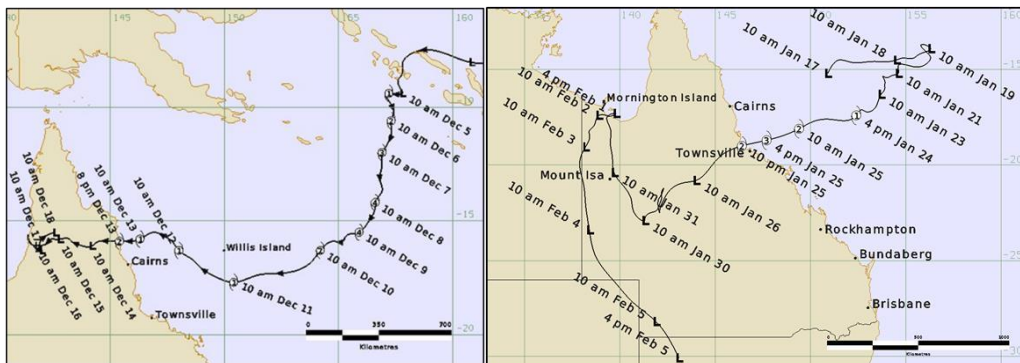


Cyclone and Flood Post Disaster Surveys: Cyclone Jasper December 2023 and Cyclone Kirrily January 2024



The Social Impacts and Preparedness Experiences of Households Which Experienced the Cyclone and Floods of Tropical Cyclone Jasper in Far North Queensland and Tropical Cyclone Kirrily in North Queensland

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**Online Community Surveys in Response to Cyclones Jasper and Kirrily
2023/24**

Summary

Survey questions covered the following themes:

- Basic demographics
- Preparedness (kits, plans, insurance)
- Impacts/evacuations
- Source of information and perceived credibility (and misinformation)

JCU Ethics approval: H9365

267 responses (209 TC Kirrily, 58 TC Jasper) distributed as online survey open over 4 weeks until 1 March 2024. This was advertised primarily through social media and later through local disaster management and recovery contacts/emails.

Event Preparedness and Impacts

Respondents indicate that they were prepared for the impending cyclone (over 85% with disaster kits) but they were not adequately prepared for subsequent impacts:

- People in TC Jasper were prepared for the cyclone but not for the subsequent floods; evacuation messages if received were generally too late to act upon (less than 50% had an evacuation plan)
- People in TC Kirrily were prepared for the cyclone but not the heatwave that followed (loss of power) – reported sleep issues, anxiety, fatigue and isolation

While a number of respondents in Far North Queensland had significant damage to houses/homes – with some reporting having lost everything – consistent with level of the cyclone event, main impacts indicated in both locations were loss of power and debris/vegetation damage.

There were a lot of hazard influences eg storm surge, rain, wind etc.

Event Information

BOM and local disaster dashboards were considered key sources of information with increasing use of social media, friends and family away from traditional media sources.

- Respondents identified an increasing tendency for media reporters to overstate the severity and impacts of cyclones.

Some community pages appeared to contain misinformation regarding recommendations for preparation (e.g., windows opened or closed)

Information provided by media, council, and community pages was often different to what actually occurred (e.g., ie reporting on severe winds and potential impacts, where winds were only category 1 winds). This could likely affect risk and threat perceptions of future events.

Changing of the category for the cyclone and recommendations at times were conflicting.

Respondents indicated that very little of the information broadcast via media was local to their areas.

- Emergency information was provided too late in some areas
- Newspapers and TV coverage that was not generated locally were associated with hype and lack of credibility.
- Local reporting from experienced staff was considered more relevant and better at assessing risk and providing good advice in comparison to reporters in other locations

The main reason people accessed information was for monitoring, tracking of event and understanding local impacts on road, electricity networks and recovery options.

Communication Issues

The primary issue identified in both tropical cyclones was when telecommunication systems were not working.

- With increasing reliance on online information (ie BOM, Disaster Dashboard) widespread loss of local mobile/TELCOs connectivity meant that communities had no access to communication or information.
- AM/FM radios are still essential as back-up communication options.

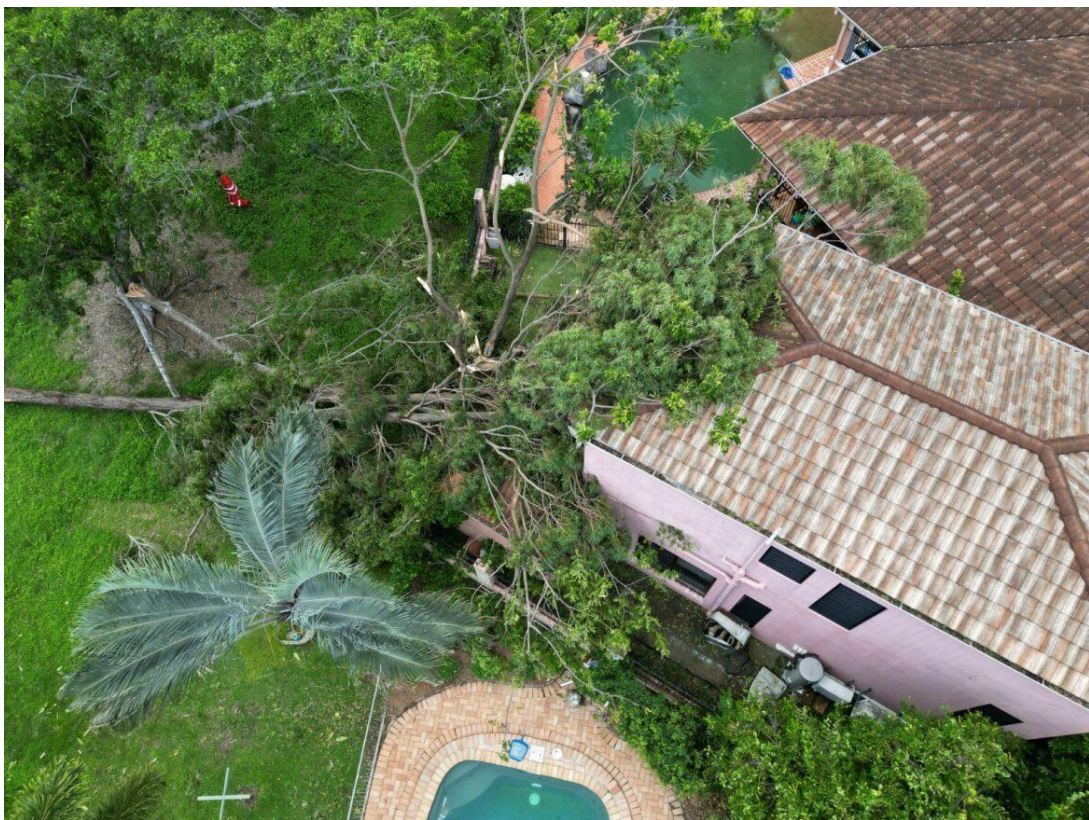


Image 1. Vegetation causing structural damage post Tropical Cyclone Kirrily - Townsville
Source: SES

Background to the Events

Tropical Cyclone Jasper developed in the northern Coral Sea early December, crossing the Queensland coast as a Category 2 system in the vicinity of Wujal Wujal at around 8 pm AEST on 13 December 2023. Significant rainfall following the cyclone resulted in an extraordinary flooding event. With a number of Far North Queensland households and localities completely inundated, it resulted in large-scale isolation, widespread power outages and significant impacts to agriculture, animal welfare, small business and tourism.

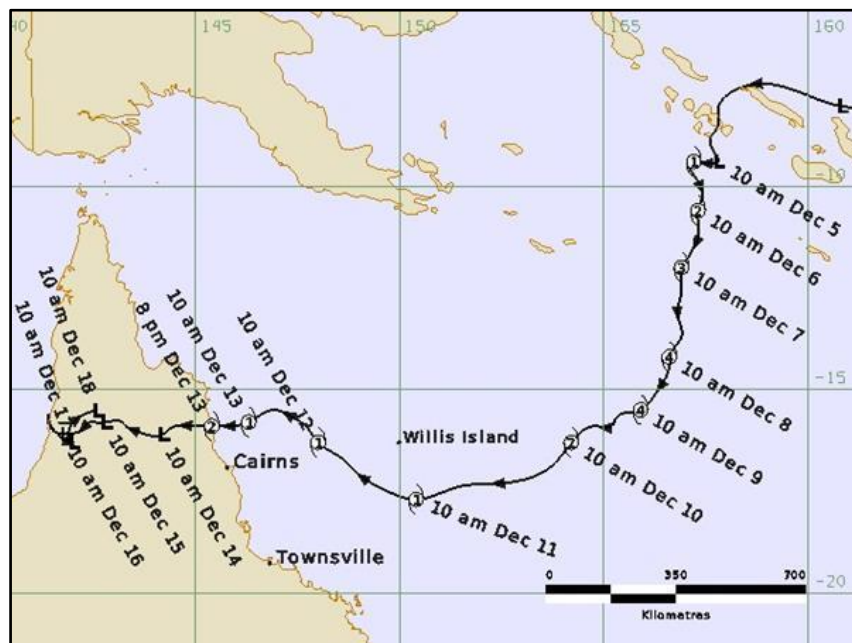


Image 2. Track of Cyclone Jasper. BoM 2024

Bureau of Meteorology Summary – Tropical Cyclone Jasper

Severe Tropical Cyclone Jasper peaked as a category 4 system in the Coral Sea before crossing the far north Queensland coast, in the vicinity of Wujal Wujal, as a category 2 cyclone. A tropical low (02U) formed east of the Solomon Islands during 2 December. 02U moved to the west and south, into the Solomon Sea over the next couple of days. It reached tropical cyclone intensity at 4pm AEST (0600 UTC) 5 December, about 300 km west of Honiara.

Jasper continued to move south into the Coral Sea. The environment supported rapid development and Jasper reached severe category 3 strength at 4pm AEST (0600 UTC) 6 December, only 24 hours after formation.

Jasper continued to strengthen through 6-8 December as it moved to the south southwest in the central Coral Sea, reaching a peak 10-minute mean wind intensity of 105 kn (195 km/h) at 10am AEST (0000 UTC) 8 December. From later in the evening of 8 December the environment became less favourable for any further development and Jasper began to gradually weaken.

From 9 December a ridge to the south began to influence Jasper's movement and Jasper started to turn to the west while the gradual weakening continued. During 11 December, Jasper passed about 135 km to the south of Willis Island and by this stage it was of category 1 intensity.

Jasper moved to the northwest and towards the far north tropical coast, and shortly before Jasper made landfall more favourable conditions meant a short period of intensification with Jasper increasing to category 2.

Jasper crossed the far north tropical coast near the community of Wujal Wujal, about 120 km north northwest of Cairns, at 8pm AEST (1000 UTC) 13 December. The region south of the centre extending to Port Douglas experienced the strongest winds with wind gusts estimated to 130 km/h. Once Jasper had crossed the coast it weakened fairly quickly as it moved inland, decreasing to below tropical cyclone intensity by 12am AEST 14 December (1400 UTC 13 December).

Ex-tropical cyclone Jasper then stalled over Cape York Peninsula for the next several days. A surface trough developed over the weekend of 16-17 December, extending from ex-Jasper eastward across the north tropical coast into the Coral Sea. Moist northeasterly winds from the Coral Sea converged along this near-stationary trough with easterly winds strengthened by a building ridge in the Tasman Sea. As a result, heavy to intense rainfall fell over the north tropical coast area. This rainfall fell in river catchments that were already wet due to earlier rainfall from Jasper's landfall and produced widespread flooding in the region.

Severe Tropical Cyclone Jasper was the first tropical cyclone (and the first severe tropical cyclone) in the Australian region for the 2023-2024 season. It was the earliest in the season in the satellite era that a tropical cyclone has made landfall on the east coast, although there have been earlier landfalls in the Gulf of Carpentaria, and earlier Coral Sea systems which have not made landfall in Australia. Bureau of Meteorology

<http://www.bom.gov.au/cyclone/history/jasper23.shtml> accessed 1/5/24



Image 3. Localised flooding cutting road access north of Cairns post Tropical Cyclone Jasper
Source: Gurtner

Tropical Cyclone Kirrily crossed the Queensland coast approximately 50km north of Townsville as a Category 2 system at around 10pm AEST on 25 January 2024. With minimal damage to homes and buildings, over 65,000 local residents experienced power outages, localised flooding and heat-wave conditions. Over the following week ex Tropical Cyclone Kirrily continued to generate intermittent gale force winds and significant rainfall over the tropical coast and inland Queensland isolated towns and homesteads.

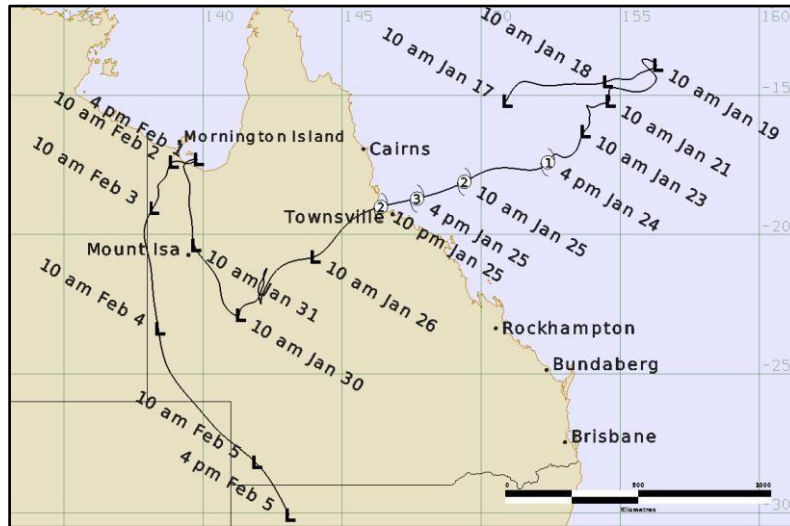


Image 4. Track of Cyclone Kirrily. BoM 2024

Bureau of Meteorology Summary – Tropical Cyclone Kirrily

Severe Tropical Cyclone Kirrily peaked as a category 3 system in the Coral Sea shortly before crossing the north Queensland coast in the vicinity of Balgal Beach, Rollingstone, about 50km northwest of Townsville, as a category 2 tropical cyclone.

