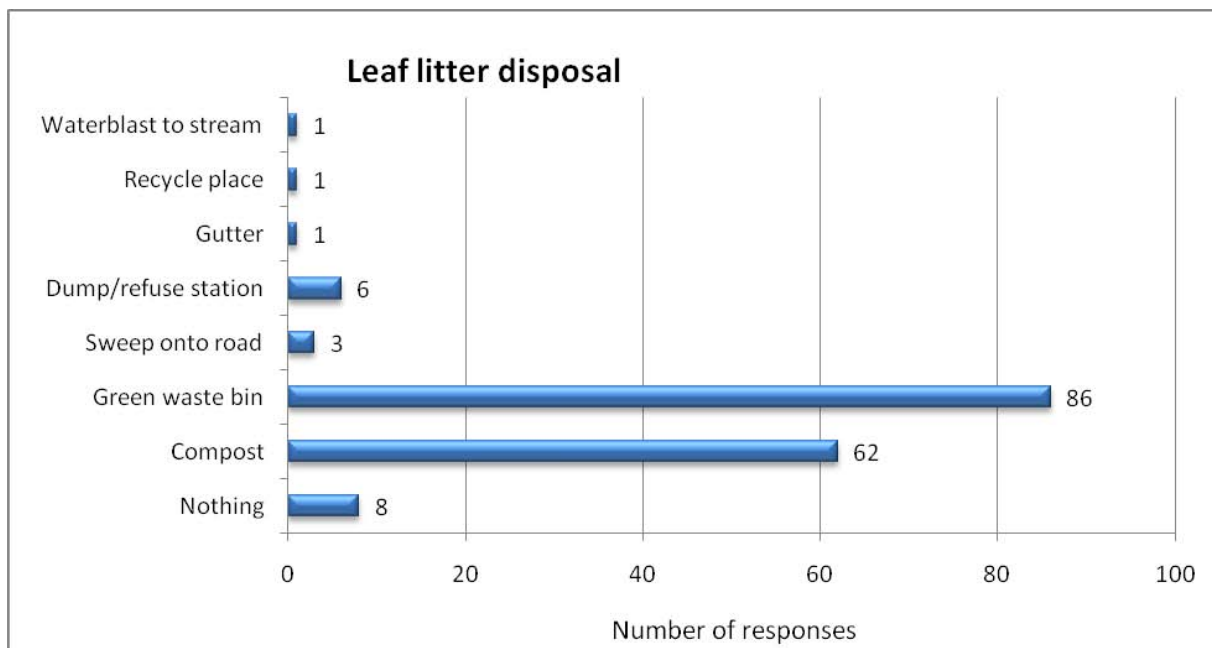
<i>Painting activities</i>	<i>Male %</i>	<i>Female %</i>
Yes	53.7	58.1
No	46.3	41.9

<i>Painting activities</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Yes	57.1	63.6	84.2	67.6	48.7
No	42.9	36.4	15.8	32.4	51.3



5.3.5 Leaf litter disposal behaviour

Respondents were asked how they disposed of leaf litter on their driveway and footpaths. Note that some respondents did more than one of the activities; hence the graph shows the number of responses rather than percentages.



