



## Consumer Confidence in Seafood:

consumer perceptions of seafood caught from  
the Hunter River and Port Stephens region

October 2016

|   |    |
|---|----|
| management summary  | 3  |
| awareness of, and concern about, the Hunter River and Port Stephens water contamination | 4  |
| impact on the perceptions of local seafood  | 10 |
| awareness of the NSW Government decision to re-open the area                            | 12 |
| final thoughts and questions  | 15 |
| perceptions & behaviours about the local seafood market                                 | 17 |
| respondent profiles   | 19 |
| research design   | 22 |
| appendix I – Technical note   | 23 |
| appendix II – Questionnaire   | 27 |
| further information   | 32 |

In early September 2015, the discovery of a chemical contamination around the Williamstown RAAF base in the NSW Hunter Valley was made public. The NSW Environment Protection Authority warned that chemicals - perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) had been found in surface water, groundwaters and some fish species in nearby waterways. Residents living near the base were warned to take precautions such as not eating fish or oysters from local waterways or drinking bore water.

The NSW Government formed an expert panel and conducted an investigation into this issue. The Expert Panel, after undertaking a major study, has advised that the levels of PFOS and PFOA within seafood in the region are at levels that provide minimal risk to most consumers. Commercial and recreational fishing in the Tilligerry Creek and Fullerton Cove areas has re-opened since October 1<sup>st</sup> 2016, with an ongoing restriction on dusky flathead caught in the Hunter River for commercial fishers.

A market research study was initiated to provide an estimate of the likely 'reach' and 'impact' of this issue. The research was conducted with two target groups of consumers:

- first, among Newcastle consumers (those who live within 50km of Newcastle); and
- secondly, consumers who live 50km-200km from Newcastle.

The surveys have provided estimates that:

- approximately 25% of Newcastle consumers (95% confidence interval of  $\pm 4.9\%$ ) have been impacted (that is, they reported being aware of a water or species contamination issue and indicated at least some level of concern about the impact of the issue); while
- approximately 6% (95% confidence interval of  $\pm 2.6\%$ ) of consumers in the 50km-200km area have been similarly impacted.

When asked about what concerned them most, impacted Newcastle consumers reported concerns about:

- the health impact of eating locally caught seafood (might make me ill);
- the consequences of contamination on both water and seafood quality;
- the economic impact on commercial fishers; and
- the response by, and communications from, NSW Government on the issue.

These impacted consumers were also asked about their awareness of the NSW Government decision to re-open the area following a major study by an expert panel. The results from the surveys show that:

- 38% of impacted Newcastle consumers were aware of the decision; while
- 35%\* of impacted consumers in the 50km-200km vicinity were aware of the decision.

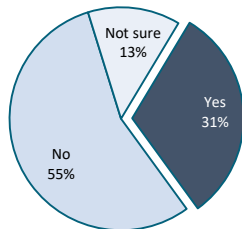
While not statistically significant, the analysis of this result suggests that among impacted Newcastle consumers awareness of the decision is more likely associated with higher levels of confidence in the seafood now available.

The detailed results from the market research now follows.

awareness of, and concern about, the Hunter River and Port Stephens contamination issue

## awareness of Hunter River and Port Stephens water contamination

Have you seen, heard or been told about any recent issues OR have any concerns about the seafood caught locally in the Hunter River and Port Stephens region?



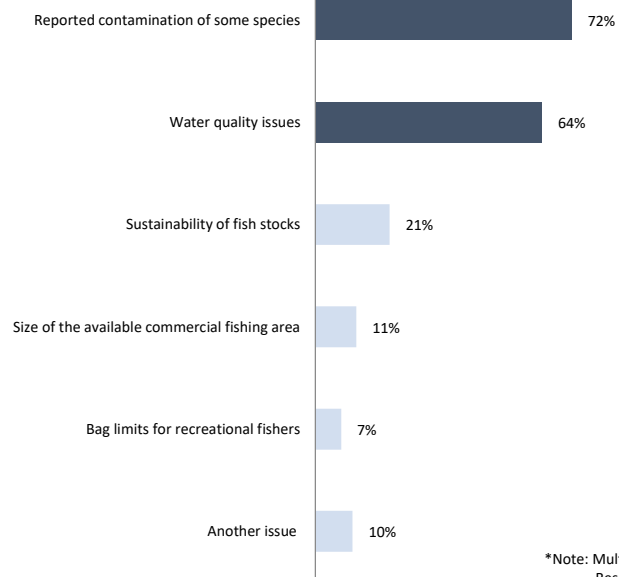
Base: Newcastle Residents + surrounding 50km; (n = 306)



*The results indicate that 31% of Newcastle residents (within 50km) indicated that they have heard or seen issues related to Hunter River/Port Stephens seafood. Of these, 90% identified either species or water contamination as the issue they were aware of. Of these residents, 90% reported some level of concern about the issue.*

*This represents an estimate of approximately 25% of all respondents within 50km of Newcastle who were aware of a contamination issue and had some concern about the issue.*

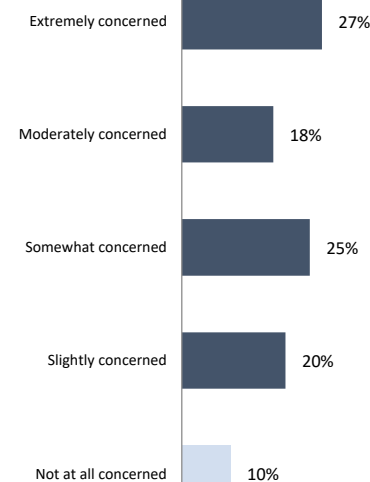
Which of the following issues how have you seen, heard or been told about?



Nett: 90%

\*Note: Multiple responses accepted.  
Results may not add to 100%

And how concerned are you about this issue or issues and its impact on local seafood?



Nett: 90%

Base: Newcastle Residents + surrounding 50km who indicated that they have heard or seen issues related to Hunter River/Port Stephens seafood; (n = 96)

Base: Newcastle Residents + surrounding 50km who identified species contamination or water quality as issues related to Hunter River/Port Stephens seafood; (n = 84)

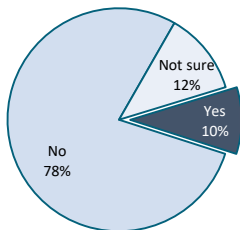
### What we asked:

Have you seen, heard or been told about any recent issues OR have any concerns about the seafood caught locally in the Hunter River and Port Stephens region?  
Which of the following issues how have you seen, heard or been told about? Please select all that apply.  
And how concerned are you about this issue or issues and its impact on local seafood?



## awareness of Hunter River and Port Stephens water contamination

Have you seen, heard or been told about any recent issues OR have any concerns about the seafood caught locally in the Hunter River and Port Stephens region?