A tropical low (05U) formed in the central Coral Sea, approximately 150 km NE of Willis Island, during 17 January. 05U initially moved east, influenced by strong monsoon winds. During the 19-20 January, 05U slowed and turned towards the southwest. 05U then moved steadily southwest while intensifying slowly. At 4pm AEST 24 January (0600 UTC), about 50 km southeast of Lihou reef, 05U was named Tropical Cyclone Kirrily with gales wrapping more than halfway around the centre.

During 24 January, a ridge to the south strengthened and began to influence Kirrily's movement. Kirrily then moved quickly to the west southwest. Kirrily had a broad centre circulation and the environment supported very slow intensification. Kirrily reached severe category 3 strength at 3pm AEST 25 January (0500 UTC). This was also the time Kirrily reached a peak 10-minute mean wind intensity of 65 km (120 km/hr).

Kirrily weakened to a category 2 cyclone as it crossed the north Queensland coast, in the vicinity of Balgal Beach, Rollingstone, at 10pm AEST 25 January (1200 UTC). Once Kirrily crossed the coast, it weakened quickly as it moved

inland, decreasing to below tropical cyclone intensity by 4am AEST 26 January (1800 UTC 25 January).

Ex-Tropical Cyclone Kirrily then moved west and north across central and western Qld. By the end of January Kirrily was moving towards the Gulf of Carpentaria coast and during 1 February moved just offshore over southern Gulf of Carpentaria waters. Gales developed to the north of Kirrily, with Mornington Island Airport recording a wind gust of 55 kn (102km/h) at 9:37pm AEST (1137 UTC), the highest wind gust in February and the equal highest wind gust ever recorded at this site. In total, intermittent gales occurred at Mornington Island for nearly 24 hours on the 1st and 2nd of February. These gales were confined to the north of the centre of ex-Tropical Cyclone Kirrily, however, so it did not regain tropical cyclone status. Early on 2 February, Kirrily moved back over land and the northern gales eased.

During the following days Kirrily moved to the south near the Queensland Northern Territory Border. From 4 February Kirrily began to interact with an upper trough to the southwest. This upper trough moved Kirrily to the southeast, caused a period of strengthening during 5 February. Ballera, in southwest Queensland near the SA border, experienced intermittent gale force winds for several hours from 6am AEST (2000 UTC) on February 6th. Later that day, ex-Tropical Cyclone Kirrily merged into an existing trough over southeastern Australia.

As Kirrily moved over the tropical coast and then inland across Queensland it led to heavy falls, as well as widespread flooding for western Queensland.

Severe Tropical Cyclone Kirrily was the second tropical cyclone (and second severe tropical cyclone) in the Australian region (and the Coral Sea) for the 2023-2024 season. Bureau of Meteorology <http://www.bom.gov.au/cyclone/history/kirrily24.shtml> accessed 1/5/24



Image 5. Both wind & vegetation debris caused extensive loss of power post Tropical Cyclone Kirrily. Source: SES

Research Method of Online Household Surveys

Centre for Disaster Studies survey instruments have been employed extensively in communities throughout Queensland and elsewhere in Australia, for almost 30 years. Each survey is modified slightly in relation to the place, time, event and specific issues that had already been identified by media and response organisations, but the primary instrument is quite standardised.

A qualitative questionnaire approach was used:

- a) Semi-structured online survey with householders, individuals and residents in affected communities. These usually take 15 to 30 minutes. Most questions are factual, very short answer, avoid accounts of stressful situations, or require a selection from suggested responses. The only personal questions are factual and straightforward based on census characteristics;
- b) Observations of locations by researchers. Disaster impacts for specific places are collected from emergency management and local government organisations to provide context to the residents' responses. This is on-going during the time of the surveys.

Apart from using the results of surveys to analyse community experience of warnings, preparation and awareness, the researchers of the CDS have also contributed to methodological analysis of post disaster studies – for example:

Cottrell, A. and King, D. 2010. Social assessment as a complementary tool to hazard risk assessment and disaster planning. *The Australasian Journal of Disaster and Trauma Studies*.

Gurtner, Y., Cottrell, A. and King, D. 2008 PRE and RAPID. Community Hazard Recovery Needs and Capacity Assessment. Unpublished Report. Department of Communities & James Cook University Research Project.

Following JCU Human Ethics approval (H9365) the electronic survey was distributed predominantly via local community based social media groups on Facebook. Consistent with previous CDS research, the questions covered the following themes :

- Household Preparedness (kits, plans, insurance)
- Event impacts and evacuations
- Sources of event information, and perceived credibility (and misinformation)
- Basic demographic data

Initially, a brief introduction, overview, and link to the survey was sent to relevant online group administrator/s requesting permission to post and distribute. The approved social media post encouraged community members and respondents to share the link to anyone that may have been impacted by either event. Established contacts from the local council community disaster recovery committees were additionally approached via email to promote the survey throughout their networks. Paper-based versions of the survey were available on request. As the intent was to accurately capture and document lived experiences of events, the surveys were closed on 1 March 2024. The survey instrument and explanation are reproduced in the appendix.

Survey Results: Cyclones Jasper and Kirrily

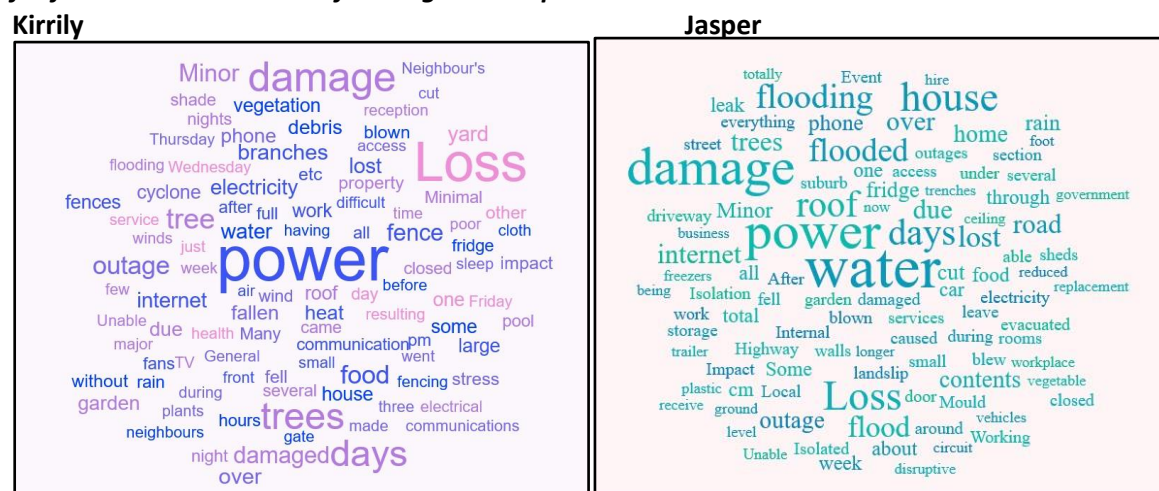
Results of the surveys are tabulated to indicate numbers of responses and percentages that enable comparison between the locations and events. All responses were qualitative. Some questions prompted alternative responses. To many questions people could indicate more than one response, and open-ended comments were invited in many instances. Generally, where questions specified choices for respondents to select, the open-ended comments were only added by a minority of respondents. Some questions, such as question 2 below, were completely open ended. Some of these questions' responses are copied in full and are presented in the appendix. Word clouds were used to summarise repeated words from these extensive open-ended responses. Word clouds are useful to identify key issues, but words are taken out of their context and only a portion of total words can be selected; generally nouns, with some verbs and adjectives.

Table 1. Impact of Cyclone/Flood

Q1. Were you or your household impacted in any way by Tropical Cyclone Jasper & Flood or Cyclone Kirrily?	Jasper Count	Jasper %	Kirrily Count	Kirrily %
Yes	56	100	208	99
Total	56	100	209	100

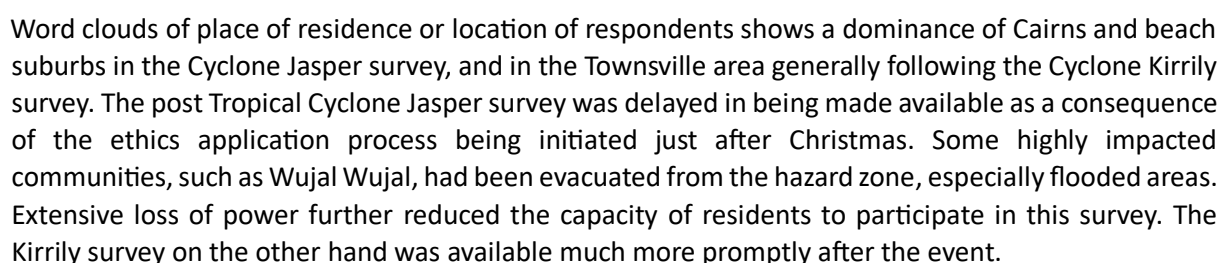
Figure 1. Type of Impact

Q2. What type of damage or impact did you experience during the event? See Appendix Table A.1. for full lists. Word Clouds of damage and impact



Dominant words in the word clouds of impact and damage from Tropical Cyclone Jasper indicate power, water, damage, flood and flooding, loss and house. Flooding following Cyclone Kirrily, was not an issue in Townsville. Dominant words in open-ended responses to Kirrily are power, damage, loss, as well as trees and vegetation. Vegetation words are less repeated in FNQ. Table A1 in the appendix is in alphabetical order of the first word so loss is very significant, but relates primarily to power or electricity, as well as less significant loss of food and vegetation.

Q3. Please indicate the town, suburb and postcode where you were impacted by this event. Word Clouds of most recurrent locations.



Q4. Do you feel that you/your household was adequately prepared for a disaster before the event happened?	Jasper Count	Jasper %	Kirrily Count	Kirrily %
Yes	40	71	162	78
No	9	16	27	13
Other Response – qualified or ambivalent	7	13	20	10
Total	56	100	209	100

10

Table 3. Disaster Kit

Q5. Did you/your household have a disaster kit prepared before the event (minimum 3 days food, water and supplies)?	Jasper Count	Jasper %	Kirrily Count	Kirrily %
Yes	52	93	187	89
No	4	7	22	11
Total	56	100	209	100
Other	1		14	
Other responses supplemented a Yes or No answer				
Other Responses Stated in Kirrily Survey				
<i>1-2 days</i>				
<i>Live alone and had no help. My services were stopped the day before as the ferry stopped early</i>				
<i>No Battery Radio. No Generator.</i>				
<i>Not a lot as such, but we grew up living in cyclone prone areas, so always have enough essentials in cyclone season and have lights/torches handy all year around. The camping stove (gas) is pulled out if a cyclone is imminent, as are the camping lights (have always had a good camper trailer setup, and now also have a caravan with gas and large batteries in both)</i>				
<i>Not specifically but we are always well-stocked with provisions including water, solar battery etc</i>				
<i>Partially. Whilst we did have enough food, and supplies ready even before cyclone season commenced, we did not have the minimum of 3 days worth of water. It would have lasted maybe around 1.5 to 2 days maximum.</i>				
<i>Some of what was needed in a kit.</i>				
<i>We filled up enough bottles of clean water to last us 1 week, but no additional food preparation</i>				
<i>Apart from food, which we had a weeks supply but hadn't packed.</i>				
<i>Generator</i>				
<i>More or less.</i>				
<i>Motorhome water tank filled plus bottle water. Tinned food</i>				
<i>We live off grid so have tank water and solar power...always have tinned food in the pantry.....did not loose power</i>				
<i>Yes but as said, we ran out of potable water. Could not boil it as we don't have a gas bbq nor generator</i>				

While there were limited open-ended responses, operational field observations and anecdotes suggest that while most people had catered for up to 3 days of food and water, localised flooding and power loss limited options for resupply of food or potable drinking water. There is growing evidence that suggests 3 days per person may be adequate a portable evacuation kit, however, for shelter in place 5-7 days is more appropriate.



Image 6. Flooded roads post event limited access for resupply in many areas

Source: Gurtner

Table 4. Evacuation Plan

Q6. Did you/your household have a disaster evacuation plan before the event?	Jasper Number	Jasper %	Kirrily Number	Kirrily %
Yes	33	59	95	45
No	23	41	114	55
Total	56	100	209	100
Other (please specify)	2		18	
Other Responses in Jasper Survey				
<i>Beaches suburbs are isolated BEFORE events reach disaster level. Machans Community Hall was used as a local evacuation centre.</i>				
<i>Planned to leave to go and stay in town if higher than a Cat 2 as parts of living area open to the outside</i>				
Other Responses in Kirrily Survey				
<i>All cars fuelled up but no other plans</i>				
<i>Evacuated my 91 yr old mum and her cat to my place on the Wednesday, day before cyclone....had a mud map to evacuate us if damage occurred to my house but realise if that had happened I would not have been prepared....and no actual evacuation centre on MAGNETIC Island</i>				
<i>Evacuation to where, to dangerous to try and get into Townsville</i>				
<i>Had faith in our house, in terms of the strength of the cyclone. Any way, there were no evacuation centres on the Island!</i>				
<i>No intend to evacuate outside the home. Preparation for "safe space" in a very solid/basement area of home</i>				
<i>No intention on evacuating but if forced to would go to my Mum's</i>				
<i>Not a formal one.</i>				
<i>Not really but we did discuss if we show park one car at front and back of the block in case trees came down... Decided they were safer in the carport</i>				
<i>Nothing available on the island and want to stay here</i>				
<i>Our property is not at threat of flooding/storm surge and we have extensive resources to negate the need for evacuation</i>				
<i>Son left for Sydney due to expected power outages. There is No Community Disaster Building Provided on Magnetic Island.</i>				

<i>Strong home for cyclonic conditions Severity 2,3.No cyclone shelters or recovery centres on island.</i>
<i>The downstairs of my house could withstand a cyclone so I felt safe. This wasn't a huge cyclone so I wasn't overly worried. My tenant has heart issues & we live behind the Qld Health Centre.</i>
<i>There is no emergency shelter on Maggie.</i>
<i>We had a bag packed but no plan where to go. No evacuation center on magnetic island</i>
<i>We live above tide surge area, and have a "cyclone shelter" as part of the house so can't see the need to move anywhere</i>
<i>Where to on the Island - No Evacuation Centre that we are aware of.</i>
<i>Yes but it's often too late to leave the island if the port closes</i>

In both locations the surveys show less significance was attached to evacuation plans. Some communities may not need to be evacuated, as priority areas in cyclones are places that are located in storm surge or terrestrial flood zones. Some older houses may also be less safe as shelters than post 1980 constructed buildings, such that individual households will make evacuation decisions as they deem appropriate. However, previous research (Anderson-Berry & King 2005) has indicated household uncertainty about hazard zones as well as a reluctance to take evacuation advice or orders.