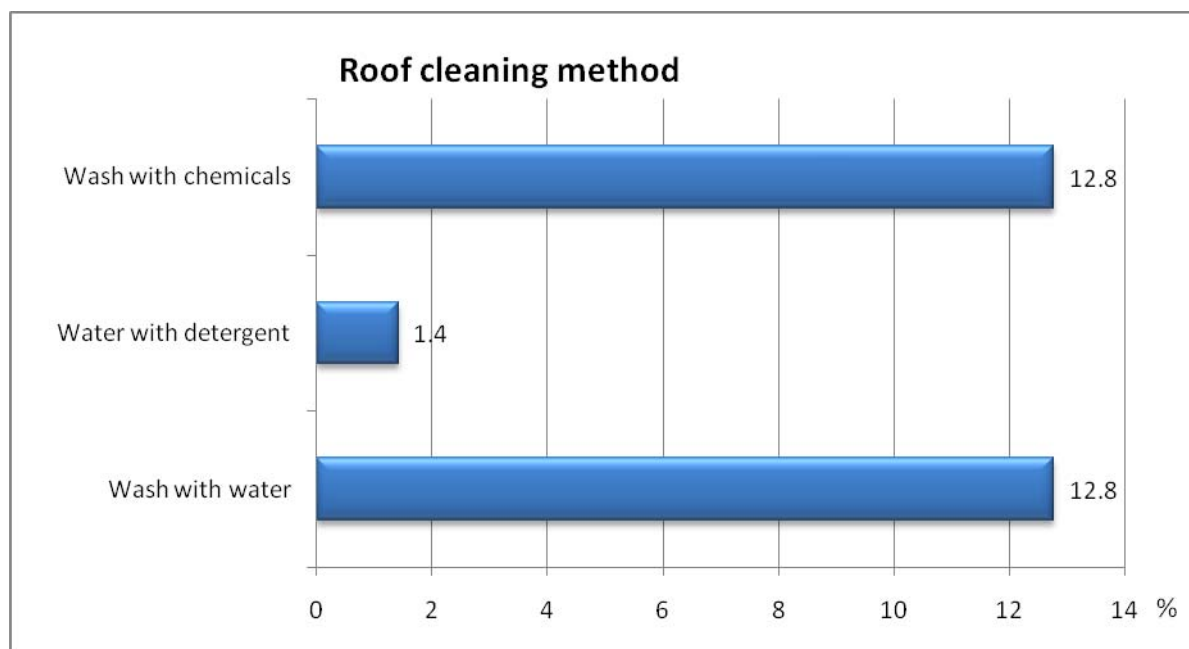
5.3.6 Roof cleaning behaviour

Participants were asked whether they cleaned their roof and how they did this.

Clean roof	%
Yes	27.7
No	71.6
Unanswered	0.7

Clean roof	Male %	Female %
Yes	34.3	21.6
No	65.7	77
Unanswered	-	1.4

Clean roof	30-39%	40-49%	50-59%	60-69%	70+ %
Yes	14.3	13.6	26.3	29.7	43.6
No	85.7	86.4	73.7	70.3	56.4



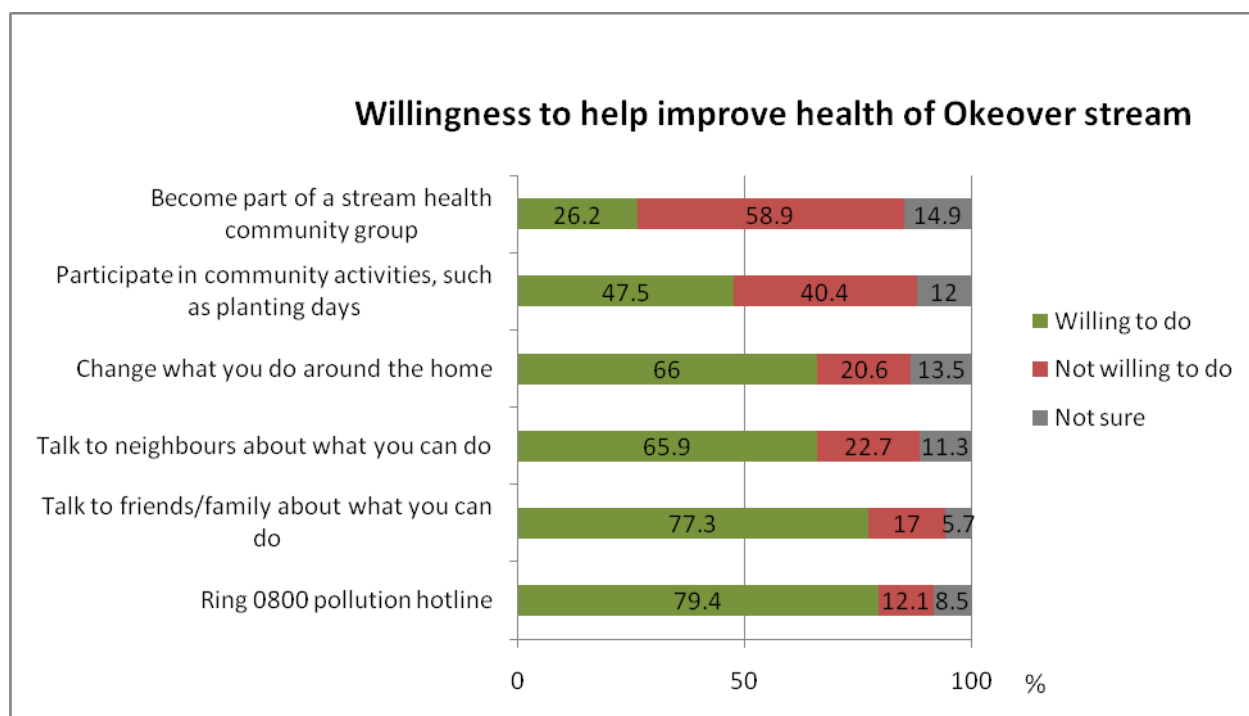
5.4 Improving the health of Okeover Stream