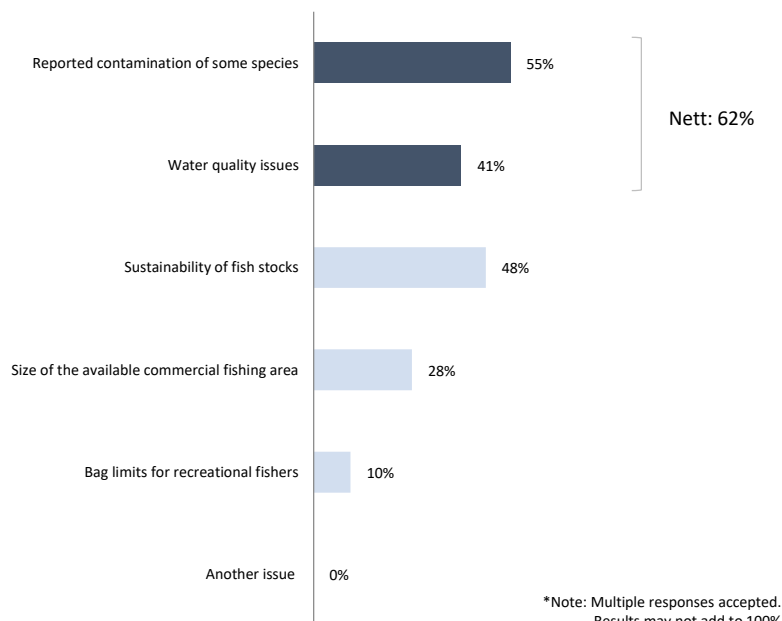
Base: All respondents living within 50km-200km Newcastle; (n = 300)



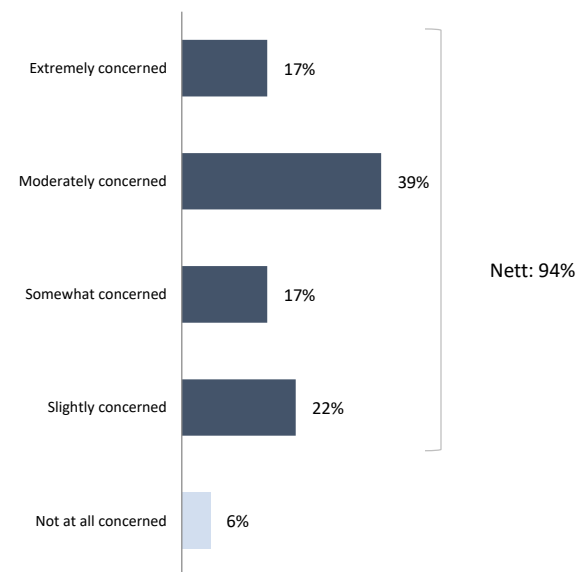
*The results indicate that 10% of residents within 50km-200km of Newcastle indicated that they have heard or seen issues related to Hunter River/Port Stephens seafood. Of these, 62% identified either species or water contamination as the issue they were aware of. Of these residents, 94% reported some level of concern about the issue.*

*This represents an estimate of approximately 6% of all respondents in this second area who were aware of a contamination issue and had some concern about the issue.*

Which of the following issues how have you seen, heard or been told about?



And how concerned are you about this issue or issues and its impact on local seafood?



Base: Those living within 50km-200km Newcastle who indicated that they have heard or seen issues related to Hunter River/Port Stephens seafood; (n = 29)

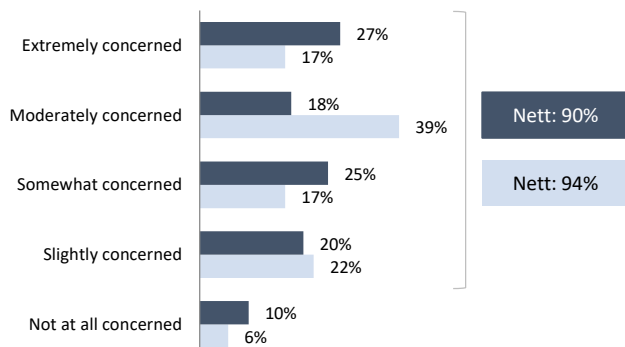
Base: Those living within 50km-200km Newcastle who identified species contamination or water quality as issues related to Hunter River/Port Stephens seafood; (n = 18)

### What we asked:

Have you seen, heard or been told about any recent issues OR have any concerns about the seafood caught locally in the Hunter River and Port Stephens region?  
Which of the following issues how have you seen, heard or been told about? Please select all that apply.  
And how concerned are you about this issue or issues and its impact on local seafood?

## awareness of Hunter River and Port Stephens water contamination

And how concerned are you about this issue or issues and its impact on local seafood?



Base: All respondents who identified species contamination or water quality as issues related to Hunter River/Port Stephens seafood – Newcastle + 50km (n = 84); 50km-200km around Newcastle (n = 18)

In their own words....

*"Water pollution from the RAAF base. I won't eat anything from around the RAAF base."*

*"The manner in which the Department of Defence has treated the people who live around the air base. Especially as they knew what the problems were and said absolutely NOTHING about it or did anything constructive to remediate the problem and now that it has become public scandal, they have their heads buried in the sand."*

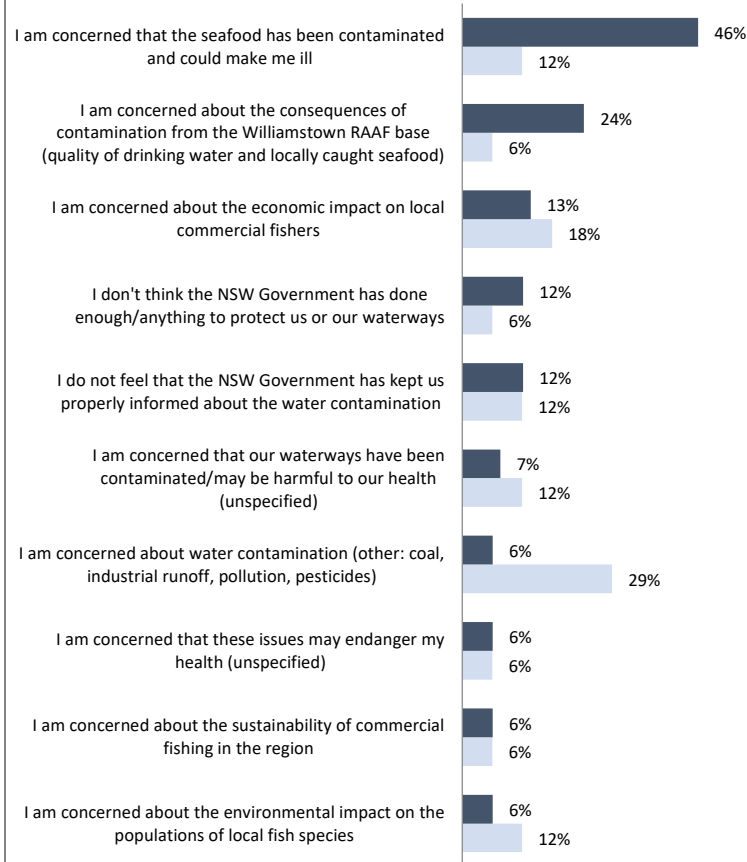
*"My concerns are that it hasn't been publicly explained, and are the rumours true and how bad is the pollution in our local waters."*

*"I am very concerned about the quality of the seafood that has been living in contaminated water from the RAAF base at Williamstown"*

*"Possible water contamination can lead to diseased seafood, causing health issues with humans."*

**"FOOD CONTAMINATION FROM RUNOFF - RAAF BASE!!!"**

What is it about this issue that concerns you the most?



Base: All respondents who have seen or heard about issues in Hunter River and Port Stephens, are concerned about these issues, and provided a response – Newcastle + 50km (n = 67); 50km-200km around Newcastle (n = 17)

Newcastle +  
surrounding 50km

Within 50km to  
200km of Newcastle

What we asked:

And how concerned are you about this issue or issues and its impact on local seafood?