Amongst other responses are a few issues that may call for increased education and awareness. Shelters (or refuges) are places where people may go if their residence or its location is unsafe. An evacuation centre is a place of temporary accommodation for people who are unable to remain in their houses after a cyclone, because of damage or hazard risk. There is one cyclone shelter in Townsville at Heatley High School, and four official council designated places of refuge, and others listed by the council. It is correct that there is no refuge or shelter building identified on Magnetic Island. However, the Island Palms Resort on Magnetic Island is officially designated as an evacuation centre, but clearly people may not be aware of this, or of the difference between a shelter and an evacuation centre. In Cairns the Machans Beach Community Hall might be usable as an evacuation centre after a cyclone, but it is not suitable as a shelter during an event. There is also variable permissions about whether pets are allowed in designated shelters causing further confusion.

Table 5. Household/Contents Insurance

<i>Q7. Did you/your household have household and/or contents insurance before the event?</i>	Jasper Count	Jasper %	Kirrily Count	Kirrily %
Yes	42	75	174	83
No	11	20	28	13
Other (please specify)	3	5	7	3
Total	56	100	209	100
Other Responses from Jasper Survey				
<i>I rent a room at MiHaven</i>				
<i>Home only. No contents insurance.</i>				
<i>Building insurance only</i>				
Other Responses from Kirrily Survey				
<i>House insurance but not contents</i>				
<i>House only no contents. Too expensive</i>				
<i>House, contents and motorhome</i>				
<i>Household only, not contents</i>				

<i>I'm renting, but I assume the owner does</i>
<i>Only home</i>
<i>Renting. Landlord has house insurance, we don't have insurance due to prohibitive cost</i>

Household insurance forms part of preparation and accords with responses to preparation of a disaster kit, as indicated in tables 2 and 3. There is a probability of rapidly increasing and already high costs for household and contents insurance. It is very likely that levels of insurance amongst the general population are much lower.

Table 6. Cyclone Information Source.

<i>Q8. What was your primary source of information regarding the tropical cyclone and flood event (you may select more than one option)</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Television	9	5	34	6
Print media (newspaper)	2	1	4	0.6
Facebook	30	17	103	17
X (Twitter)	1	0.6	1	0.1
Instagram	1	0.6	3	0.5
Other social media platform (eg Flickr, YouTube, blogs)	3	2	4	0.6
Media website	5	3	26	4
Government web site (this includes Bureau of Meteorology)	30	17	126	20
Local Government Disaster Management Dashboard	25	14	80	13
Community website	5	3	20	3
Other internet source	1	0.6	12	2
Weather based app (smart device)	12	7	60	10
Radio	21	12	66	11
Friends/family	15	9	40	6
Telephone support service/hotline	3	2	2	0.3
Other	12	7	35	6
	175	100	616	100



Image 7. In addition to flood damage to dwellings, many households in Far North Queensland lost all their personal contents.

Source: Gurtner

Table 6 indicates a wide range of information sources accessed by respondents. The use of sources is quite similar between the surveys and locations. The number of sources identified is related to the number of respondents to the surveys. In the Cyclone Jasper survey there is a mean of 3.1 responses and for Kirrily a mean of 2.9. There is clearly no reliance on a single source of information. As webbased sources had reasonably high utility traditional print media/newspaper had low subscription – this may however reflect the online bias of respondents or increasing online access to news information.

Table 7. Reason for Accessing Information

<i>Q9. Please indicate the main reason you accessed information regarding the tropical cyclone (and flood event) (you may select more than one option)</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Monitoring of the event/local impacts	38	10	158	16
Personal preparedness	28	8	114	11
Sandbags and supplies	10	3	15	1
Warning information	38	10	113	11
Cyclone tracking	40	11	169	17
Flood/inundation mapping	29	8	33	3
Evacuation information	20	6	21	2
Information about pets/evacuation	5	1	7	0.7
Dam updates	10	3	8	0.8
River/waterway levels updates	22	6	18	2
Event tracking/updates	22	6	107	11
Information on impacts	25	7	59	6
Information on emergency response	21	6	58	6
Information on relief efforts	14	4	35	3
Information on recovery efforts	14	4	51	5
Financial assistance	9	2	28	3
Volunteering/donations	14	4	2	0.2
Other (please specify)	3	0.8	14	1
Total	362	100	1010	100

All percentages more than 1 are rounded to nearest whole number.

Table 7 indicates a range of choices following question 8, as suggested in the survey instrument (with Table 6 question 8). The mean number of reasons for accessing information for Jasper respondents was 6.5 and for Kirrily respondents 4.8. There were more issues for those impacted by Jasper as the cyclone was followed by intense rainfall and extensive flooding.

Table 8. Official Sources of Information

<i>Q10. Please indicate any official source/group you accessed to prepare or obtain information regarding the tropical cyclone (and flood event) (you may select more than one option)</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Queensland Fire and Emergency Services	7	4	20	4
Bureau of Meteorology	39	25	162	30
Queensland Health	1	0.6	13	2
State Emergency Services (SES)	13	8	42	8
Local Council Based Disaster Information Group	15	9	52	10
Local Council Disaster Management Dashboard	28	18	96	18
Flood Event Livestream/Videos	7	4	6	1
Queensland Police Service	5	3	22	4
Local Politician	5	3	4	0.7
Ergon Energy	17	11	95	17
Department of Transport and Main Roads	15	9	10	2
RACQ	3	2	3	0.6
Other	4	3	18	3
Total	159	100	543	100

All percentages more than 1 are rounded to nearest whole number.

Responses to question 10 about official sources of information, see table 8, demonstrate a similar variety to those shown in Table 6, listing the primary sources of information. Tables 6 and 7 address general information and reasons for seeking that information. The next set of tables, 8 to 17, focus on different sources of information and ratings of their effectiveness. At this point in the surveys the active answers of respondents decreased slightly, as indicated in the totals to each table.

While not constituting quite a majority of responses, the Bureau of Meteorology and the local council Disaster Management Dashboards are the highest accessed sources, followed by Ergon Energy. The Bureau of Meteorology and dashboard sites address the hazard, while the Ergon site was undoubtedly accessed in relation to duration of power loss.

Table 9. Rating of Information from Official Sources

Q11. How would you rate the information provided by these official sources?	Jasper number	Jasper %	Kirrily number	Kirrily %
Accurate - Completely	4	8	27	15
Accurate - Very	15	31	85	46
Accurate - Moderately	17	35	56	30
Accurate - Somewhat	9	19	12	6
Accurate - Not at all	2	4	3	2
Accurate - N/A	1	2	3	2
Total Accurate	48	100	186	100
Up-to-date - Completely	3	6	31	17
Up-to-date - Very	14	29	78	42
Up-to-date - Moderately	13	27	50	27
Up-to-date - Somewhat	12	25	14	8
Up-to-date - Not at all	5	10	8	4
Up-to-date - N/A	1	2	4	2
Total Up to Date	48	100	185	100
Useful - Completely	5	10	35	19
Useful - Very	12	25	97	53
Useful - Moderately	16	33	32	17
Useful - Somewhat	8	17	10	5
Useful - Not at all	5	10	8	4
Useful - N/A	2	4	2	1
Total Useful	48	100	184	100
Trustworthy - Completely	3	6	42	23
Trustworthy - Very	16	33	83	45
Trustworthy - Moderately	17	35	40	22
Trustworthy - Somewhat	7	15	9	5
Trustworthy - Not at all	4	8	7	4
Trustworthy - N/A	1	2	4	2
Total Trustworthy	48	100	185	100

All percentages more than 1 are rounded to nearest whole number.

Open ended responses: see appendix table A2

The rating of information tables (9, 10, 11, 12, 14 and 17) all use a similar structure. Each respondent was able to separately rate 4 characteristics of: accurate, up to date, useful and trustworthy. These information sources were classified on each of these characteristics on a scale that ranged from; completely, through very, moderately, somewhat, or not at all, with an option for not applicable. While the 'somewhat' 'and not at all' ratings on each of the four criteria indicate low proportions, there is a

noticeably higher dissatisfaction from respondents to the Jasper survey than for Kirrily respondents. This needs to be placed in the context of these events. Both cyclones crossed the coast at category 2, but Kirrily reduced in size as it approached the coast and weakened rapidly, whereas Jasper brought very heavy rain in its wake, leading to extensive flooding and isolation of communities. Overall, the majority of ratings of information from official sources falls into categories of moderately or better ie moderately up to completely - accurate, up to date, useful, untrustworthy. These responses show two thirds or more in most cases from both surveys. There is not a significant variation between ratings to each of the four categories.

Table 10. Bureau of Meteorology Source

Q12. Please indicate if you accessed weather based information generated by the Bureau of Meteorology regarding this event	Jasper number	Jasper %	Kirrily number	Kirrily %
Bureau of Meteorology website	37	37	159	41
Bureau of Meteorology facebook page	9	9	30	8
Bureau of Meteorology severe weather warnings	27	27	97	25
Bureau of Meteorology rainfall tracking maps	20	20	78	20
Bureau of Meteorology live streams/videos	7	7	21	5
None	1	1	7	2
Total	101	100	392	100

All percentages more than 1 are rounded to nearest whole number.

Table 10 relates to Bureau of Meteorology information sources, showing little difference in use between the two surveys.

Table 11. Rating of Information from Bureau of Meteorology

Q13. Please rate the information generated by the Bureau of Meteorology	Jasper number	Jasper %	Kirrily number	Kirrily %
Accurate - Completely	8	17	30	16
Accurate - Very	17	35	79	42
Accurate - Moderately	9	19	50	27
Accurate - Somewhat	10	21	19	10
Accurate - Not at all	2	4	4	2
Accurate - N/A	2	4	5	3
Total Accurate	48	100	187	100
Up-to-date - Completely	7	15	38	21
Up-to-date - Very	17	35	73	40
Up-to-date - Moderately	9	19	50	27
Up-to-date - Somewhat	7	15	16	9
Up-to-date - Not at all	6	13	2	1
Up-to-date - N/A	2	4	5	3
Total Up to Date	48	100	184	100
Useful - Completely	7	15	41	22
Useful - Very	16	33	80	43
Useful - Moderately	15	31	43	23
Useful - Somewhat	4	8	12	7
Useful - Not at all	4	8	3	2
Useful - N/A	2	4	5	3
Total Useful	48	100	184	100
Trustworthy - Completely	7	15	43	23
Trustworthy - Very	20	42	72	39
Trustworthy - Moderately	9	19	44	24
Trustworthy - Somewhat	6	13	15	8
Trustworthy - Not at all	4	8	5	3
Trustworthy - N/A	2	4	5	3
Total Trustworthy	48	100	184	100

All percentages more than 1 are rounded to nearest whole number.

The ratings of Bureau of Meteorology sources of information are similar to the ratings for all official sources, where the Bureau of Meteorology was the largest source of information accessed anyway. There is slightly more dissatisfaction from Jasper respondents, but it is quite minor.

Table 11 relates purely to information from Bureau of Meteorology sources, while table 12 asked for a rating of weather information from any of the other sources including those listed in tables 6 and 8, as well as some purely local or app based sources that were not specifically identified.

Table 12. Rating of Other Weather Information Sources

<i>Q14. Please rate the information from other weather focused source/groups you may have accessed</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Accurate - Completely	2	4	22	12
Accurate - Very	18	38	70	37
Accurate - Moderately	13	27	41	22
Accurate - Somewhat	9	19	14	7
Accurate - Not at all	1	2	3	2
Accurate - N/A	5	10	37	20
Total Accurate	48	100	187	100
Up-to-date - Completely	3	6	34	18
Up-to-date - Very	18	38	67	36
Up-to-date - Moderately	12	26	33	18
Up-to-date - Somewhat	8	17	12	6
Up-to-date - Not at all	1	2	4	2
Up-to-date - N/A	5	11	36	19
Total Up To Date	47	100	187	100
Useful - Completely	5	10	32	17
Useful - Very	17	35	74	40
Useful - Moderately	14	29	34	18
Useful - Somewhat	6	13	6	3
Useful - Not at all	1	2	4	2
Useful - N/A	5	10	36	19
Total Useful	48	100	186	100
Trustworthy - Completely	2	4	27	14
Trustworthy - Very	20	43	63	34
Trustworthy - Moderately	11	23	44	24
Trustworthy - Somewhat	8	17	12	6
Trustworthy - Not at all	1	2	3	2
Trustworthy - N/A	5	11	38	20
Total Trustworthy	47	100	187	100

All percentages more than 1 are rounded to nearest whole number.

Ratings of other weather information sources follow similar patterns to those of the Bureau of Meteorology and all official sources. The 'somewhat' response to all four categories of ratings is slightly higher from Jasper respondents than the earlier ratings, but it is barely significant and only represents a small number of people.

Table 13. Other Media Outlets Providing Cyclone/Flood Information

Q15. Please indicate any news media outlet source/group you accessed to prepare or obtain information regarding the tropical cyclone and flood event (you may select more than one option)	Jasper number	Jasper %	Kirrily number	Kirrily %
ABC News	27	36	66	21
SBS News	1	1	4	1
7 News	6	8	39	12
WIN News	4	5	19	6
Sky News	3	4	8	3
Other commercial news network	1	1	4	1
Other print based news network (eg. Local newspaper, The Australian, Guardian, Reuters etc)	1	1	10	3
Online news based services (eg. news.com)	6	8	19	6
ABC radio	20	27	53	17
Local commercial radio station	6	8	48	15
None	0	0	50	16
Total Responses:	75	100	320	100

All percentages more than 1 are rounded to nearest whole number.

Table 13 and figures 3 and 4 illustrate the use of other media outlets as sources of cyclone and flood information. The use of ABC news and ABC radio are the largest sources of media information, 63% of Jasper and 38% of Kirrily respondents, but this may reflect the socio-demographic characteristics of the respondents (see final section of this report). These responses suggest more diversity of information, but the mean number of other media sources accessed was less than two from each survey.