To gauge people's willingness to improve stream health, residents were asked about the type of activities they might engage in if this activity was offered or encouraged. Most of the activity options were presented in previous surveys of the whole of Christchurch⁷. The Market Research of The River Guardian Project Survey, 2007, can be used to compare general Christchurch to Okeover catchment residents' willingness to help improve stream health. Additionally, this section explores perceived benefits of having a healthy community stream, which could be seen as incentives for the residents.

5.4.1 Willingness to help improve water quality of Okeover Stream

Respondents were read out the following options and asked what they would be prepared to do to help improve the water quality of Okeover Stream.

⁷ Market Research of The River Guardian Project – Perceptions among the General Public prepared by Opinions Market Research Ltd for Environment Canterbury (2007).



<i>Willing to ... by sex</i>	<i>Male %</i>	<i>Female %</i>
Ring an 0800 pollution hotline	74.6	83.8
Talk to a friend or family member about what you can do	71.6	82.4
Talk to a neighbour about what you can do	67.2	63.5
Change what you do around the home	56.7	74.3
Participate in community activities such as planting days	50.7	44.6
Become part of a stream health community group	23.9	28.4

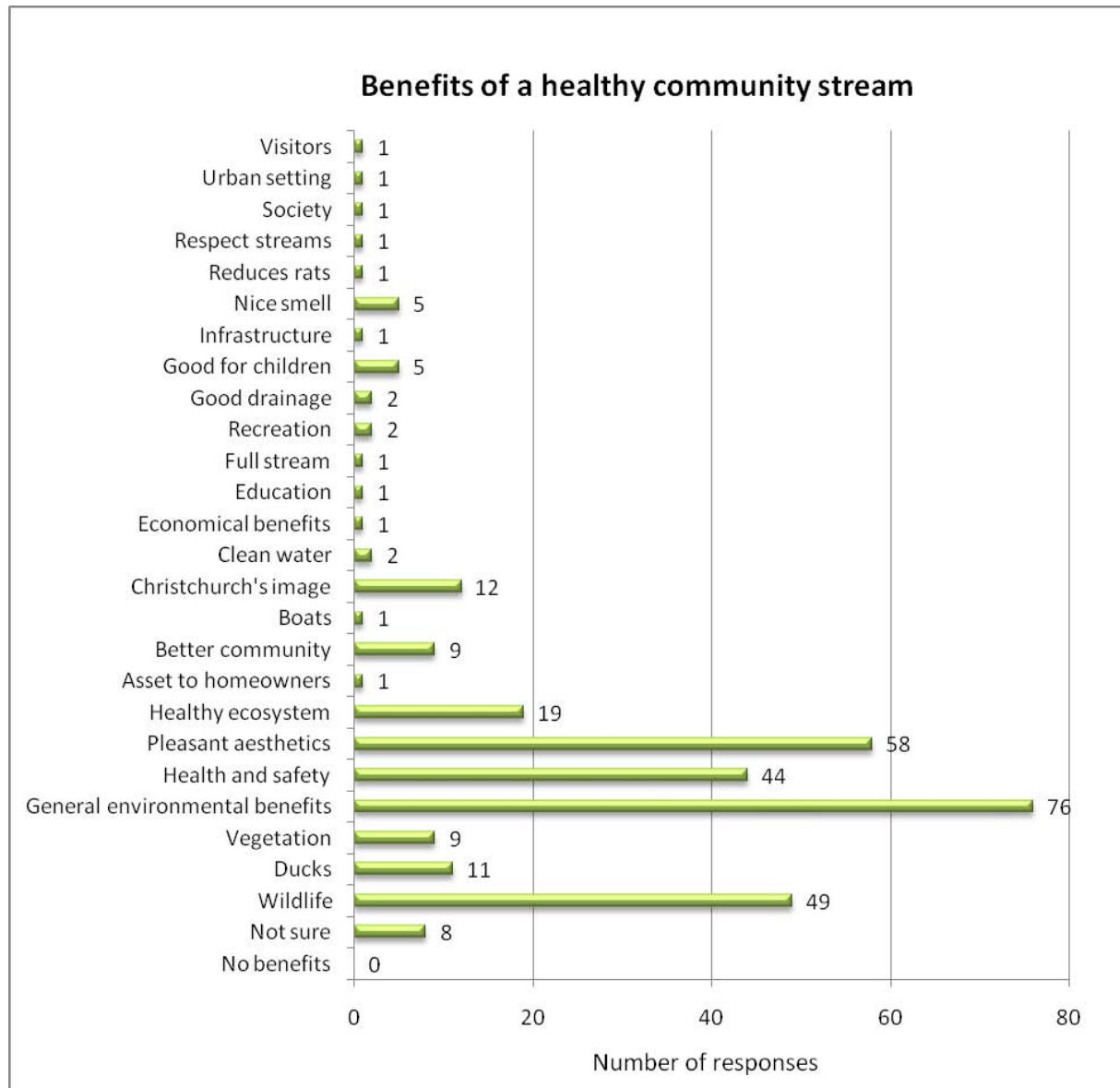
<i>Willing to ... by age</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Ring an 0800 pollution hotline	79.4	90.9	84.2	83.8	66.7
Talk to a friend or family member about what you can do	71.4	77.3	89.5	83.8	66.7
Talk to a neighbour about what you can do	50	68.2	52.6	75.7	64.1
Change what you do around the home	85.7	72.7	84.2	75.7	33.3
Participate in community activities such as planting days	35.7	63.6	42.1	62.2	23.1
Become part of a stream health community group	21.4	40.9	15.8	40.5	7.7