What is it about this issue that concerns you the most? Please provide as much detail as possible...

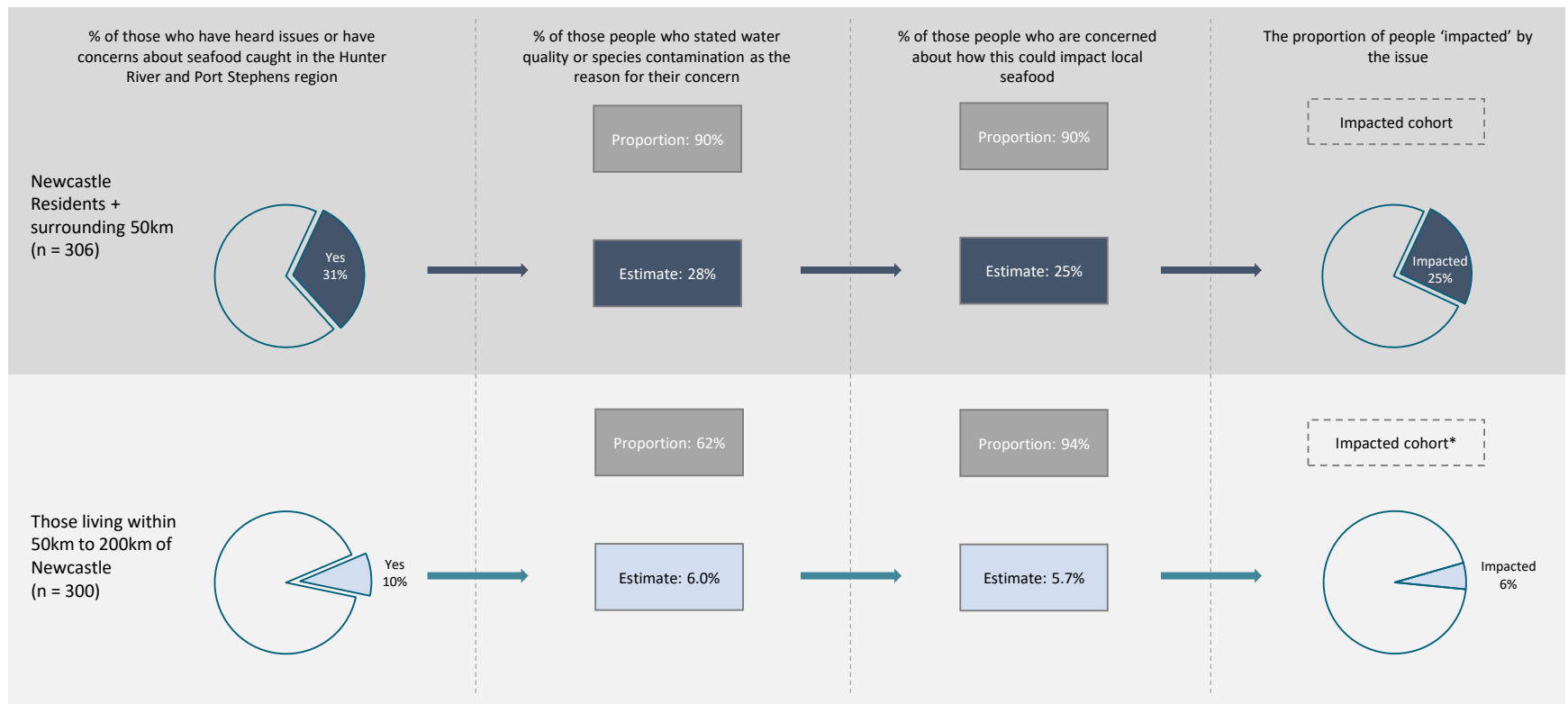
## an estimate of the 'impact' of the issue

*The results below summarise the information provided earlier in this report.*

*The analysis shows the survey estimates of the cohort that has likely been impacted: that is the percentage of consumers who were aware of a contamination issue in the area and had some concern about the issue itself.*

*The results show:*

- a survey impact estimate of approximately 25% for Newcastle consumers (those residents within 50km of Newcastle)
- a survey impact estimate of approximately 6% for consumers 50km-200km of Newcastle



\* Extremely small sample sizes. Exercise caution with these results



## profile comparison

Newcastle Residents + surrounding 50km  
(n = 306)

|   |                       | Impacted<br>(n = 76) | Not impacted<br>(n = 260) |
|---|-----------------------|----------------------|---------------------------|
| Age                                     | 18-24 years of age    | 0%                   | 15%                       |
|   | 25-34 years of age    | 13%                  | 18%                       |
|   | 35-44 years of age    | 15%                  | 17%                       |
|   | 45-54 years of age    | 17%                  | 19%                       |
|   | 55-64 years of age    | 24%                  | 15%                       |
|   | 65+ years old         | 32%                  | 16%                       |
| Gender                                  | Male                  | 62%                  | 44%                       |
|   | Female                | 38%                  | 55%                       |
|   | Other                 | 0%                   | 1%                        |
| Familiarity with local seafood          | Very familiar         | 15%                  | 6%                        |
|   | Somewhat familiar     | 52%                  | 49%                       |
|   | Not at all familiar   | 33%                  | 45%                       |
| How often they eat <i>Fresh</i> seafood | More than once a week | 9%                   | 4%                        |
|   | Once a week           | 22%                  | 17%                       |
|   | Once a fortnight      | 12%                  | 16%                       |
|   | About once a month    | 18%                  | 15%                       |
| Household                               | Single                | 13%                  | 33%                       |
|   | Married               | 63%                  | 46%                       |
|   | De facto relationship | 15%                  | 13%                       |
|   | Other                 | 8%                   | 8%                        |
|   | Prefer not to say     | 1%                   | 0%                        |

Those living within 50km to 200km of Newcastle  
(n = 300)

|   |                       | Impacted<br>(n = 17) | Not impacted<br>(n = 283) |
|---|-----------------------|----------------------|---------------------------|
| Age                                     | 18-24 years of age    | 6%                   | 14%                       |
|   | 25-34 years of age    | 23%                  | 22%                       |
|   | 35-44 years of age    | 35%                  | 20%                       |
|   | 45-54 years of age    | 12%                  | 18%                       |
|   | 55-64 years of age    | 12%                  | 12%                       |
|   | 65+ years old         | 12%                  | 14%                       |
| Gender                                  | Male                  | 65%                  | 51%                       |
|   | Female                | 35%                  | 49%                       |
|   | Other                 | 0%                   | <1%                       |
| Familiarity with local seafood          | Very familiar         | 29%                  | 8%                        |
|   | Somewhat familiar     | 47%                  | 39%                       |
|   | Not at all familiar   | 24%                  | 53%                       |
| How often they eat <i>Fresh</i> seafood | More than once a week | 47%                  | 12%                       |
|   | Once a week           | 18%                  | 22%                       |
|   | Once a fortnight      | 12%                  | 17%                       |
|   | About once a month    | 12%                  | 16%                       |
| Household                               | Single                | 35%                  | 35%                       |
|   | Married               | 41%                  | 51%                       |
|   | De facto relationship | 24%                  | 12%                       |
|   | Other                 | 0%                   | 2%                        |
|   | Prefer not to say     | 0%                   | 0%                        |

impact on the perceptions of local seafood

## impact on the perceptions of local seafood

Given the issue or issues that have occurred, would you agree or disagree that...