Image 8. Aerial view of the flooding in Cairns post Tropical Cyclone Jasper
Source: Gurtner

Figure 3. Other Media Outlets Providing Cyclone/Flood Information

Q15. Please indicate any news media outlet source/group you accessed to prepare or obtain information regarding the tropical cyclone and flood event (you may select more than one option)

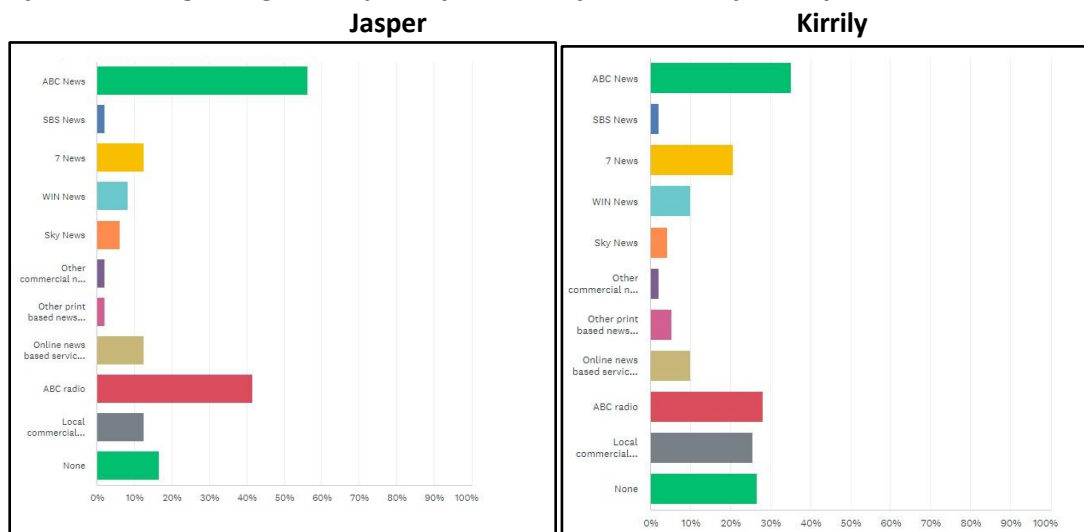
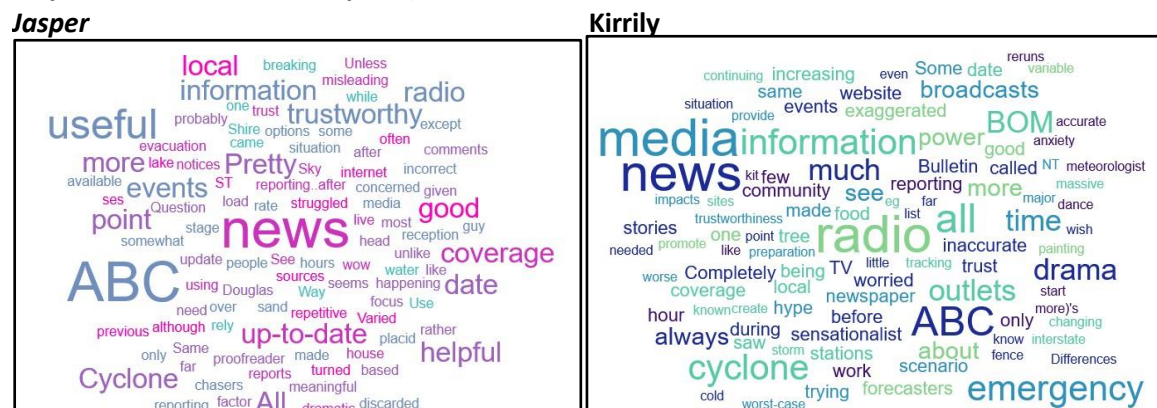


Figure 4. Other Media Outlets Providing Cyclone/Flood Information

Q15. Word Cloud of comments on question - please indicate any news media outlet source/group you accessed to prepare or obtain information regarding the tropical cyclone and flood event (you may select more than one option)



The word clouds pick up main words in open ended responses to question 15. There are some negative or critical comments but also many positive statements. ABC and news figure strongly. However, a repeated criticism in many responses concerns the tendency of reporters and commentators to sensationalise or exaggerate.

Table 14. Rating of Media Outlet Sources of Information

<i>Q16. Please rate the information from the news media outlet source/groups</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Accurate - Completely	7	15	12	6
Accurate - Very	14	29	48	26
Accurate - Moderately	13	27	57	31
Accurate - Somewhat	3	6	19	10
Accurate - Not at all	3	6	7	4
Accurate - N/A	8	17	43	23
Total Accurate	48	100	186	100
Up-to-date - Completely	7	15	15	8
Up-to-date - Very	13	27	42	23
Up-to-date - Moderately	13	27	57	31
Up-to-date - Somewhat	4	8	18	10
Up-to-date - Not at all	3	6	9	5
Up-to-date - N/A	8	17	45	24
Total Up To Date	48	100	186	100
Useful - Completely	8	17	15	8
Useful - Very	12	26	42	23
Useful - Moderately	14	30	54	29
Useful - Somewhat	3	6	21	11
Useful - Not at all	3	6	9	5
Useful - N/A	7	15	45	24
Total Useful	47	100	186	100
Trustworthy - Completely	8	17	18	10
Trustworthy - Very	14	30	46	25
Trustworthy - Moderately	12	26	46	25
Trustworthy - Somewhat	3	6	21	11
Trustworthy - Not at all	3	6	9	5
Trustworthy - N/A	7	15	47	25
Total Trustworthy	47	100	187	100

All percentages more than 1 are rounded to nearest whole number.

Ratings of other media sources follow very similar patterns to the other ratings tables presented previously. They are generally positive rather than the use of more negative 'somewhat' or 'not at all' responses.

Table 15. Other NGOs Used to Source Information

Q17 & 18. Please indicate any non-government organisations or agency source/groups you accessed to prepare or obtain information regarding the tropical cyclone event (you may select more than one option)

Kirrily Survey - Negligible – 9 organisations identified plus 183 (97%) responses indicated none out of 188 responses. The Jasper survey similarly indicated 74% accessed none, or 78% if ambivalent comments to other are removed. List of organisations and numbers of responses from Cyclone Jasper Survey

Australian Red Cross	1
RSPCA	1
The Salvation Army	4
GIVIT	1
Volunteering Queensland	2
Lifeline	1
None	42
Other (specified Mud Army, Machans Beach Community Association)	5
Total	57

Other non-government organisations (NGOs) people accessed were generally negligible and not of significance.

Table 16. Community Based Groups Providing Cyclone Information

<i>Q19. Please indicate any community based forum source/group you accessed to prepare or obtain information regarding the tropical cyclone event (you may select more than one option)</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Disaster Response on Facebook	15	17	39	16
Local questions and answer group	9	10	26	11
Local animal or pet focused group	0	0	1	0.4
Local church or religious group	1	1	2	0.8
Community support group	13	14	22	9
TC Jasper/Flood event group	13	14	4	2
Local sporting group	0	0	2	0.8
Friend/family	18	20	61	25
None	14	16	86	35
Other (please specify)	7	8	na	na
Total	90	100	243	100

All percentages more than 1 are rounded to nearest whole number.

Community based groups were more significant than NGOs generally, but the largest single answer from Kirrily respondents was none. Facebook, friends and family were important. There are some interesting variations between the surveys and clearly there are some informal emergent groups ie local question and answer group and a TC Jasper support group. Social media enables increasing informal diversity and interaction.

Table 17. Rating of Information From Community Groups

<i>Q20. Please rate the information from community based forum sources/groups</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Accurate - Completely	1	2	10	5
Accurate - Very	16	33	32	17
Accurate - Moderately	14	29	44	24
Accurate - Somewhat	5	10	14	7
Accurate - Not at all	0	0	5	3
Accurate - N/A	12	25	82	44
Total accurate	48	100	187	100
Up-to-date - Completely	3	6	12	6
Up-to-date - Very	14	29	41	22
Up-to-date - Moderately	14	29	35	19
Up-to-date - Somewhat	5	10	12	6
Up-to-date - Not at all	0	0	4	2
Up-to-date - N/A	12	25	82	44
Total up to date	48	100	186	100
Useful - Completely	1	2	10	5
Useful - Very	17	35	33	18
Useful - Moderately	13	27	39	21
Useful - Somewhat	5	10	18	10
Useful - Not at all	0	0	4	2
Useful - N/A	12	25	82	44
Total useful	48	100	186	100
Trustworthy - Completely	2	4	11	6
Trustworthy - Very	12	25	32	17
Trustworthy - Moderately	16	33	39	21
Trustworthy - Somewhat	6	13	18	10
Trustworthy - Not at all	0	0	4	2
Trustworthy - N/A	12	25	83	44
Total trustworthy	48	100	187	100

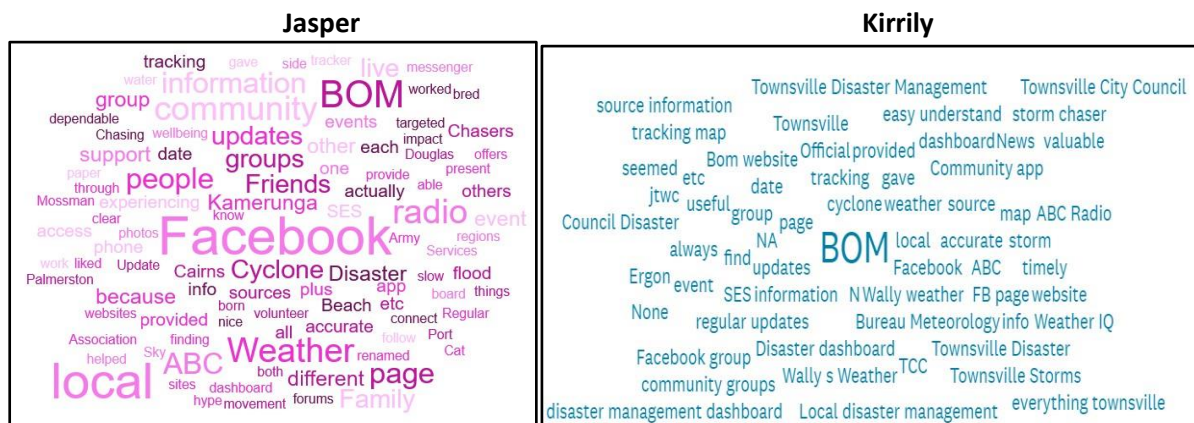
All percentages more than 1 are rounded to nearest whole number.

Ratings of community groups follow similar patterns to those of other ratings of information sources. However, significant numbers of responses indicated in table 16 recorded no access to local community

groups; 16% of Jasper and 35% of Kirrily respondents. This flows into the higher proportions of n/a in the ratings of community sources.

Figure 5. Groups and Sources Providing Most Useful & Valuable Information

Q21. Which group/source did you find most useful/valuable? Word Cloud of open ended responses.



Word clouds are based on open ended responses to the usefulness of information sources. Following immediately from the ratings of community-based groups, responses were heavily influenced by questions 19 and 20, although they incorporated sources identified in earlier questions.

Table 18. Inaccurate & Misleading Information

Q22. Did you come across any inaccurate, conflicting or misleading information regarding the tropical cyclone and flood event?	Jasper number	Jasper %	Kirrily number	Kirrily %
Yes	26	54	100	53
No	22	46	88	47
Total	48	100	188	100

Responses to the two surveys were fairly evenly split on the issue of inaccurate, conflicting or misleading information concerning the hazard events, and there is no difference between the surveys. However, just over half answered yes, with the word cloud in figure 6 indicating dominant response words in the open-ended section of question 22. In FNQ respondents to the Jasper survey primarily identified flood information, and in Townsville responses following Kirrily identify cyclone information. Question 29 expands on these issues in identifying areas for improvement.

Figure 6. Details of Inaccurate & Misleading Information

Q22. Word Clouds of open-ended responses and comments relating to did you come across any inaccurate, conflicting or misleading information regarding the tropical cyclone and flood event?



Figure 7. Level of Trust in Cyclone Information

Q23. Please indicate your overall level of trust in the information provided regarding the tropical cyclone event.

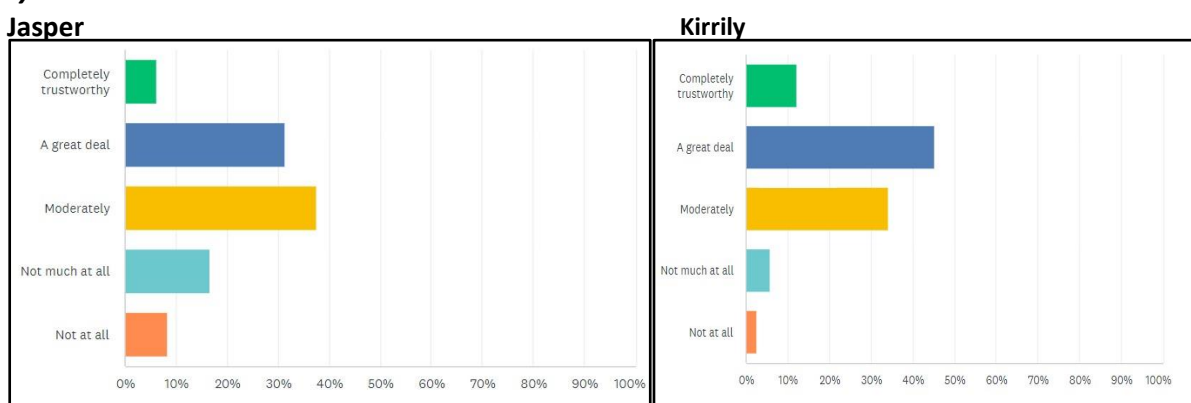


Table 19. Level of Trust in Cyclone Information

Q23. Please indicate your overall level of trust in the information provided regarding the tropical cyclone and flood event	Jasper number	Jasper %	Korrily number	Korrily %
Completely trustworthy	3	6	23	12
A great deal	15	31	85	45
Moderately	18	38	64	34
Not much at all	8	17	11	6
Not at all	4	8	5	3
Total	48	100	188	100

All percentages more than 1 are rounded to nearest whole number.