<i>Willing to ... by employment⁸</i>	<i>Retired</i>	<i>Part-time</i>	<i>Full-time</i>
Ring an 0800 pollution hotline	71.4	87.5	89.2
Talk to a friend or family member about what you can do	73.2	83.3	75.7
Talk to a neighbour about what you can do	69.6	58.3	59.5
Change what you do around the home	46.4	87.5	75.7
Participate in community activities such as planting days	30.4	54.2	56.8
Become part of a stream health community group	16.1	25	29.7

⁸ Only the employment groups which had enough respondents to be statistically significant to report are included.

5.4.2 Perceived benefits of a healthy community stream

Respondents were asked, in an open-ended response, what they thought the benefits of a healthy community stream are.



Answers on perceived benefits varied, but 54% indicated that it would have a general positive effect on the environment without specifying the specific benefits of this. 41% mentioned that they would benefit from the pleasant aesthetics associated with a healthy community stream. 35% cited an increase in wildlife, this included fish and non-specified wildlife. However, when respondents mentioned ducks as a benefit, this was recorded separately. 8% of respondents saw the presence of ducks as a benefit. Furthermore, 31% mentioned health and safety as a benefit. This included reduced health and safety risks associated with the stream, such as Giardia, diseases from rats, and healthier fish for eating. Further benefits included: an overall healthier river ecosystem (13%), good for Christchurch's image (8%), improvement in vegetation (more natives, less weeds, 6%), and general community benefits (6%).

None of the respondents thought that a healthy community stream brought them no benefits.