|  |   | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree | Not sure |
|--|---|-------------------|----------|----------------------------|-------|----------------|----------|
| The issues will have an impact on whether you buy seafood caught locally in the Hunter River and Port Stephens region? | Impacted Newcastle + surrounding 50km (n = 76)                | 1%                | 7%       | 17%                        | 57%   | 17%            | 1%       |
|  | Impacted residents within 50km to 200km of Newcastle (n = 17) | 0%                | 6%       | 29%                        | 35%   | 30%            | 0%       |
| You will wait until the issue is resolved before buying locally caught seafood?  | Impacted Newcastle + surrounding 50km (n = 76)                | 0%                | 16%      | 29%                        | 37%   | 14%            | 4%       |
|  | Impacted residents within 50km to 200km of Newcastle (n = 17) | 0%                | 12%      | 18%                        | 47%   | 23%            | 0%       |
| There are sufficient controls in place to manage issues like this?   | Impacted Newcastle + surrounding 50km (n = 76)                | 22%               | 24%      | 22%                        | 14%   | 7%             | 11%      |
|  | Impacted residents within 50km to 200km of Newcastle (n = 17) | 12%               | 12%      | 35%                        | 23%   | 18%            | 0%       |
| The long term impact on seafood caught in the Hunter River and Port Stephens region will not be affected?              | Impacted Newcastle + surrounding 50km (n = 76)                | 14%               | 32%      | 17%                        | 22%   | 4%             | 11%      |
|  | Impacted residents within 50km to 200km of Newcastle (n = 17) | 12%               | 29%      | 6%                         | 12%   | 35%            | 6%       |

What we asked:

Given the issue or issues that have occurred, would you agree or disagree that...

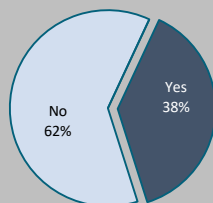
awareness of the NSW Government decision to re-open the area

## impact on the perceptions of local seafood

The NSW Government formed an expert panel and conducted an investigation into this issue. The Expert Panel, after undertaking a major study, has advised that the levels of PFAS within seafood in the region are at levels that provide minimal risk to most consumers. Commercial and recreational fishing in the Tilligerry Creek and Fullerton Cove areas has re-opened since October 1<sup>st</sup> 2016, with an ongoing restriction on dusky flathead caught in the Hunter River for commercial fishers.

Before today were you aware of this decision?

Impacted Newcastle Residents + surrounding 50km  
(n = 76)

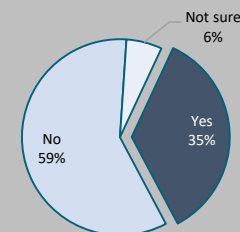


Thinking about everything we have spoken about today, how confident are you in buying and eating the seafood that is caught locally in the Hunter River and Port Stephens region?

|                      | Aware of NSW Govt decision<br>(n = 29) | Not aware of NSW Govt decision<br>(n = 47) |
|----------------------|--|--|
| Extremely confident  | 17%                                    | 2%   |
| Moderately confident | 28%                                    | 38%  |
| Slightly confident   | 38%                                    | 38%  |
| Not at all confident | 17%                                    | 21%  |

Before today were you aware of this decision?

Those living within 50km to 200km of Newcastle  
(n = 17)\*



Thinking about everything we have spoken about today, how confident are you in buying and eating the seafood that is caught locally in the Hunter River and Port Stephens region?

|                      | Aware of NSW Govt decision<br>(n = 6)* | Not aware of NSW Govt decision<br>(n = 11)* |
|----------------------|--|---|
| Extremely confident  | 0%                                     | 9%  |
| Moderately confident | 17%                                    | 18%   |
| Slightly confident   | 67%                                    | 45%   |
| Not at all confident | 17%                                    | 27%   |

### What we asked:

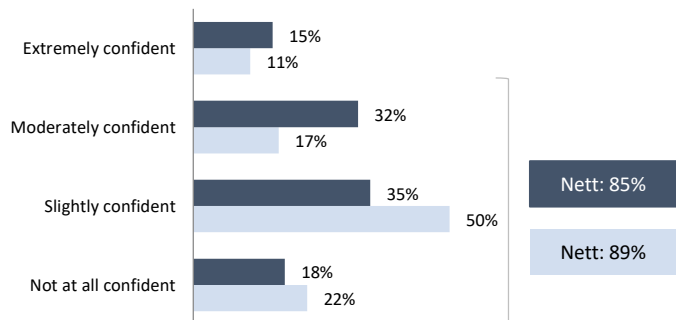
The NSW Government formed an expert panel and conducted an investigation into this issue. The Expert Panel, after undertaking a major study, has advised that the levels of PFAS within seafood in the region are at levels that provide minimal risk to most consumers. Commercial and recreational fishing in the Tilligerry Creek and Fullerton Cove areas has re-opened since October 1<sup>st</sup> 2016, with an ongoing restriction on dusky flathead caught in the Hunter River for commercial fishers. Before today were you aware of this decision?

Thinking about everything we have spoken about today, how confident are you in buying and eating the seafood that is caught locally in the Hunter River and Port Stephens region?

\* Extremely small sample sizes. Exercise caution with these results

## impact on the perceptions of local seafood

Thinking about everything we have spoken about today, how confident are you in buying and eating the seafood that is caught locally in the Hunter River and Port Stephens region?



Base: All respondents who have seen or heard about issues about species contamination or water quality in Hunter River and Port Stephens – Newcastle + 50km (n = 84); 50km-200km around Newcastle (n = 18)

In their own words....

*"Report the levels of contamination and how they have declined. We need the figures for proof"*

*"We hear enough news on TV about other regions, but we are left to spread news by word-of-mouth. There isn't much news about my local area"*

*"I want to see test results published regularly in the local papers"*

*"Stringent independent scientific testing and public printing of results. Opinions of the local fishermen. Don't use 'Expert' panels. An Expert is a drip under pressure, especially if appointed by the government"*

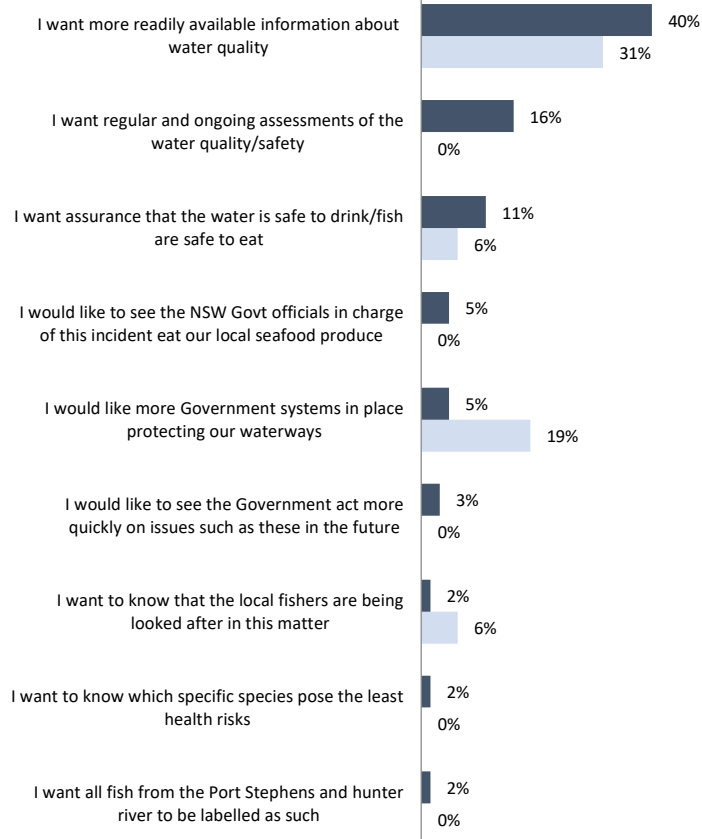
*"Public Notices stating that local seafood poses no risk to consumers"*

*"More studies and also needs to be advertised more for more people to feel comfortable"*

*"More information regarding the present situation being given in local media outlets"*

*"Explain the evidence that supports the statement that the impact is minimal"*

What other information would help you feel more comfortable that the situation is being managed appropriately?