Figure 7 and table 19 indicate people's levels of trust in information provided on tropical cyclones Jasper and Kirrily. While it is concerning that 25% of Jasper respondents indicated information ratings in the not much or not at all trustworthy categories, and a high 38% indicated only moderately trustworthy, we may surmise that the majority had some level of trust in the information received. Responses to the Kirrily survey were overwhelmingly positive, but this reflects the different experience of the two events, where once Kirrily had passed inland the impact was over for Townsville residents. This was not the case in FNQ where Jasper was followed by extended flooding rain, which was much worse than expected. Flooding rains were forecast for Kirrily, but these came inland and did not impact the Kirrily respondents.

Table 20. Location in Storm Surge or Flood Zones

<i>Q24. Is your home located in a previously identified storm surge or flood inundation zone?</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Yes	15	32	40	22
No	29	62	133	72
Unsure	3	6	13	7
Total	47	100	186	100

Responses to knowledge of location in surge or flood zones are clearly stated. Only a very small proportion of respondents did not know if they were in a surge or flood zone. However, these zones are scaled, and we do not know if people's responses are accurate.

Table 21. Evacuation Advice

<i>Q25. Did you receive advice to evacuate your home/location (you may select more than one option)?</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
No	29	53	184	98
Door knock by emergency services/military	3	5	1	0.5
Text message	12	22	2	1
General warning via media	5	9	1	0.5
Advised by friends/family	4	7	0	0
Self evacuated before any notifications	2	4	0	0
Total	55	100	188	100

All percentages more than 1 are rounded to nearest whole number.

Most Townsville residents responded that they received no evacuation advice. This reflects the severity and risk of tropical cyclone Kirrily. In FNQ the situation in relation to Jasper was different as the floods built up subsequently.

Table 22. Evacuation Decision

Q26. Did you evacuate your home/location?	Jasper number	Jasper %	Kirrily number	Kirrily %
Did not evacuate	34	72	172	92
Self evacuated early	2	4	2	1
Self evacuated after general warning	2	4	2	1
Self evacuated after text	1	2	0	0
Self evacuated after door knock/warning	0	0	0	0
Assisted evacuation (friends/family)	0	0	1	0.5
Assisted evacuation (emergency services/support)	2	4	0	0
Emergency evacuation	1	2	1	0.5
Other	5	11	8	4
Total	47	100	186	100

All percentages more than 1 are rounded to nearest whole number.

Most households did not evacuate. Figure 8 shows word clouds of responses concerning the decision whether or not to evacuate. In FNQ the words flood and water dominate, whereas in Townsville where hardly anyone evacuated, reasons centred on house and property, and perceptions of safety and a lack of severity of the storm. Table 23 indicates that of the small numbers of people who evacuated, a refuge with friends and family was the most significant.

Figure 8. Influence on Decision Concerning Evacuation

Q27. What influenced your decision to evacuate or stay in place? Word Clouds of open-ended responses.

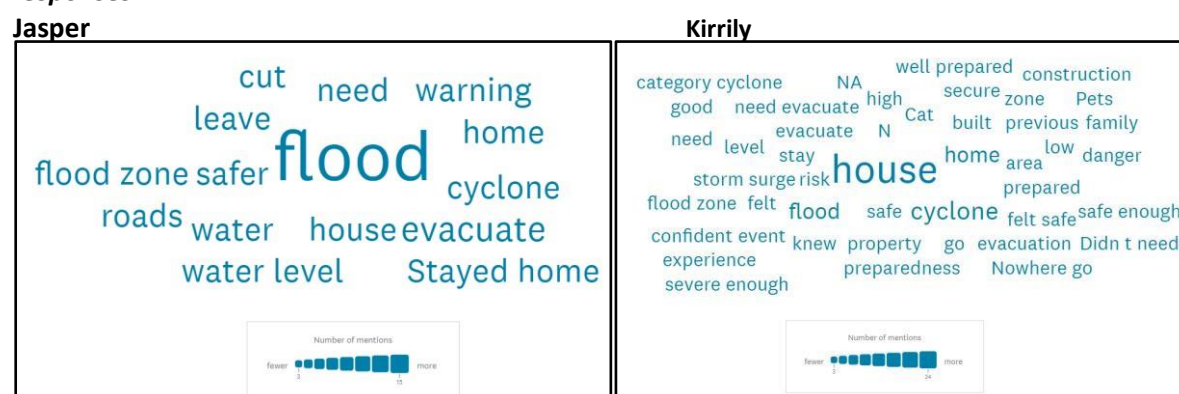


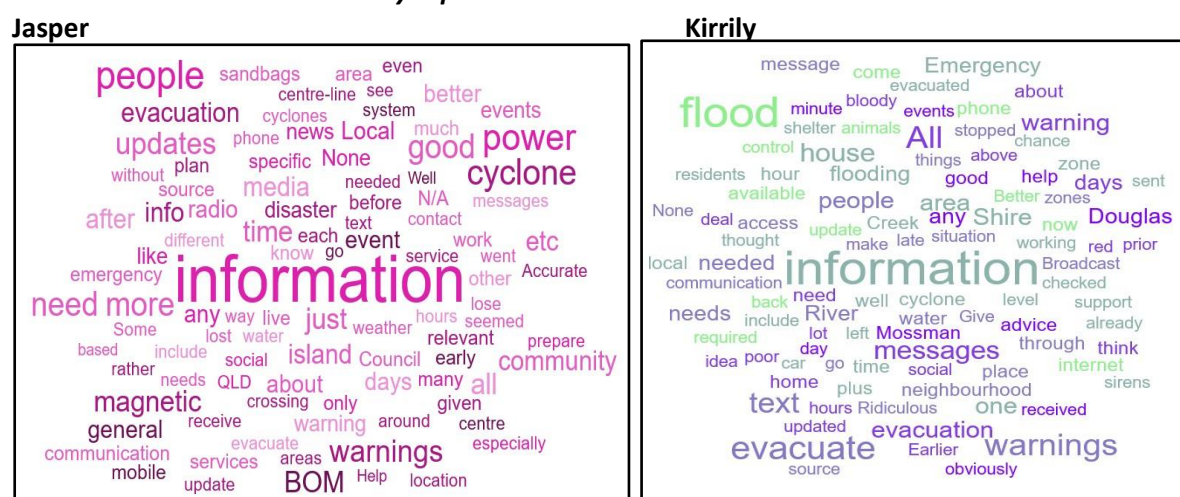
Table 23. Refuge of Evacuees.

<i>Q28. If you/your household evacuated - where did you go?</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Did not evacuate	34	72	168	90
Friends/family	5	11	8	4
Accommodation service provider	0	0	3	2
Evacuation centre	2	4	1	0.5
Evacuated out of town	1	2	1	0.5
Other	5	11	5	3
Total	47	100	186	100

All percentages more than 1 are rounded to nearest whole number.

Figure 9. Areas of Information for improvement.

Q29. Please comment on any aspect of information, warnings or evacuations for this event that you believe could be improved? See Appendix Table A3 for full list of all open ended responses. Word Clouds show the most commonly repeated terms.



Suggested areas for improvement elicited in question 29 prompted a number of complaints but also suggest many positive ways that emergency managers may consider towards improving communication and information, especially in areas of warnings and evacuation. The word clouds in Figure 9 stress information. People want more and better information, which is quite understandable in the face of the uncertainty of a looming natural disaster. The full list of open-ended responses, exactly as people wrote them, is presented in table A3 in the appendix. Some responses are quite detailed narratives, but whether or not responses are fair or accurate, these are a real indication of thoughts, ideas and complaints of members of the public who are the intended recipients of information and warnings.

Socio-Demographic Profile of Respondents to both Surveys

The socio demographic profile of respondents indicates a distinct skew. The people who responded to these surveys are not a representative cross section of the general public in the Townsville and Cairns regions. They are generally older, very well educated and predominantly female. In order to achieve a representative sample of the population, surveys would need to target a stratified systematic sample by household visits involving either face to face interviews or drop off and pick up. Aside from the high cost of carrying out door to door surveys, there are human ethical constraints involving questioning people about sensitive issues and assuring informed consent. Thus in the interim we have used completely voluntary online surveys to identify issues and preparatory practises of people when responding to natural hazards and disasters. These research findings are indicators rather than being representative of the whole community. As the Centre for Disaster Studies has conducted over 25 similar post disaster studies during the past 3 decades, we can identify common responses and emerging trends and issues from a wide range of locations and a much larger population. These research findings are a snapshot of responses following two recent hazard events, which we can put into the context of a much larger number of similar community surveys.

Table 24. Gender

<i>Q30. Do you identify as male or female?</i>	Jasper number	Jasper %	Kirrily number	Kirrily %
Male	9	20	60	33
Female	35	78	119	65
Other	0	0	0	0
Prefer not to say	1	11	5	3
Total	45	100	184	100

All percentages more than 1 are rounded to nearest whole number.

Figure 10. Age of respondents

Q31. What is your age?

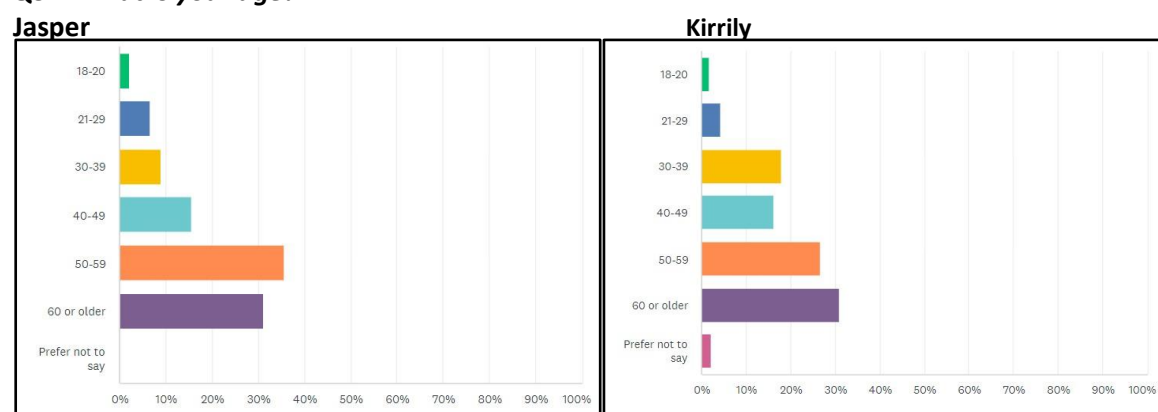


Table 25. Age of Respondents

Q31. What is your age?	Jasper number	Jasper %	Kirrily number	Kirrily %
18-20	1	2	3	2
21-29	3	7	8	4
30-39	4	9	33	18
40-49	7	16	30	16
50-59	16	36	49	27
60 or older	14	31	57	31
Prefer not to say	0	0	4	2
Total	45	100	184	100

All percentages more than 1 are rounded to nearest whole number.

Table 26. Education Level of Respondents

Q32. What is the highest level of education you have completed?	Jasper number	Jasper %	Kirrily number	Kirrily %
Did not attend school	0	0	0	0
Primary/elementary school	0	0	0	0
High school (up to grade 10)	5	11	13	7
Graduated high school (year 12 or equivalent)	6	13	19	10
Vocational certificate or diploma	6	13	37	20
Undergraduate/ Bachelors Degree	9	20	51	28
Post Graduate Qualification	19	42	54	29
Prefer not to say	0	0	10	5
Total	45	100	184	100

All percentages more than 1 are rounded to nearest whole number.

Appendix

Table A.1

What type of damage or impact did you experience during the event?

Jasper Impacts

<i>1 m of water flooded our home</i>
<i>26 cm of floodwater through house</i>
<i>A small amount of flooding on the road and my driveway</i>
<i>Agriculture crop damage</i>
<i>Branches fell. Dug trenches around property to handle water flow. Water leak through roof. Loss of one power circuit. Water onto patio areas.</i>
<i>Damage to workplace. Road closures. Impact on our small business.</i>
<i>Fence blew over and minor flooding</i>
<i>flood</i>
<i>Flood waters in my street to within about 1 cm of entering my home. Neighbours' houses did flood. The impact was material, social and psychological. I also experienced loss of power and mains water for periods during and after the flood. After the flood, damage to local roads and bridges reduced our ability to travel. Local shops and government service centres were closed.</i>
<i>flooded house.</i>
<i>Flooded in for 7 days No power for 4 days - lost contents of 2 fridge freezers My kindy I am Director of was totally flooded and we lost everything.</i>
<i>Flooding damage to back rooms, and rain coming into other rooms where the roof sheeting was lifted by the winds. Then no power, phone or internet for a week, couldn't get in/out suburb</i>
<i>Flooding of yard, pool, garden sheds, camper trailer and 2 vehicles. Loss of power, internet, water supply.</i>
<i>House flooded, lost everything including my car.</i>
<i>I was evacuated from my house because it was flooded by over a foot of sewage contaminated water</i>
<i>I was flooded, I had the bottom section of my home inundated with water, I have a high set queenslander, however have bedrooms, laundry and sheds which are ground level</i>
<i>Internal roof break</i>
<i>Isolated for a week when flooding cut off the Captain Cook Highway in both directions</i>
<i>Isolation, power outage, roof leakage, trees down, inundation</i>
<i>Leak in roof from inferior solar vent extraction fans which cracked over 6 years made from cheap plastic</i>
<i>leaky roof</i>
<i>Limited access to food stores and work for several days</i>
<i>Loss of 3 cars. One of them being a hire car that are now saying their insurance does not cover flood. The downstairs flood of our home had about 60cm inside dancing contents and walls and fittings</i>
<i>Loss of all services and cut off for one week</i>
<i>Loss of power</i>
<i>Loss of power. Some water ingress. Loss of work.</i>
<i>Loss of wages</i>
<i>Lost a fridge and freezer full of food, got stranded in Brisbane and had to pay for a hotel. Event was stressful and disruptive.</i>
<i>Minimal tree damage</i>
<i>Minor ceiling damage from rain blown under roof</i>