5.5 Stormwater knowledge

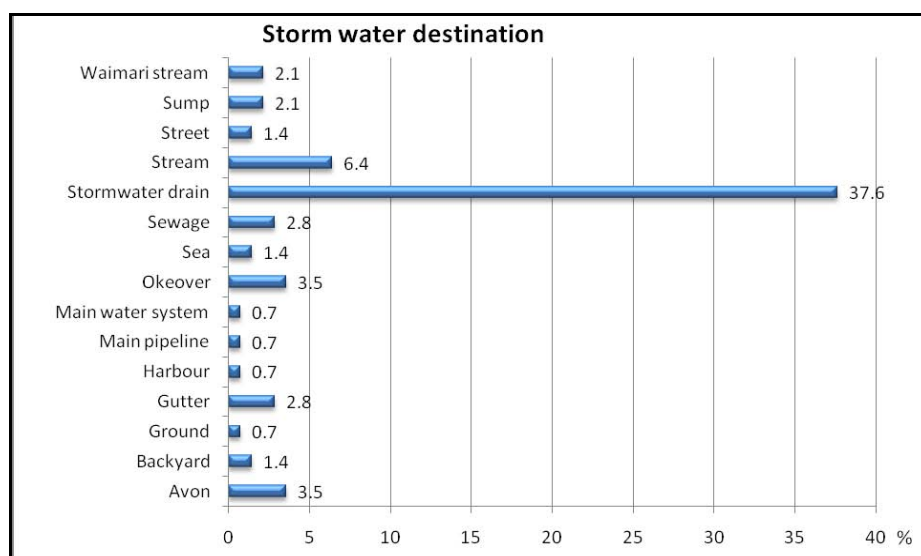
5.5.1 Stormwater destination awareness

Respondents were asked if they knew where the water from their property runs off to. The “guess” category was put in for people who indicated they did not know and then guessed where it runs off to. The letter explaining this research, which was sent out to residents prior to the survey, might have affected these results.

<i>Stormwater destination awareness</i>	<i>%</i>
Yes	62.4
No	34.0
Guess	3.5

<i>Stormwater destination awareness</i>	<i>Male %</i>	<i>Female %</i>
Yes	73.1	52.7
No	26.9	40.5
Guess	-	6.8

<i>Stormwater destination awareness</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Yes	42.9	50	47.4	78.4	74.4
No	50	40.9	52.6	21.6	23.1
Guess	7.1	9.1	-	-	2.6



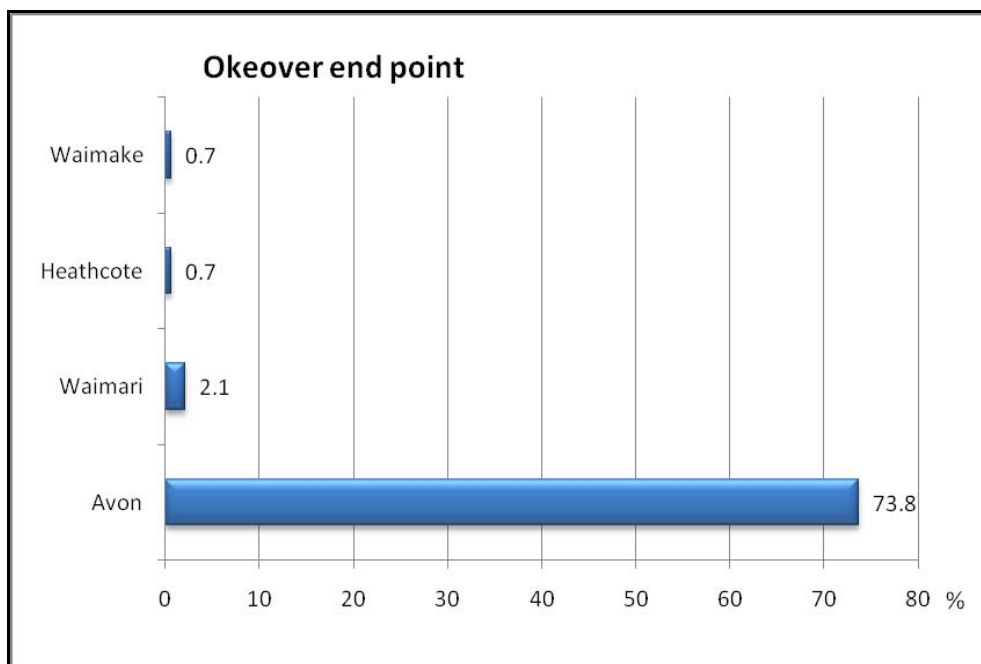
5.5.2 Okeover endpoint awareness

Respondents were asked if they knew which river the Okeover Stream flows into. Again, a guess category was put in for people who indicated they did not know and then guessed. This was not mentioned in the letter explaining the research.

<i>Okeover endpoint awareness</i>	<i>%</i>
Yes	83.1
No	12.9
Guess	3.2
Unanswered	0.8

<i>Okeover endpoint awareness</i>	<i>Male %</i>	<i>Female %</i>
Yes	83.6	71.6
No	16.4	23
Guess	-	5.4

<i>Okeover endpoint awareness</i>	<i>30-39%</i>	<i>40-49%</i>	<i>50-59%</i>	<i>60-69%</i>	<i>70+ %</i>
Yes	42.9	68.2	73.7	89.2	87.2
No	50	27.3	26.3	5.4	12.8
Guess	7.1	4.5	-	5.4	-



6 Acknowledgements

Environment Canterbury would like to thank the following people for their contribution and assistance in completing this phone survey: Dr Kate Hewson (University of Canterbury's Sustainability Advocate) for coordinating the project on behalf of the University, Hani Kopetschny (University of Canterbury) who assisted in the initial survey design and drafting the survey questions, Paula Arbouw (University of Canterbury) who finalised the survey, analysed the data and compiled this report; and Armin Svoboda, Jean Butcher, Bridget Crompton-Smith and Elissa Mah (University of Canterbury marketing students) for carrying out the phone survey. We would also like to acknowledge the initial advice provide by Jo Campbell from North Shore City Council.