Base: All respondents who have seen or heard about issues in Hunter River and Port Stephens and provided a response – Newcastle + 50km (n = 67); 50km-200km around Newcastle (n = 16)

\*Note: this chart excludes responses accounting for <2% of responses given by respondents from Newcastle and the surrounding 50km.

Newcastle +  
surrounding 50km

Within 50km to  
200km of Newcastle

What we asked:

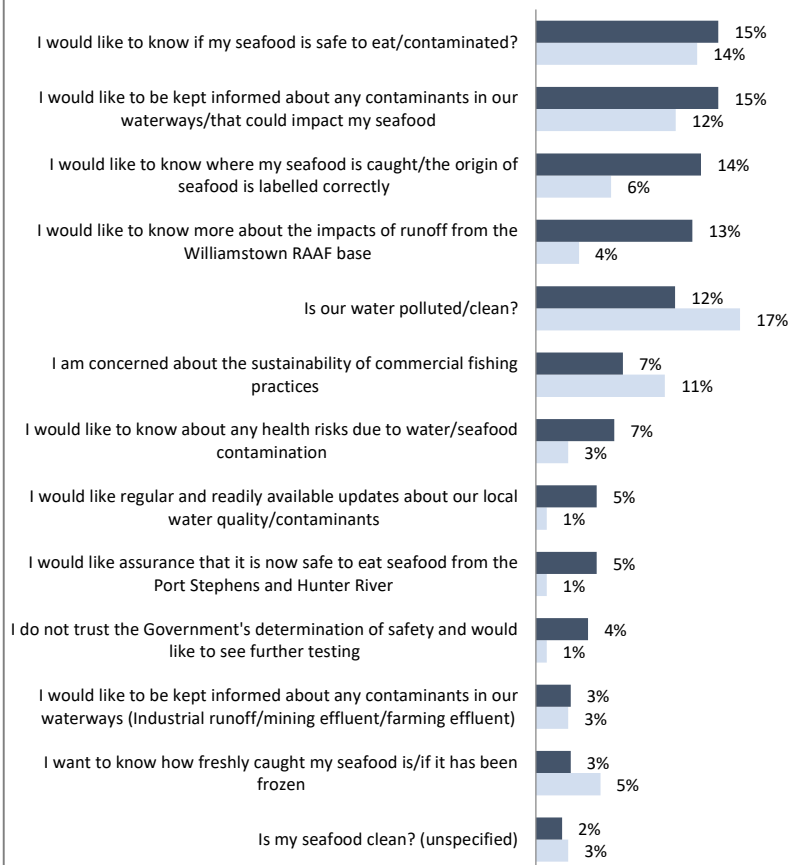
Thinking about everything we have spoken about today, how confident are you in buying and eating the seafood that is caught locally in the Hunter River and Port Stephens region?  
What other information would help you feel more comfortable that the situation is being managed appropriately?



final thoughts and questions

## final thoughts and questions

What questions or concerns, if any, do you have about the seafood sourced from the Hunter River and Port Stephens region?



Base: All respondents (excluding those who answered "don't know"/"nothing"—Newcastle + 50km (n=306); 50km-200km around Newcastle (n=300)).  
 \*Note: this chart excludes responses accounting for <5% responses given by the total sample

In their own words...  
 (from respondents within 50km of Newcastle)

*"I want to know what is safe to eat. It can't be more simple than that. But the source must be reputable"*

*"I'm simply concerned about water contamination leading to disease in the supply chain"*

*"The only concerns I would have is if the seafood is being correctly labelled, as I have heard that some supermarkets are being dishonest about origin of seafood."*

*"I just want to understand how the 'safe' decision was arrived at"*

*"Is it polluted by chemicals? Does disease affect the fish in this region? Are fish in short supply in this region?"*

*"I do not know a lot about seafood so where it is sourced is not of importance to me as long as it is Australian by preference"*

*"I would like to know more about the possible after effects from chemical contamination from the air force base due to spillage of fire retardant"*

*"Some of the fish may be contaminated by chemicals leaked from RAAF base"*

*"That the water quality is good where they have sourced the seafood from"*

*"I would like to know as close as possible exactly where the seafood was harvested as there is a variety of water types and fish/shellfish varieties and the cleanliness of the water varies from place to place"*

Newcastle + surrounding 50km  
 Within 50km to 200km of Newcastle

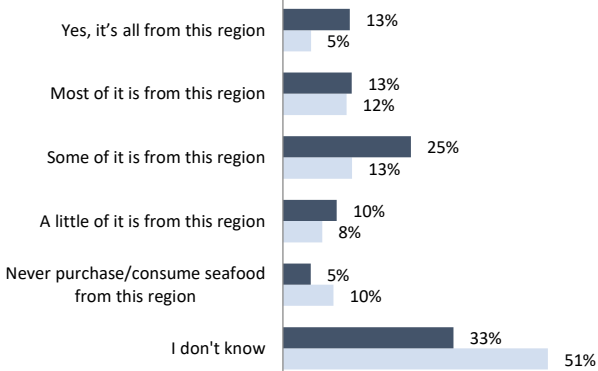
What we asked:

What questions or concerns, if any, do you have about the seafood sourced from the Hunter River and Port Stephens region?

perceptions & behaviours about the local seafood market

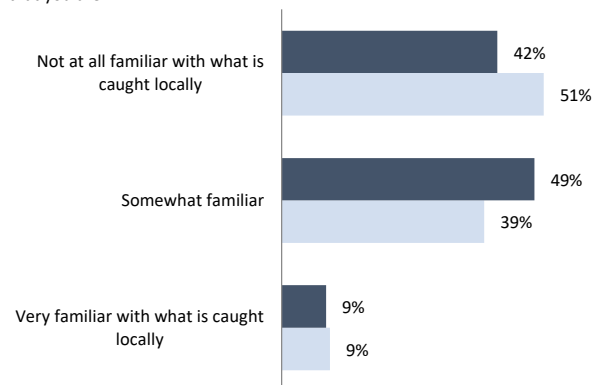
## perceptions & behaviours about the local seafood market

Do you purchase or consume any of your fresh seafood from seafood caught locally in the Hunter River and Port Stephens region?