<i>Minor water damage to storage section of our carport. Resulted in throwing away items stored on the floor of the storage unit.</i>
<i>Minor water damage. Cut off from all services.</i>
<i>Mould in the houses power outage and lost food</i>
<i>No damage, but loss of power, water phone and isolated due to flooding</i>
<i>No power</i>
<i>No power for a total or about 4 days, no internet for 5/6 days, flooding to the door of house (not in the house), not able to leave house due to flooding, not wanting to leave the house due to worry, some roof damage, stress and anxiety</i>
<i>No power or internet for 5 days</i>
<i>Our home needs to be completely gutted and restored. We lost all contents.</i>
<i>power outage and damaged electrical equipment, flooded in, no internet, no mobile phone</i>
<i>Power outage and trees down</i>
<i>Rain water from roof overflowed guttering causing water damage to internal plasterwork and around base of walls near sliding doors. Power outages caused contents of fridge to be compromised and thrown out. Fridge no longer working so replacement required. Water outage caused muscle damage carting container water.</i>
<i>Roof leak Mould</i>
<i>Some trees fell over, 8 days no electricity, two days no water.</i>
<i>The transformer over the road blew up.</i>
<i>Total loss of Contents and Car Significant damage to house, landscaping, fences (total strip out and damage yet to be assessed)</i>
<i>Trees down and isolation by flooding , loss of road access and ferry closure</i>
<i>Trees down, water blowing into house from horizontal rain against casement and louvre windows, large potted plants blown down hill, vegetable garden destroyed, driveway cut due to waterfall over road, power outages for days, no water until we were able to get generator going, street closed due to massive landslip, tv & internet down, phone coverage patchy</i>
<i>Unable to return home due to highway damage Fallen trees restricting movement</i>
<i>Water came under my front door into the house & ruined the carpet.</i>
<i>Water through my house, damage to appliances and furniture.</i>
<i>We didn't receive damage. Our concern was landslip.</i>
<i>We lost electricity for several days and the only road in and out of the suburb was flooded/severely damaged.</i>
<i>We were evacuated as I lived in a red zone</i>
<i>Working during the event</i>

Kirrily Impacts

<i>3 Day power outage. 2 walls on the ground floor knocked down.</i>
<i>loss of electrical equipment (fridge and air conditioners) and food from power surge. General clean up</i>
<i>4 days without power or phone, needing to dispose of contents of fridge and 2 x freezers, 5 days having to boil water, minor garden debris/damage.</i>
<i>8 big trees down, lots of branches, no power for four days, very intermittent and feeble phone reception, no internet, and only an electric car so couldn't get out to find information on the ground, no neighbours, so cut off from any information until someone had the smarts to ring the abc with the news about the water</i>
<i>a few trees/branches down</i>
<i>Big trees</i>
<i>Branches down. Loss of internet and power, subsequent loss of food.</i>

<i>Branches down. Neighbour's tree over fence and on our meter box.</i>
<i>Damage - The latch holding the side gate snapped off, leaving the door unable to be locked, but this was easily replaced. The only other impact was one fallen tree outside the front of the house.</i>
<i>Damage to clothesline from neighbour's tree</i>
<i>Damage to established trees. Damage to front door (4 years old) due to driving rain and pressure from wind.</i>
<i>Damage to pergola, debris in garden, tree down, without power for 3 days (whilst having to boil water due to a secondary issue with magnetic island water supply - but the cyclone made this requirement more difficult and also lengthened the time of this requirement.), ferry services stopped, living in extreme heat with no fans or air con for 3 days, school closed, unable to work from Wednesday as work closed due to giving staff time to get ready, so that was weds, Thursday and Friday off work (Friday was a planned public holiday). So income was impacted immensely. Would have preferred to have worked Wednesday. Tv aerial came off roof and bill from electrician just returned at \$2300 for reinstating TV!! Starlink also came off and not yet working</i>
<i>Damage was minimal, fences and trees etc but the impact of being without power for 6 days and travelling in and out to work during this time had a major impact on our family</i>
<i>Damaged fence</i>
<i>Damaged fencing</i>
<i>Damaged fencing, windows, caravan, and trees.</i>
<i>Debris in the yard, one window blown out.</i>
<i>Electricity outage for 3days Tree fell on my roof</i>
<i>Emotional impact & stress leading up & during Kyrilly. We are very thankful, we didn't lose power or water.</i>

<i>Emotional. Lack of cyclone recovery communication post cyclone. Postponed surgery.</i>
<i>Fallen branches and one tree</i>
<i>Fallen debris and neighbours debris in yards, no substantial damage</i>
<i>Fallen trees which blocked access and smashed a garden table</i>
<i>Fallen trees, power outage and fences down</i>
<i>Fear of the unknown. Anxiety over not having access to information as the cyclone was nearing - lesson learnt that you can't rely on internet during these events. Being single person householder in later years of life going through a cyclone brings a new level of loneliness not before experienced. Excessive heat and humidity without even a fan was almost impossible to withstand: contemplated booking a hotel just to get a few hour's sleep-I remember feeling absolutely overwhelmed and helpless and physically and emotionally exhausted.</i>
<i>Fence blown over.</i>
<i>Fence came down</i>
<i>Fence fell over, loss of power</i>
<i>General garden shredding Loss of electricity for 3 days Loss of food on 3rd day A Form of heat exhaustion Mental fatigue Loss of 3 days work...as a casual worker also including a public holiday pay Caring for my 91 year old mum in my home without electricity was harder for her and disorientating...plus had 2 homes to Get ready but I had an action plan which executed pretty on point My employer did not have an action plan even tho I asked at the beginning of the week before cyclone approachLoss of communication , phone, electricity etc made it more difficult to deal with the situation of caring for my mum and also trying to organise for work when electricity came on... I felt I was fairly well prepared...althi have a small list for things to purchase to make that easier for next time</i>
<i>Gutters off roof, yard damage, small amount of roof damage. Four days without power.</i>
<i>Had a fair amount or large trees fall around our house and in surrounding streets</i>
<i>Had no power, loss some trees and garden. Lost food from the fridge and freezer</i>

<i>Health. We lost electricity and as I am already susceptible to heat stress, I became dehydrated and suffered ill health for the following days (still suffering now from dehydration-related poor health but it hasn't been quite a week yet since the event). Three of my children managed ok without the fans and air conditioning but one of my children also suffered with heat stress and had to relocate after the event. His mental health suffered because of this too.</i>
<i>Heat stress, no mobile contact, no electricity for nearly 4 days, water supply compromised even before the cyclone, several trees, bamboo & banana palms fell over & had to be removed as they fell over & on to my fences, lot of debris on the roof of my shed/carport & debris over the ground.</i>
<i>High winds. Trees in neighbours yards down. Damaged trampoline.</i>
<i>Hours of preparation - moving outdoor furniture and equipment, removing shade sails and glass pool fencing,... One shrub lost in the wind. Minimal other damage.</i>
<i>Impact.</i>
<i>Isolation</i>
<i>It passed 10km north of us.</i>
<i>Large gum fell on fence. Roof on one of outside buildings was lifting, so we had to go out in the wind and rain and tie it down. Many palm branches blew down but no major damage. No power until late Saturday afternoon.</i>
<i>Large tree down, loss of many smaller trees, fibro siding damage.</i>
<i>Large tree fell over, damage fence, destroyed trampoline, pool fence damaged</i>
<i>Leaking roof. Many days with no power. No phone service</i>
<i>Loss of electricity, food etc. Damage to trees (lost 8 trees) 4 were large trees</i>
<i>Loss of electrical goods</i>
<i>loss of electricity</i>
<i>Loss of electricity for 2.5 days. Fallen trees, fallen fence.</i>
<i>Loss of electricity for 5 days. Damaged fences, loss of trees</i>
<i>Loss of electricity for three days. Damaged tv antenna</i>
<i>Loss of Electricity from trees over the lines, and a lot of trees and branches down at my father's place at Toolakea.</i>
<i>Loss of electricity, food, work and income.</i>
<i>loss of food</i>
<i>Loss of food Loss of power Loss of communication</i>
<i>Loss of food due to extended power outage</i>
<i>Loss of food fence damage trees needed to be cut down</i>
<i>Loss of food. Minimal fence damage</i>
<i>loss of power</i>
<i>Loss of power - access to the mainland. Access to internet to get any kind of disaster update</i>
<i>loss of power ,isolation ,no ferries</i>
<i>Loss of power 3 nights</i>
<i>Loss of power 5 days. Loss of water. Fallen trees, fences down, loss of electrical appliances</i>
<i>Loss of power 5 days. Spoilt and discarded food. Major trees felled. Significant work to restore garden and yard. Paid \$1000+ for initial assistance. Ongoing assistance difficult to organise. Poor communication of conditions. All communications lost TV.RADIO (other than battery powered). No phone - towers disabled, poor signal on restoration.</i>
<i>Loss of power and consequently loss of all good stuffs and damage to fauna on property</i>
<i>Loss of power and fallen trees</i>

<i>loss of power and food</i>
<i>Loss of power and Landline telephone/internet</i>
<i>Loss of power and minor damage to tress</i>
<i>Loss of power and phone reception</i>
<i>loss of power and some loss of internet</i>
<i>Loss of power for 2 days</i>
<i>Loss of power for 3 days. Loss of food and medication</i>
<i>Loss of power for 4 days and green waste damage.</i>
<i>Loss of power for 5 days Small to medium tree branches and palm branches fallen or in yard</i>
<i>Loss of power for 5 days and damage to fences</i>
<i>Loss of power for 5 days, all food went bad. Therefore also no fans or air-conditioning or lights etc.</i>
<i>Loss of power for several days and loss of mobile coverage for several days vegetation damage</i>
<i>Loss of power, broken trees, debris</i>
<i>Loss of power, connectivity (phone, internet etc) for almost 72 hrs, experienced excessive heat /discomfort, cost of fuel for our generator, minorish mess/damage to garden</i>
<i>Loss of power, fallen trees, damage to the home die to gale force winds</i>
<i>Loss of power, food and communications</i>
<i>loss of power, loss of trees,</i>
<i>Loss of power, minor damage to garden</i>
<i>Loss of power, one tree fallen over</i>
<i>Loss of power, tree damage to property</i>
<i>Loss of power, trees down over fence</i>
<i>Loss of power. Damaged foliage. Electrical equipment damaged.</i>
<i>Loss of power. Minor damage to yard - one tree down and wobbly fence.</i>
<i>Loss of trees, no power & telecommunications for 3 days</i>
<i>Lost of power</i>
<i>Lost power and phone reception</i>
<i>Lost trees Power outage</i>
<i>Lots of tree and debris damage to fences. Loss of power</i>
<i>Many trees fell or snapped in our garden (approx 7) and our work was disrupted due to school and kindy closure.</i>
<i>Minimal - despite some strong winds our building was not damaged. Some trees in the street were damaged.</i>
<i>Minimal damage. Impact on vegetation but no loss of larger trees. Automatic gate was damaged.</i>
<i>Minor damage to gardens</i>
<i>Minor damage to my liveaboard yacht - damaged solar panel & vinyl dodger. Debris from trees & damaged guttering at my dad's unit. Loss of power for 3 days resulting in lost food & beverages for me & my dad. Loss of phone & internet service resulting in isolation & stress. Feelings of abandonment and anxiety due to lack of government or other support - the whole island seemed ignored. The incredible heat for days after was awful and dangerous.</i>
<i>Minor damage to trees.</i>
<i>Minor damage. Loss of power, internet, and potable water for 4 to 6 days (respectively)</i>
<i>Minor flooding, tree debris</i>
<i>Minor garden debris. Power outage for 3.5 days.</i>
<i>Minor tree damage mostly from Neighbour's tree's</i>

<i>Minor tree damage on property, loss of power for 6 days, couple of short Optus outages - Australia Day and the following Wednesday afternoon.</i>
<i>Minor tree debris and loss of power.</i>
<i>Minor vegetation damage</i>
<i>Minor vegetation damage in our back yard. Trees and large branches down in our local park.</i>
<i>Neighbours overgrown trees falling onto our fence damaging it & their trees falling into our yard. Water coming into the house.</i>
<i>NIL damage Winds, leaking sliding door (sideways rain causing tracks to overflow into house) Damaged plants (minor)</i>
<i>nl</i>
<i>No damage, but loss of power for three nights.</i>
<i>No damage. Power & mobile/internet outage.</i>
<i>No electricity for 82 hours. Damaged fence, security camera, lost foods and stress of finding a fridge for medication</i>
<i>No power 4 days. Trees down at our property. Heat wave with no power for fans caused heat distress.</i>
<i>no power and lost all food in two freezers and one fridge.</i>
<i>No power for 4 days Unable to sleep properly as couldn't work my sleep machine Drs closed couldn't get help, no support to scared to sleep without my machine on No phone to call for help Had no water as told I had to boil water and had no power Had to through my food away</i>
<i>No power for 5 days Trees down</i>
<i>No power for days on end lost all food. Also very hot heatwave with a 2 year old isn't fun</i>
<i>No power for days; no way to go from Magnetic Island to mainland for days; cut off roads on MI and debris/issues around petrol and supplies</i>
<i>No power no water no communication whatsoever no internet or phone service. Damage to trees and garden. Water flowing into yard from road and creek</i>
<i>No power, no telecommunications. Lack of info for our suburb. Isolated from CBD for 2 d</i>
<i>No real impact apart from low food reserves from shops and some closed due to no internet etc.</i>
<i>No structural house damage, but 2 minor roof leaks. Moderate branches lost from several large trees, otherwise small branch losses and some damage to flower beds</i>
<i>None</i>
<i>none</i>
<i>Nothing</i>
<i>Nothing to the house. There were a few tree branches down on the street on our block.</i>
<i>One tree blown down; power outage</i>
<i>Open-Ended Response</i>
<i>Our banana plants got blown over and we lost power</i>
<i>Personally we had a minor leak in the ceiling of our lounge room and wash-out in part of our driveway. However, more broadly was the catastrophic impact on the psyche of our broader community due to the vast flooding that took place and closed many roads for days.</i>
<i>Power and internet outage Loss of perishable food Reduction of ability to work for approx a week</i>
<i>Power loss for 60 hours and some minor damage to my roof</i>
<i>Power Loss</i>
<i>Power loss after the cyclone</i>
<i>Power loss for 4 days; trees damaged</i>
<i>Power loss for 6 days.</i>