7 Appendix 1

Survey

Interviewer

Interviewer name:.....

Resident information

Name:

Phone number:.....

Good morning/evening, my name is and I'm working on a project for the University of Canterbury and Environment Canterbury, the regional council. How are you today?
I am calling today to conduct a survey about the Okeover Stream. You may have received a letter from us regarding this community project. The survey will take approximately 10 minutes. Is this a suitable time to go through it with you? **IF NO**, Is there another time that I can call back? **(Preferably between 9-11 AM and 7-9PM, otherwise make another time and give to supervisor).**

Before we begin, can I just check that you are over 15 years of age?

Just letting you know that all the information you provide for this survey will remain confidential*.

*This means their personal details and responses to this survey will not be exposed to the public in any way.

1. Have you heard of the Okeover stream before? **CODE**

Yes 1

No 3 **If no or not sure, prompt with; the North stream that runs through Canterbury University and parts of Ilam. If still no, instruct participant to answer questions thinking of Christchurch streams in general.**

Prompted Yes 2

2. How healthy do you think the Okeover stream (or Christchurch streams) is? **CODE**

Very healthy 4

Quite healthy 3

Not very healthy 2

Not at all healthy 1

Don't know 6

3. Why do you say that? **WRITE IN VERBATIM. PROBE TILL NO MORE.**

.....
.....
.....
.....
.....

4. What are the negative things that can affect the health of the Okeover Stream (or Christchurch streams)? **WRITE IN VERBATIM. PROBE TILL NO MORE.**

.....
.....
.....
.....
.....

5. And which ONE of these do you think has **most** effect? **(Mark ONE with an asterisk in answer above)**

6. On a scale of 1 to 5, 1 being very important, 5 being not at all, how important is the health of the Okeover stream to you? **CODE**

1 2 3 4 5

7. Who do you think is responsible for improving the water quality and health of the Okeover Stream? **CODE. if respondent answers 'council' probe whether city or regional**

- The local community 1
 - Stream Users 2
 - City Council 3
 - Regional Council/Environment Canterbury 4
 - DOC (Department of Conservation) 5
 - Community Board 6
 - The Government 7
 - OTHER (write in) 8
-
- Don't know 9
 - Nobody 10

8. Do you think there is anything you could do to improve the health of or minimize your impact on the Okeover Stream? **WRITE ANSWER VERBATIM, PROBE UNTIL NO MORE**

.....
.....
.....
.....
.....
.....

9. Do you remember seeing or hearing anything in the past few months about Christchurch rivers, streams and/or waterways in the media? **CODE**

- Recall (yes) 1
- Do not recall (no) 2

10. What do you remember hearing or seeing? **Just ask them what comes to mind. Include both campaign and other media answers, but don't probe. WRITE ANSWER VERBATIM.**

.....

.....

.....

.....

.....

11. I am now going to ask about a number of general activities around the home that could affect waterways. Please answer according to your normal actions.

- i) Do you wash your car at home?
 - Yes 1 **IF YES, CONTINUE WITH QUESTION**
 - No 2

- i Where do you wash your car? **READ OUT**
 - On the driveway 1
 - On the street 2
 - On a grassy area 3

- ii) Do you do any car maintenance at home?
 - Yes 1 **IF YES, CONTINUE WITH QUESTION**
 - No 2

- i Where do you dispose of car maintenance fluids? Such as oil etc? **READ OUT**
 - Pour down the drain 1
 - Pour down the sink 2
 - Pour onto stony ground 3
 - Take to the rubbish dump/transfer station. 4
 - Other (write answer in) 5

-
- iii) Do you clean your driveway?
 - Yes 1 **IF YES, CONTINUE WITH QUESTION**
 - No 2

- How do you do this? **READ OUT**
 - Sweep with broom* onto the road 1
 - Sweep with broom* and pick up 2
 - Wash with water 3
 - Wash with detergent 4
 - Wash with chemicals 5