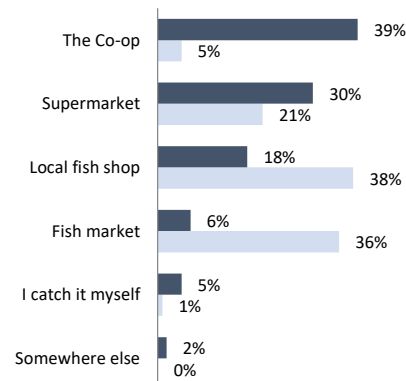
Base: All respondents who eat fresh seafood – Newcastle + 50km (n = 278); 50km-200km around Newcastle (n = 276)

How familiar are you with the range of different seafood caught locally? Would you say that you are...



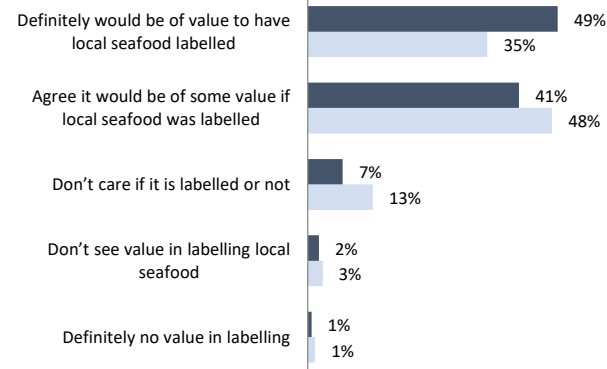
Base: All respondents who eat fresh seafood – Newcastle + 50km (n = 278); 50km-200km around Newcastle (n = 276)

Where do you usually buy your locally caught seafood from?



Base: All respondents who eat fresh seafood and purchase local seafood – Newcastle + 50km (n = 171); 50km-200km around Newcastle (n = 107)

Would labelling of seafood caught locally in the Hunter River and Port Stephens region be of any value to you when purchasing fresh seafood?



Base: All respondents who eat fresh seafood – Newcastle + 50km (n = 278); 50km-200km around Newcastle (n = 276)

Newcastle +  
surrounding 50km

Within 50km to  
200km of Newcastle

What we asked:

Do you purchase or consume any of your fresh seafood from seafood caught locally in the Hunter River and Port Stephens region?

Where do you usually buy your locally caught seafood from?

How familiar are you with the range of different seafood caught locally? Would you say that you are...

Would labelling of seafood caught locally in the Hunter River and Port Stephens region be of any value to you when purchasing fresh seafood?

respondent profiles

|   | How often do you eat Fresh seafood?       |  | How often do you eat Frozen seafood?      |  | How often do you eat Tinned seafood?      |  |
|---|---|--|---|--|---|--|
|   | Newcastle + surrounding 50km<br>(n = 306) | Within 50km to 200km of Newcastle<br>(n = 300) | Newcastle + surrounding 50km<br>(n = 306) | Within 50km to 200km of Newcastle<br>(n = 300) | Newcastle + surrounding 50km<br>(n = 306) | Within 50km to 200km of Newcastle<br>(n = 300) |
| More than once a week                       | 5%  | 14%  | 5%  | 10%  | 12%                                       | 16%  |
| Once a week                                 | 18%                                       | 22%  | 16%                                       | 20%  | 16%                                       | 23%  |
| Once a fortnight                            | 15%                                       | 17%  | 14%                                       | 16%  | 14%                                       | 13%  |
| About once a month                          | 16%                                       | 15%  | 25%                                       | 13%  | 18%                                       | 11%  |
| Six times a year (once every two months)    | 8%  | 9%   | 7%  | 8%   | 6%  | 7%   |
| Four times a year (once every three months) | 6%  | 3%   | 4%  | 1%   | 3%  | 3%   |
| Three times a year (once every four months) | 7%  | 3%   | 4%  | 2%   | 4%  | 1%   |
| Twice a year (every six months)             | 7%  | 4%   | 5%  | 4%   | 4%  | 3%   |
| Once a year                                 | 4%  | 1%   | 4%  | 1%   | 2%  | 2%   |
| Less often                                  | 5%  | 4%   | 5%  | 9%   | 5%  | 6%   |
| Never eat                                   | 7%  | 7%   | 9%  | 13%  | 14%                                       | 13%  |
| Not sure / I don't know                     | 2%  | 1%   | 2%  | 3%   | 2%  | 2%   |

*What we asked:*

Over the past 12 months, how often would you say that you have eaten fresh seafood for a main meal?

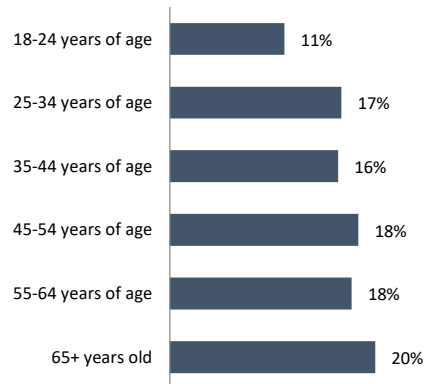
Over the past 12 months, how often would you say that you have eaten frozen fish or seafood for a main meal?

Over the past 12 months, how often would you say that you have eaten tinned fish or seafood (i.e. tinned tuna, tinned salmon, prawns or mussels) for a main meal?



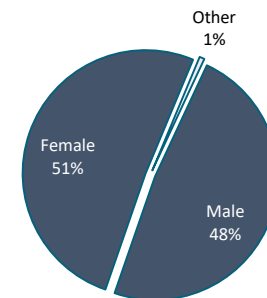
## respondent profiles

Age of survey respondents



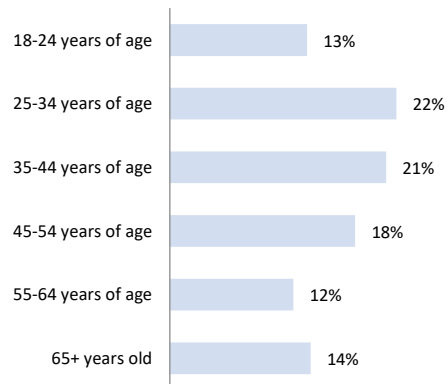
Base: All respondents - Newcastle + 50km (n = 306);

Gender of survey respondents



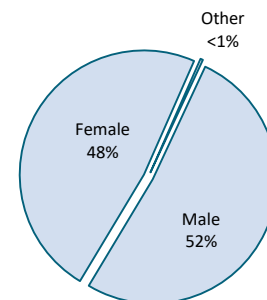
Base: All respondents - Newcastle + 50km (n = 306);

Age of survey respondents



Base: All respondents - 50km-200km around Newcastle (n = 300)

Gender of survey respondents



Base: All respondents - 50km-200km around Newcastle (n = 300)

Newcastle + surrounding 50km      Within 50km to 200km of Newcastle

### What we asked:

To begin with, in which of the following age brackets do you fall...  
Are you...

### Methodology

The study involved an online survey amongst two target groups of consumers. These target groups were:

Target group 1: consumers aged 18+ who were residents of Newcastle and the surrounding 50km;  
Target group 2: consumers aged 18+ who were residents residing within 50km to 200km of Newcastle.

Consumers were sourced via an accredited online market research panel provider; Survey Sampling International (SSI). This methodology provides a random and representative sample of consumers in a highly cost efficient way.

### Sample

The final sample size for the market research was:

- For target group 1: n = 306 adults living in Newcastle and the surrounding 50km;
- For target group 2: n = 300 adults living within 50km-200km of Newcastle.

The final age and gender profile of these two samples was matched back to the ABS estimate of the population profile. It was decided that, given the similarity of the profiles, no weighting of the market research data would be required.