<i>Power out Trees damaged</i>
<i>Power out for 3 nights and tree damage</i>
<i>Power out for 4 days</i>
<i>Power outage</i>
<i>Power outage amd loss of food</i>
<i>Power outage and a fence fell over.</i>
<i>Power outage and minor vegetation damage</i>
<i>Power outage at 4pm Thursday 25th - Monday 29th 1.36am. Branches and palm fonds blown down</i>
<i>Power outage causing loss of full fridge and freezer, heat stress (I am 82)!</i>
<i>Power outage for 3 days, minor amount of debris in the garden</i>
<i>Power outage for 4 days/3 nights</i>
<i>Power outage for 72 hours / a few trees down</i>
<i>Power Outage for 82hours resulting in the inability to use Septic Sewage Systems.</i>
<i>Power outage for three days. Minor tree damage in yard.</i>
<i>Power outage from 25/5pm to 28/1 4.30pm. And no potable tap water from 23/1 to 30/1. Not due to Kurrily but Kurrily made it impossible for crew to fix it earlier</i>
<i>Power Outage, flooding</i>
<i>Predominantly vegetation, large branches and some fallen trees</i>
<i>Psychosocial stress and I observed trauma in other members of the community</i>
<i>Rain, wind, blown down trees and branches</i>
<i>Reduction in employment due to cyclone warning induced stand down. Reduction in available supplies, due to media induced panic buying.</i>
<i>Roof damage tree down</i>
<i>Roof damage, gate damage, no power, smashed pot plants.</i>
<i>Rural fence damage, loss of power, cattle out</i>
<i>Several trees were blown over, some across property fences. Loss of power for six days.</i>
<i>Slight damage to fence and to trees</i>
<i>Steel post of pool sail felled in a gust. Power loss. No internet, No Mobile Phone communications.</i>
<i>sxx</i>
<i>The loss of some very rare Palms..some minor damage to boundary fence</i>
<i>The power went of just before my roast was cooked. I had to buy ice every day</i>
<i>The Power went out 5pm Thursday night, which ment by Friday Morning we had no Phones, Internet, or Power for 3 full nights and 3 full days and we are all still having difficulties with the internet in Horseshoe Bay.</i>
<i>Torrential rain some damage to landscape and boundary fence</i>
<i>Tree branches down in yard and power outage for 3 nights and 4 days.</i>
<i>tree damage and loss of power</i>
<i>Tree damage and loss of power and internet.</i>
<i>Tree damage and loss of power.</i>
<i>Tree damage at rear of property and loss of electricity in excess of 24 hours</i>
<i>Tree damage due to wind gusts.</i>
<i>Tree down</i>
<i>tree fall, no damage to property</i>
<i>Tree, no power</i>
<i>Trees and branches blew down</i>

<i>Trees around the yard, loss of power</i>
<i>Trees damaged</i>
<i>Trees down</i>
<i>Trees down & general mess in yard inc rubbish (garden/house) from other homes, gutters were already full from lazy neighbouring house who refuses to clean gutter in front of their house, leak in house at recently renovated area of house, power outage for 3-4 days, had to dispose of 2 large fridge/freezers full of food + contents of chest freezer, heat stroke (vomiting, dizziness, mood change - angry, lethargy/fatigue etc for 2 days then just fatigue for couple of days after)</i>
<i>Trees down, loss of power.</i>
<i>Trees fell onto my house, no power, water, no food available</i>
<i>Trees over fences rural. Power outage from Thursday 25/1 til 31/1</i>
<i>Unable to work for 1 day</i>
<i>Vegetation damage plus falling branch caused minor damage to pool shade guide wires</i>
<i>Vegetation damage, large gum tree limb branches from adjoining property came down, missed the fence and shed. A shade cloth from the deck was ripped up, but was still attached on one corner. This was nailed down so we did not remove it as we did our other shade cloth in our cyclone preparation. Loss of power for 3 days.</i>
<i>vegetation damage, loss of power.</i>
<i>Vegetation down, fencing damaged. Loss of power.</i>
<i>Vegetation down, power outage</i>
<i>Very slight tree/plant damage</i>
<i>Water entry</i>
<i>We lost a big tree in the back yard and electricity for 4 days</i>
<i>We lost power for about 28.5 hrs (it came on briefly for 10-20 mins after 23.5hr, then was off again for 5hrs. Not ideal as I am a nurse and was working night shift at the hospital the night of the cyclone and the night after it, so sleeping during the day was difficult in the heat with no fans or aircon. Damage to a pool shade cloth from the top of a tree snapping off and landing in the pool</i>
<i>Whole front yard was thick with green waste, driveway had a large branch over it.</i>
<i>Wind mostly. Loss of power for 5 days</i>
<i>Without power from 10am Thursday night to 3pm Sunday afternoon. Side fences on property blew over and destroyed</i>
<i>yard damage and trees down</i>

Table A2. How would you rate the information provided by these official sources?

Open Ended Responses from Cyclone Jasper Survey
<i>I understand it is hard to provide short and impactful messages regarding safety, but I received a message from local govt advising to 'take shelter in safest part of the house now' while outside barely a leaf was moving in my garden. I think this type of blanket messaging makes it hard for people to know where is safe and where is not safe.</i>
<i>Wish that BOM still accessed local info. I.e. Port Douglas post office has a barograph. Information from that used to be sent to BOM. BOM do not want it now, and staff no longer have to send it to them. Why is that?</i>
<i>The Council dashboard was a little slow but given the local Buy Swap Sell pages were instant I think the council did very well</i>
<i>These answers are too general. Some information was so accurate & up to date. Other information was inadequate and belated updates</i>
<i>Was told there is nowhere we could charge devices.</i>
<i>the information was not timely, our local council did not initially seem prepared, most info was on their dashboard, left entirely to others to 'seek' the information.</i>
<i>I felt well prepared and knew enough to choose to remain home based on strength of winds. I could still use landline to call friend who gave me updates when internet unavailable due to heavy rain and satellite interference.</i>
<i>Shire information was only updated during business hours, or less</i>
<i>This question needs to be broken down into a rating for each source of information because it is impossible to generalise: Bureau of Meteorology - completely accurate, up-to-date, useful, trustworthy Douglas Shire Disaster Dashboard - inaccurate, incomplete, muddled, confusing, not at all trustworthy Emergency messaging via text and landline (via Douglas Shire Council) - inaccurate, incomplete, muddled, confusing, not at all trustworthy Local Politician on Facebook (Councillor) - Very accurate, up-to-date, useful, trustworthy QFES, SES, QPS, Ergon Energy - - completely accurate, up-to-date, useful, trustworthy DTMR - Somewhat accurate, up-to-date, useful, trustworthy QLD FloodCheck Application - Level 2 flood study for the area - Not at all accurate, up-to-date, useful or trustworthy (indicates no flooding in my street and the Mossman CBD at 0.2% AEP, when flooding did occur in these areas as recently as 1979 - as I found out after the post STC Jasper flooding). Note: SES & QFES personnel gave personal updates as they came through the streets for evacuations and welfare checks. This on-the-spot information rates more highly than any other source.</i>
<i>Information provided on social media is often more up to date (you can check the timestamp) than through official channels.</i>
<i>Local Council alerts of when to seek shelter and warnings of when the greatest impact was were inconsistent with what was happening outside and via bom.</i>
<i>As an international student who have never tried a cyclone, i feel like the initial messages and news were very serious, but the cyclone and flooding were not too bad for us.</i>
<i>The majority of information was reliant on internet or mobile phone access, once this was lost the only information source was the radio network via battery powered radio.</i>
<i>The 2 critical river level gauges for the Barron River delta are the Thomas Ck and Airport BOTH FAILED.</i>
<i>Depends if we internet or not to even access!</i>
<i>Whilst there was information available, it was not timely enough for the rapidly unfolding situation. Facebook seemed to have more timely, live, information. Personally, living in an area which lost electricity and had limited phone reception, further added to the challenge. It was difficult to find information that would load quickly. At one point, staggered text messages from friends/family were the only source of updates.</i>

<i>I woke up to flooding at my front door at 7:30 on the Sunday morning, about the same time I received a "leave now" text message. There was no warning, I am a water resource engineer and I'm so disappointed in the lack of warning around the volume of rain that could fall. It didn't have to be exact, but bom and local council should have warned me that there was large rainfall that could have been expected overnight and to prepare. Then no mention of Clifton beach at all, not even on the radio. I didn't expect emergency services, given so many were impacted. But how did the radio not have a clue? How did the warning messages not include Clifton beach? And why were the messages so delayed???</i>
<i>Like all cyclones they have a mind of their own</i>
<i>Lack of co-ordination</i>
<i>Updates should be every half hour. Often information was too late. Telling people to evacuate as going to flood when already flooded. More visuals e.g. flood map in letterbox for each area, flood map on social media easily accessible, clearly state where the main source of information will be repeatedly in every update. We got more up to date information from friends and family videos, and from a social media messenger site where we could see what was happening to them. Friends had videos of water coming through their houses before they were told to evacuate.</i>
<i>The issue was once we got the text to leave immediately to high ground. There was nowhere to go, the roads were closed and flooded.</i>
<i>BoM didn't issue a warning until the morning, other weather groups on FB were already warning about heavy rainfalls late on 16/12</i>
<i>BOM very reliable, Council disaster management site not kept up to date, Ergon site was good too - after a few days when they figured out what was going on, conflicting advice from Council and Main Riads made life very difficult</i>
<i>Nobody expected the amount of water that fell from the sky. The majority of warnings were about the cyclone and storm surge. Nothing about a 100 year flood event</i>
<i>Bom were way off on timely warnings</i>
Open ended Responses from Cyclone Kirrily Survey
<i>Conflicting and patchy information from TCC re Magnetic Island drinking water issue and quality. One radio station was saying they were there for the emergency but spent the whole time talking about the cricket!!!</i>
<i>When all in mobile & internet coverage on MI is cut off for days: having information via the internet is useless for many islanders. Telstra, NBN & optus on MI are especially useless during normal busy periods when the internet simply does not work due to download/capacity issues as it is 100% wireless back to the mainland. We got starlink before the cyclones for this reason and hooked it up to a small portable solar panel/battery so it worked. Did not work for our phones though and even emergency services on MI had heap of issues with communications from all reports. some islanders ended up going door to door to vulnerable community members who did not have any information due to internet/power going down for days</i>
<i>Bureau of Meteorology initially forecast Category 3 crossing at Ayr. Eventually crossed at Townsville as Category 1</i>
<i>At times information was slow and/or not quite accurate, during the evening when the cyclone was heading over Townsville</i>
<i>Cyclone was upgrade to severe category 3 only within 6 hours of impact with the coast. In the days/week leading up the highest possible rating was only 2. We were a little complacent because of the cat 2 rating and within 6 hours of impact all shops were closed.</i>
<i>Bureau of Meteorology could be better. Predictions need to be fine tuned more, maybe technology not yet available to do this??</i>
<i>Due to extremely bad internet connection through Telstra during the event - it was difficult to go onto web pages etc to ascertain what was happening. Information was there, was extremely hard to get.</i>
<i>ERGON - power outage site was very helpful, particularly following restoration of power, and subsequent second loss of power (responses for ERGON above).</i>

<i>Bom advice was confusing and unhelpful at times.</i>
<i>It's a cyclone. No one can be completely accurate. They were as accurate as could be for a cyclone.</i>
<i>We had no Access to any platforms as we had no power or internet access for 3 days</i>
<i>We acknowledge cyclones are unpredictable but the BoM had tracking that showed it crossing at Innisfail, Bowen, all around Townsville. They had it a Cat 1, 2, 3. What we ended up with appeared to be nothing more than a severe tropical storm. It created fear and anxiety which wasn't needed.</i>
<i>The BoM is the bomb!</i>
<i>We couldn't access anything after 5pm 25th NO POWER</i>
<i>Other than Ergon Energy we did not hear from or have access to any of the above</i>
<i>To wish for more is nonsense. It must be impressed on people to be prepared and learn how to patiently duck and patiently wait for the event to be over.</i>
<i>Post Cyclone the information re return of power supply vague and/ or misleading for several days, and was inconsistent with the info published on local media .</i>
<i>Status updates were useless in trying to understand what further action if necessary we needed to take. "We are working to resolve this issue". Great, it means nothing in terms of should I go find more water? Self evacuate because we've had no power for three days?</i>
<i>Ergon did not have enough info and updates re power outages</i>
<i>Exhaustion was big ...I had got the action plan more well tuned when Cyclone Jasper had appeared off the NQ coast....then Xmas ...work..and caring for elderly mother....even tho we were nt directly effected by jasper....we were work wise due to cancellations so by the time Kirrily got here it just felt like it had been going on forever....Adrenalin...1st real day off today and I did nothing ...i just could nt do anything I had reached my limit of endurance</i>
<i>Information was good online but useless to use on the island as we had zero communication with anything. My partner was visiting in nsw and kept a neighbour up to date that was then passed into me when he had intermittent phone service.</i>
<i>Only help was the Community Kindness woman. She hasn't been back but know she helped my friend who has problems as well</i>
<i>It is so helpful to understand the uncertainty in the predictive model guidance.</i>
<i>Magnetic island had almost phone and internet services for days on end. MI communications is awful when the weather is good due to lack of infrastructure, lack of capacity, 100% wireless. The wireless went out for days so hundreds of residents couldn't access all that information which is 100% on line. When power went, so did our wireless broadband and mobile. Many residents especially older vulnerable ones had zero support from essential services and zero information. There are no information hubs on MI and they're needed in each village as the one main gets blocked by landslides, rocks and debris, resulting in residents in 1 village like Horseshoe Bay being unable to access other villages like Nelly Bay. There's no cyclone shelter nor community space providing information, power, on MI at all let alone in each village. The SES opened up a few hours but you had to go on the non existent internet/ social media to find out about it so most residents had no idea. Essential services had communications difficulties between each other due to the mobile/broadband being down. Mt home was ok as we had solar panels and battery which powered starlink. But I was unable to get any information on my phone outside of my home as telstra mobile service wasn't working.. very few residents have solar powered Starlink.</i>
<i>There seemed to be much hype and scare lingering on mainstream media Govt updates were balanced and helpful BOMS updates need to be more mobile friendly and accessible /plain english Townsville council - recommended crisis support and evacuation centres not applicable to island - as the ferries were down Police update was useless and after the fact The local MP used the opportunity to try and score political points rather than help Community based supports were the most useful and trustworthy</i>
<i>Very difficult to continue to expect ppl to use online formats of information and then have their ability to access those damaged or cut off very early in the event - and then gone for 4 days</i>