*Broom can equal leaf blower

- iv) Do you paint the inside or outside of your house? If so, where do you wash out paint brushes? **READ OUT**
- Inside sink 1
 - Under the tap outside 2
 - Other (write answer in) 3
-

- v) If your trees drop leaves on driveway or footpaths around your property, what do you do with the leaf litter? **READ OUT**
- Nothing, let it rot 1
 - Compost 2
 - Put it in the green waste bin 3
 - Sweep with broom* onto the road 4
 - Other (write answer in) 5
-

*Broom can equal leaf blower

12. Do you or a contractor clean or treat your roof?
- Yes 1 **IF YES, CONTINUE WITH QUESTION**
 - No 2

- How do you do this? **READ OUT**
- Wash with water 1
 - Wash with detergent 2
 - Wash with chemicals 3

13. Which of these would you be willing to do to help improve the health of Okeover stream?
Please note that you are not being asked to commit yourself to anything, we would just like to find out the sorts of things people would be prepared to do.

READ OUT – also read out willing to do, not willing to do and not sure

	Willing to do	Not willing to do	Not sure
Ring an 0800 pollution hotline	1	2	3
Talk to a friend or family member about what you can do	1	2	3
Talk to a neighbour about what you can do	1	2	3
Change what you do around the home	1	2	3
Participate in community activities such as planting days	1	2	3
Become part of a stream health community group	1	2	3

14. What do you think the benefits of having a healthy community stream are? **WRITE ANSWER VERBATIM, PROBE TILL NO MORE**

.....
.....
.....
.....
.....
.....

15. Do you know where the water that **runs off** your property goes to? **if they don't understand run off suggest water from roof, driveway, footpath.**

- Yes 1 Where?.....
- No 2

16. Do you know which river the Okeover stream flows into?

- Yes 1 Which river?.....
- No 2

17. As part of this project we will be running a series of focus groups to come up with some tools/activities for the community. Participants will be compensated for their time (most likely Westfield vouchers). If chosen, would you be willing to participate in a focus group in the future?

- Yes 1
- No 2
- Maybe 3

Record on focus group sheet and note if they come across particularly knowledgeable about streams.

18. **IF YES**, What time of day would normally suit you best?

Collect name and phone number and write below

- Morning 1
- Afternoon 2
- Evenings 3
- Weekends 4

Further availability details:

Full Name:.....
Best number to contact you on :.....
Email address:.....

DEMOGRAPHICS. Now I would like to ask you some questions to make sure we get a good cross section of people.

19. Can you please tell me you age? If not which age bracket do you fall into: **CODE**

- 15-19 1
- 20-25 2
- 26-29 3
- 30-39 4
- 40-49 5

50-59	6
60-69	7
70+	8

20. Gender **CODE**

Male	1
Female	2

21. Do you have dependent children in your household? **If have dependent children ask: how old is the youngest child? If talking to a teenager, ask if they have younger siblings and their sibling's age. CODE ALL THAT APPLY.**

No dependent children	1
Aged under 5	2
Aged 5-15	3
Aged over 15	4

22. Which of the following best describes you: **READ OUT**

High school student	2
Full time parent/primarily at home	3
Retired	4
Not in paid employment (beneficiary/seeking employment)	5
In part time paid employment (1-29 hours per week)	6
In full time paid employment (30 or more hours per week)	7

23. How long have you lived at this address? **CODE**

Less than 1 year	1
1 to 5 years	2
5 to 10 years	3
More than 10 years	4

24. Do you or your family own this house or is it a rental property? **CODE**

Own	1
Rental	2

25. Which of the following ethnic groups do you belong to? **READ OUT.MAY CODE MORE THAN ONE.**

NZ Maori	1
NZ European	2
Asian	
Chinese/Japanese/Korean/Taiwanese?etc	3 CIRCLE ONE
Pacific Islander	4
Other European	5
Other SPECIFY:	6

Thank you very much for your time. A short summary of the results of this survey will be mailed out to you in a few weeks for your information. **END**

If they have any further questions please suggest they ring one of the following during the day.

Leila 3639373

Jenny 3639348

Gerald 3639354

Kate 3642017 (University contact)



Christchurch

58 Kilmore Street, PO Box 345, Christchurch

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Fax: 03 365 3194

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or: 0800 EC INFO (0800 324 636)

Timaru

75 Church Street, PO Box 550, Timaru

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Fax: 03 688 9067

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