### Questionnaire

Respondents were asked to completed a 10 minute online survey which covered a range of topics including:

- Seafood consumption and purchasing behaviour;
- Perceptions of seafood from the Hunter River & Port Stephens region;
- Awareness of issues that may impact seafood from the Hunter River & Port Stephens region;
- Identification of the issue(s) they were aware of;
- Perceived impact of these issues on seafood from the Hunter River & Port Stephens region;
- Possible measure to abate concern stemming from these perceived impacts; and
- Demographics.

A copy of the questionnaire used in the research is included in the appendix of this report.

### Timing

In total, 606 interviews were conducted between the 19<sup>th</sup> October – 25<sup>th</sup> October 2016.

## appendix I – Technical note

### Reliability of the Estimates

The estimates in this report are based on information obtained from a sample survey. Any data collection may encounter factors, known as non-sampling error, which can impact on the reliability of the resulting statistics. In addition, the reliability of estimates based on sample surveys are also subject to sampling variability. That is, the estimates may differ from those that would have been produced had all persons in the population been included in the survey.

### Non-sampling error

Non-sampling error may occur in any collection, whether it is based on a sample or a full count such as a census. Sources of non-sampling error include non-response, errors in reporting by respondents or recording of answers by interviewers and errors in coding and processing data. Every effort is made to reduce non-sampling error by careful design of survey questionnaires and quality control procedures at all stages of data processing.

### Sampling error

One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied by chance because only a sample of persons was included. There are about two chances in three (67%) that a sample estimate will differ by less than one SE from the number that would have been obtained if all persons had been surveyed, and about 19 chances in 20 (95%) that the difference will be less than two SEs.

### Calculation of Confidence Interval

If 50% of all the people in a population of 20,000 people drink coffee in the morning, and if you were repeat the survey of 377 people ("Did you drink coffee this morning?") many times, then 95% of the time, your survey would find that between 45% and 55% of the people in your sample answered "Yes".

The remaining 5% of the time, or for 1 in 20 survey questions, you would expect the survey response to be more than the margin of error away from the true answer.

When you survey a sample of the population, you don't know that you've found the correct answer, but you do know that there's a 95% chance that you're within the margin of error of the correct answer.

In terms of the numbers selected above, the margin of error *MoE* is given by:

$$MoE = z * \sqrt{\frac{\hat{p}(1 - \hat{p})}{n}}$$

where *n* is the sample size,  $\hat{p}$  is the fraction of responses that you are interested in, and *z* is the [critical value](#) for the 95% confidence level (in this case, 1.96).

This calculation is based on the [Normal distribution](#), and assumes you have more than about 30 samples.

| Margin of Error for a given sample size and survey estimate. |     | Sample Size |          |          |         |         |         |         |
|--|-----|-------------|----------|----------|---------|---------|---------|---------|
|  |     | 30          | 50       | 75       | 100     | 150     | 200     | 300     |
| Survey Estimate  | 10% | n/a         | n/a      | n/a      | ± 5.88% | ± 4.80% | ± 4.16% | ± 3.39% |
|  | 20% | n/a         | ± 11.09% | ± 9.05%  | ± 7.84% | ± 6.40% | ± 5.54% | ± 4.53% |
|  | 30% | n/a         | ± 12.70% | ± 10.37% | ± 8.98% | ± 7.33% | ± 6.35% | ± 5.18% |
|  | 40% | ± 17.53%    | ± 13.58% | ± 11.09% | ± 9.60% | ± 7.84% | ± 6.79% | ± 5.54% |
|  | 50% | ± 17.89%    | ± 13.86% | ± 11.32% | ± 9.80% | ± 8.00% | ± 6.93% | ± 5.66% |
|  | 60% | ± 17.53%    | ± 13.58% | ± 11.09% | ± 9.60% | ± 7.84% | ± 6.79% | ± 5.54% |
|  | 70% | n/a         | ± 12.70% | ± 10.37% | ± 8.98% | ± 7.33% | ± 6.35% | ± 5.18% |
|  | 80% | n/a         | ± 11.09% | ± 9.05%  | ± 7.84% | ± 6.40% | ± 5.54% | ± 4.53% |
|  | 90% | n/a         | n/a      | n/a      | ± 5.88% | ± 4.80% | ± 4.16% | ± 3.39% |

Note. Margin of Errors are provided at the 95% confidence level on the assumption of a large population size (non-finite) and normally distributed. Results labelled "n/a" are due to the assumption of the normal distribution not being upheld ( $n\hat{p} < 10$  or  $n(1-\hat{p}) < 10$ ).

## appendix II – Questionnaire



### Seafood Confidence Omnibus

October 2016  
FINAL 20.10.2016

#### Introduction

Thank you for agreeing to participate in this survey. Your feedback is highly appreciated.

This survey should take about 5 - 10 minutes to complete. All information collected in this study is for the purposes of research only and will remain confidential. There is no right or wrong answers; we are simply interested in your views and opinions.

If you have any questions, please email us at [dbattista@intuitivesolutions.com.au](mailto:dbattista@intuitivesolutions.com.au).

#### Screener and Profiling

[QUOTA'S IN PLACE TO ENSURE AGE, GENDER, AND LOCATION IS REPRESENTATIVE]

Q1 To begin with, in which of the following age brackets do you fall...

|                       |           |    |
|-----------------------|-----------|----|
| Under 18 years of age | TERMINATE | 1  |
| 18-24 years of age    | CONTINUE  | 2  |
| 25-34 years of age    |           | 3  |
| 35-44 years of age    |           | 4  |
| 45-54 years of age    |           | 5  |
| 55-64 years of age    |           | 6  |
| 65+ years old         |           | 7  |
| Prefer not to say     | TERMINATE | 99 |

Q2 Are you...

|        |   |
|--------|---|
| Male   | 1 |
| Female | 2 |
| Other  | 3 |

Q3 What postcode do you reside in?

|          |      |
|----------|------|
| Postcode | XXXX |
|----------|------|

#### Consumption behaviours

Now we would just like to ask a few questions about how often you and those you share your home with eat seafood.

- Q4 Over the past 12 months, how often would you say that you have eaten **fresh seafood** for a main meal?
- Q5 Over the past 12 months, how often would you say that you have eaten **frozen fish or seafood** for a main meal?
- Q6 Over the past 12 months, how often would you say that you have eaten **tinned fish or seafood (i.e. tinned tuna, tinned salmon, prawns or mussels)** for a main meal?

|   | Fresh fish | Frozen fish | Tinned fish |
|---|------------|-------------|-------------|
| More than once a week                       | 1          | 1           | 1           |
| Once a week                                 | 2          | 2           | 2           |
| Once a fortnight                            | 3          | 3           | 3           |
| About once a month                          | 4          | 4           | 4           |
| Six times a year (once every two months)    | 5          | 5           | 5           |
| Four times a year (once every three months) | 6          | 6           | 6           |
| Three times a year (once every four months) | 7          | 7           | 7           |
| Twice a year (every six months)             | 8          | 8           | 8           |
| Once a year                                 | 9          | 9           | 9           |
| Less often                                  | 10         | 10          | 10          |
| Never eat                                   | 11         | 11          | 11          |
| Not sure / I don't know                     | 99         | 99          | 99          |

[IF EAT FRESH SEAFOOD (CODE 1 THROUGH 10 FOR Q4), CONTINUE. OTHERWISE GO TO Q11]

Q7 Do you purchase or consume any of your fresh seafood from seafood caught locally in the Hunter River and Port Stephens region?

|   |    |
|---|----|
| Yes, it's all from this region                                    | 1  |
| Most of it is from this region                                    | 2  |
| Some of it is from this region                                    | 3  |
| A little of it is from this region                                | 4  |
| Never purchase/consume seafood from this region                   | 5  |
| I don't know where the seafood I purchase/consume has been caught | 99 |

[IF Q7 > 5 GO TO Q9 OTHERWISE CONTINUE]

Q8 Where do you usually buy your locally caught seafood from?

|                                 |    |
|---------------------------------|----|
| The Co-op                       | 1  |
| Fish market                     | 2  |
| Local fish shop                 | 3  |
| Supermarket                     | 4  |
| I catch it myself               | 5  |
| Somewhere else (please specify) | 99 |

Q9 How familiar are you with the range of different seafood caught locally? Would you say that you are are

|   |   |
|---|---|
| Very familiar with what is caught locally       | 1 |
| Somewhat familiar                               | 2 |
| Not at all familiar with what is caught locally | 5 |

Q10 Would labelling of seafood caught locally in the Hunter River and Port Stephens region be of any value to you when purchasing fresh seafood?

|   |   |
|---|---|
| Definitely would be of value to have local seafood labelled   | 1 |
| Agree it would be of some value if local seafood was labelled | 2 |
| Don't care if it is labelled or not                           | 3 |
| Don't see value in labelling local seafood                    | 4 |
| Definitely no value in labelling                              | 5 |

#### Local seafood experience

In this section we would like to ask you about your experiences with local seafood.

Q11 On a scale of 0 to 10, where 0 is poor and 10 is excellent, how would you rate the seafood caught locally in the Hunter River and Port Stephens region?

|      |   |   |   |   |   |   |   |   |   |    |    |           |          |
|------|---|---|---|---|---|---|---|---|---|----|----|-----------|----------|
| Poor |   |   |   |   |   |   |   |   |   |    |    | Excellent | Not sure |
| 0    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 99 |           |          |

Q12 And how confident are you in buying and eating the seafood that is caught locally in the Hunter River and Port Stephens region?

|                      |   |
|----------------------|---|
| Not at all confident | 1 |
| Slightly confident   | 2 |
| Moderately confident | 3 |
| Extremely confident  | 4 |

Q13 Have you seen, heard or been told about any recent **issues** OR have any **concerns** about the seafood caught locally in the Hunter River and Port Stephens region?

|          |    |
|----------|----|
| Yes      | 1  |
| No       | 2  |
| Not sure | 99 |

[IF Q13 = 2 OR 99, GO TO Q21]

Q14 And which of the following issues have you seen, heard or been told about? Please select all that apply.

|   |    |
|---|----|
| Size of the available commercial fishing area | 1  |
| Sustainability of fish stocks                 | 2  |
| Reported contamination of some species        | 3  |
| Bag limits for recreational fishers           | 4  |
| Water quality issues                          | 5  |
| Another issue (please specify what this was)  | 99 |

[IF Q14 = 3 OR 5 CONTINUE OTHERWISE GO TO Q21]

Q15 And how concerned are you about this issue or issues and its impact on local seafood?

|                      |   |
|----------------------|---|
| Not at all concerned | 1 |
| Slightly concerned   | 2 |
| Somewhat concerned   | 3 |
| Moderately concerned | 4 |
| Extremely concerned  | 5 |

[IF Q15>1 CONTINUE; OTHERWISE GO TO Q17]

Q16 What is it about this issue that concerns you the most?  
Please provide as much detail as possible.

---



---

Q17 Given the issue or issues that have occurred, would you agree or disagree that...

|  | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree | Not sure |
|--|-------------------|----------|----------------------------|-------|----------------|----------|
| The issues will have an impact on whether you buy seafood caught locally in the Hunter River and Port Stephens region? | 1                 | 2        | 3                          | 4     | 5              | 99       |
| You will wait until the issue is resolved before buying locally caught seafood?  | 1                 | 2        | 3                          | 4     | 5              | 99       |
| There are sufficient controls in place to manage issues like this?   | 1                 | 2        | 3                          | 4     | 5              | 99       |
| The <del>long term</del> impact on seafood caught in the Hunter River and Port Stephens region will not be affected?   | 1                 | 2        | 3                          | 4     | 5              | 99       |

Q18 The NSW Government formed an expert panel and ~~conducted an investigation into~~ this issue. The Expert Panel, after undertaking a major study, has advised that the levels of PFAS within seafood in the region are at levels that provide minimal risk to most consumers. Commercial and recreational fishing in the Tulligerry Creek and Fullerton Cove areas has re-opened since October 1<sup>st</sup> 2016, with an ongoing restriction on dusky flathead caught in the Hunter River for commercial fishers.

Before today, were you aware of this decision?

|          |    |
|----------|----|
| Yes      | 1  |
| No       | 2  |
| Not sure | 99 |

Q19 Thinking about everything we have spoken about today, how confident are you in buying and eating the seafood that is caught locally in the Hunter River and Port Stephens region?

|                      |   |
|----------------------|---|
| Not at all confident | 1 |
| Slightly confident   | 2 |
| Moderately confident | 3 |
| Extremely confident  | 4 |

[IF Q19<4 CONTINUE; OTHERWISE GO TO Q21]

Q20 What other information would help you feel more comfortable that the situation is being managed appropriately?

Please provide as much detail as possible.

---



---

[ASK ALL]

Q21 What questions or concerns, if any, do you have about the seafood sourced from the Hunter River and Port Stephens region?

Please provide as much detail as possible.

---



---

#### Profiling

Finally, we would like to ask you a few things about you.

Q22 Which one of the following best describes your household situation?

|                                   |    |
|-----------------------------------|----|
| Single                            | 1  |
| Married                           | 2  |
| Living in a de facto relationship | 3  |
| Other                             | 99 |
| Prefer not to say                 | 99 |

Q23 Do you have any children? Please select all that apply.

|  |           |   |
|--|-----------|---|
| Yes, they live with me in this household | CONTINUE  | 1 |
| Yes, but they live elsewhere             | GO TO Q25 | 2 |
| No, do not have children                 | GO TO Q25 | 3 |

Q24 What is the age of the youngest child living with you?

|                    |   |
|--------------------|---|
| 3 years or younger | 1 |
| 4-9 years          | 2 |
| 10-17 years        | 3 |
| 18-24 years        | 4 |
| 25 years or older  | 5 |

Q25 What is your current household income before tax?

|                       |   |
|-----------------------|---|
| Under \$25,000        | 1 |
| \$25,001 - \$50,000   | 2 |
| \$50,001 - \$75,000   | 3 |
| \$75,001 - \$100,000  | 4 |
| \$100,001 - \$150,000 | 5 |
| \$150,001 - \$200,000 | 6 |
| Over \$200,000        | 7 |

**Closing**

Thank you for your time and co-operation. We really appreciate your feedback.

Please click on the 'submit' button below to submit your responses.

**Consumer Confidence in Seafood:**  
consumer perceptions of seafood caught from  
the Hunter River and Port Stephens region

October 2016

want more information?

Contact Intuitive Solutions

Michael Sparks  
Director | Intuitive Solutions  
E: [msparks@intuitivesolutions.com.au](mailto:msparks@intuitivesolutions.com.au)