<i>It was confusing when it was expected to hit. The crossing estimated time was for the centre but there wasn't any information on when it would start. Then when the eye came and lasted such a long time we had no idea if it had passed or it was still the eye as the bom map had it further north. If it wasn't for Wally's Weather we would have thought it was over</i>
<i>Sarah Downs attended our property with her chainsaw and was an absolute godsend. Thank you Sarah.</i>
<i>I forget which source I got what information from</i>
<i>The time indicated of impact changed continuously and didn't relate to the actually event being felt time</i>
<i>It is very hard to forecast and predict where a cyclone is going ..so at the end, they didn't pretty good job</i>
<i>Too many weather services seemed too intent on bagging each out and trying to sell people into subscribing to their pages.</i>
<i>I found Weather IQ were up to date and gave concise and accurate information.</i>
<i>Was overhyped and under delivered</i>
<i>It was all very good, we are so lucky</i>
<i>Due to Power outage and extremely limited mobile reception in the suburb of Alice River all sources of information was not available except for Radio. The BOM and local disaster management team placed all updates on these resources even though the community could not access them.</i>
<i>Suggest further oversight of smaller communities. I lost contact with my parents on Magnetic island due to no phones, power. No one could advise me the state of Magnetic Island (council and SES) and Council seemed unaware they had no phones. I had to rely on piecing information together on small community group social media pages.</i>
<i>The main stream media hypes it's more then it needs to be and makes it out that it will be a lot worse then it really is</i>
<i>I had thought was prepared but my generator didn't run well. I couldn't plug it directly into my house as I needed an 15 amp extension lead. I didn't know until needed to use it and I had forgotten to service it beforehand. I will be better prepared next time.</i>
<i>Too many variables with this cyclone created instability plus length of time created media hype</i>
<i>Except for qld health. The other sites were all good</i>
<i>Initially the information was very accurate and helpful. However when the power failed, our internet signal was also almost non-existent so we lost the ability to stay informed. Family & friends who hadn't lost power, sent text messages to check in on us & let us know some weather details.</i>
<i>No internet makes all of these questions for me redundant</i>
<i>Council information severely lacking</i>
<i>Townsville council has changed advice several times on the recovery. Confusion on the category of cyclone and impacts as well. Local federal member is now politicising the event</i>

Table A3. Please comment on any aspect of information, warnings or evacuations for this event that you believe could be improved?

Open ended responses from Jasper Survey
<i>As above re: text. I also saw several Facebook posts from women late in pregnancy who were unsure of what would happen if they were to go into labour during disaster events. I thought seeing a few of these was significant, as there obviously needed to be more advice from QH on this. Further, I work in aged care with social housing residents. The most the department did was to leave a voice mail advising my client to prepare for the cyclone. She is almost immobile and in her late 80s. This was not an adequate level of support from State govt.</i>
<i>The text messages from the LGA. Douglas Shire is not my shire. I do live on the edge of it, in Mareeba Shire. The text messages sent to immediately take shelter in the stringest part of your home was a bloody joke. 24hours out! Be damned if I'm gonna spend that amount of time holed up inside. Repeated text messages! And then a phonecall on my landline! Ridiculous waste! Ridiculous instruction. We thought one of our 5 kids or parent/s had been in a bloody accident!!! And just in case I dont get the chance, I don't need a day by day minute by minute update on the fucken water supply either. You're working on it - good - when the tap works again I guess you've fixed it! People who think they are entitled to an hour by hour update are bored micromanagers, and obviously have no comprehension, nor do they want, of what is required to fix things.</i>
<i>The main issue was when all the Telco's stopped working. All telephone and TV and internet access stopped for two days in our area. In Wonga it was over five days. Once this happens no information is available and no txts or any warnings come through. The only information available was via ABC radio and we would sit in the car and listen to the news. The problem was none of the information broadcast was local to our area.</i>
<i>Text message were good.</i>
<i>communication was poor, we had wardens in the 70' and 80's, who door knocked in our neighbourhood, community needs something similar to a Neighbourhood Watch, where local to the neighbourhood information is circulated, in any situation.</i>
<i>I was happy as I am self reliant and have a good instinct. I chose to deal with the storm at home and felt confident plus I have off grid infrastructure. I had my car ready if I needed to go plus a hill above me. I was well prepared. I trust myself to make decisions so I did not need advice. I have fair survival skills and trusted I could deal with things as they arose plus no big trees close to my house. So for me no improvement but for others well I am sure they think differently</i>
<i>Emergency roaming to cover users of networks that are unavailable (as is in process). My neighbour had no idea about the situation as they had no internet or phone coverage. The emergency warnings by text or phone must be specific enough to be useful to residents. General information is not an incentive to act, especially in areas that are not officially in a flood zone. All the communication from the Douglas Shire Council was very poor or non-existent. The flood surveys in the Douglas Shire need to be updated to at least include events in living memory. The focus should be extended from the Mossman River and South Mossman River to also include Marr('s) Creek and Parker Creek. When I purchased my block of land, I checked the available flood information and it did not show any evidence of the 1979 flooding that went from Marr Creek and through the streets to the Mossman CBD.</i>
<i>Well we needed warning about the flood, we moved stuff from the front of our house to the back to keep it safe from cyclone, but the flood came from the back and wrecked it all</i>
<i>Broadcast messages to evacuate help no one. Define zones to be evacuated based on (for example) flood maps. Have predefined flooding levels where messages are sent to those that we know are going to be affected. Give people time to evacuate. Give them a place to evacuate to. Don't necessarily control the message; but control the message ;)</i>
<i>None, but as it was my first experience of a cyclone/flood, I had nothing to compare it too.</i>
<i>Warnings were sufficient.</i>
<i>Local human input prior to sending out text warnings, evacuation and shelter in place messages.</i>

<i>We could have stayed in my house, we didn't get any flooding so i feel like the warnings were very dramatic</i>
<i>All information</i>
<i>We received information to evacuate prior to Cyclone Jasper but had already left. We returned 3 days later with no idea of potential flooding and it happened so quickly we could not safely evacuate and the evacuation warning was not received for another 6-7 hours.</i>
<i>Plans to evacuate animals</i>
<i>Ensure all river level gauges can not be taken out by flood waters.</i>
<i>Better accomodation for people with animals - we had to sleep outside</i>
<i>The timeliness of the warning should have come a lot sooner. Also a summary of what people should expect. There was a lot of fear mongering messaging days earlier which took away from peoples ability to react when genuinely required to do so. Area specific notifications would also help.</i>
<i>Too many agencies involved, with conflicting priorities and information dissemination. The establishment and support for 'one source of truth' needs to be considered. All information in to one place, all information/ advice out from there. It seemed nobody wanted to make a decision/ call on anything.</i>
<i>Acquaintances told me that they were in a flood area. They got the 'evacuate now' alerts when they already had a meter of water through their home</i>
<i>Improved warning of incoming rainfall and what that could mean.</i>
<i>Very missed and inconsistent</i>
<i>In the red flood zones there should be emergency sirens, and education that their properties are now in a flood zone which they weren't previously. We had a house in Spence St that wasn't in a red flood zone and now is. The evacuation procedures should be clear. What to do if your normal access becomes blocked. (My 95 year old mum would have great difficulty on her own.) My friend at Machams Beach had a foot of water in her house by the time she got the Emergency evacuation sms.</i>
<i>1. Warnings should have come way early. 2. Information where to evacuate in the suburb you couldn't get out 3. They should have checked each house to see people were ok or evacuated</i>
<i>I think having been pre-warned and numerous outlets updated on exact conditions meant information was fairly consistent and there was less chance of dropout from one information source from being hammered and bandwidth limited.</i>
<i>Earlier warnings about the extent of the rain</i>
<i>Evacuation centre in Port Douglas was not open!</i>
<i>The public needs up to date information regularly. Meaning, half hour updates when needed. The BOM is often left lagging in this area. Their social media presence needs urgent attention</i>
<i>Flood warnings reflect river heights</i>
<i>Flood sirens, better internet and phone access</i>
<i>Tell us to move or help evacuate if necessary with ample warning.</i>
Open ended responses from Kirrily Survey
<i>No evacuation or recovery centres on Magnetic</i>
<i>Accurate information around the impacts of the events and data for events before during and after events. Better communication around response to an event to reduce any misleading information or confusion.</i>
<i>None.</i>
<i>General community education campaign required to improve the average persons understanding of weather models, sources etc.</i>
<i>News especially local news is out of date and not relevant</i>
<i>Warnings started to early and covered to large an area. First warning on 22 January covering Tully to St Lawrence. Received 10 alerts prior to winds/ rain effects becoming noticable. Diluted the effectiveness.</i>

<i>People need to learn that they can access the radio digitally. ABC is a good source of info. relying on facebook is not great!</i>
<i>Need more up-to-date tracking so we know exactly where the cyclone was. We lost all our refrigerated and frozen food within 1-2 days so to be fairer the govt should change the disaster relief payment from 5 days to loss of power from 2-4 hours onwards.</i>
<i>My elderly parents live in Rupertswood. They lost power, NBN and mobile for three days like many in their suburb. We could not contact them unless physically driving out there. Even after we connected their generator they still had no land line phone or mobile. Terrible service by the phone companies.</i>
<i>BOM track maps should not include a projected centre-line to the coast unless BOM confidence of the centreline coastal crossing is 90% or higher. Lay people interpret the centre-line as the location of crossing, causing people in that location to stress, and others away from the location to be complacent.</i>
<i>Disaster Management Dashboard has potential - but its got to be more dynamic to timing of the event, not just everything related to it. Important info is lost at the time you need it.</i>
<i>The Australian Warning System - it seems to be constructed around rapidly moving disasters such as bush fires, rather than the generally slower moving threats such as tropical cyclones. Repeated disaster warnings in the media for over a week are unhelpful and are stressful. One size plan does not fit all. This needs to be fixed. Similarly, the state government should ensure that BEFORE the cyclone season, the various weather radars are serviced and ready.</i>
<i>Many people who are not familiar with cyclones do seem to not know or understand how to prepare. Some are misinformed that lower grade cyclones pose minimal threat and many people under prepare.</i>
<i>there was nothing after the cyclone. We had 6 days without power or water. We live on top of a hill and the pumps were out so no water could get up the hill</i>
<i>Advance warning of power being turned off</i>
<i>Was good to see the Fire & Rescue Service get more attention. For transparency I'm not associated with them but have had contact with all emergency services at different community events. They are a lead agency & the community trusts them. Feedback from my area of work is that people trust them & their training. They're the professionals. Volunteers in the other services are more there for self promotion & a lot are older people that have the time, overweight/unfit, struggle in other areas of their life & need a structured group. They associate red trucks & the red/yellow wetsuits with emergency situations.</i>
<i>Trust the official sources.</i>
<i>More impact based information</i>
<i>Well once you lose power you lose access to all dash boards that advise you of what's going on, your on your own and in the dark about any information.</i>
<i>People were showing up to fill sandbags without sandbags. They assumed they would be provided. The information on the council website should clearly state that people need to bring their own sandbags, and the information about what to include in a kit should include empty sandbags so they are on hand when you need them. We didn't lose power, but it flickered on and off a few times. The dishwasher then stopped working and the appliance store said there was a good chance this had to do with the power outage. Would be good if this could be communicated too as I would have turned the dishwasher off at the wall, in the same way I did the computer as I have been taught power outages aren't good for computers.</i>
<i>Accurate information would be nice or for the BoM not to update so often if they are not sure on what is likely to happen.</i>
<i>No evacuation plan for magnetic island</i>
<i>I don't no</i>
<i>we had no information for over 3 days as no power/internet.</i>
<i>loss of phones and internet for too long after the storm had passed</i>
<i>Phone communication was terrible as the mobile system went down quite early on</i>
<i>The exaggerations were inexcusable and fearmongering.</i>

<i>RMs could have notified as to safety advice, e. g. Outdoor furniture and plant pots to be removed from balconies, how to store water, what to do for safe keeping big we were hit badly.</i>
<i>Power outage needs to be addressed</i>
<i>It was our first cyclone so we felt we were given enough information</i>
<i>Evacuation centre on Magnetic Island! Why isn't there one?</i>
<i>Too general to greater area and not to your specific conditions. Radio was useless though everyone kept saying you should have a radio. It was just entertainment not useful disaster information. We need to make a decision to stay or leave not know how many teams were doing their best or if the CEO had been up all night. Mobile coverage went out completely very early in the storm. Did not restore for 5 days made getting any useful information very difficult</i>
<i>There needs to be a specific team that can put together a document to guide NDis businesses to assist people with disabilities.</i>
<i>Council did not have all preparations in place for after event</i>
<i>Text messages updating information specifically for Magnetic Island rather than Townsville in general</i>
<i>Local updates for magnetic island</i>
<i>Information after event and when electricity went off was pretty much non existent for us on MAGNETIC Island....we needed a general back to basics paper based community news board from a reliable source to find out what was going on</i>
<i>Communication was the biggest problem. Some people with generators and starlink were the only source we had</i>
<i>Not good</i>
<i>Improvements to radio station information if areas in affected areas are without power.</i>
<i>In the past we've had welfare checks and warnings about evacuation by the local police. ...no sign of them anywhere during this event</i>
<i>We had text messages 2 hours before landfall to evacuate to Townsville shelters if the house was built prior to 1980. This is not helpful when on magnetic island</i>
<i>Did not receive any evacuation warnings, but did receive text messages with updates about the cyclone at the time. This was good</i>
<i>Don't rely on telecommunications as being the sole source of information. MI has a much larger older population who don't use or know how to use internet let alone social media. Having a community hub with back up power in each village set up and made known to each island resident is the only way of providing comprehensive support to all community members.</i>
<i>It was reliable connectivity that needed to be improved. Info was not too bad when we could get it!!</i>
<i>Specific information relevant to magnetic island would be preferable. Less fear mongering and pre cyclone catastrophising from major news outlets in the lead up would have reduced anxiety (and number of calls from interstate families and friends in panic mode)</i>
<i>Need more practical forms of information sharing. We didn't even update the cyclone warning system at the port! Didn't move until the port closed. Need a publicly accessible notice board with truth not sensationalised information in each village</i>
<i>More value on the YouTube channels</i>
<i>When to expect the outer winds, the eye and the end not just when expected crossing time which is just the centre</i>
<i>Certainly, the main thing that can be improved is committing to the set time for the release of information on the BoM website. We can not have any time wasted, especially when updates are supposed to be every hour, resulting in an even shorter window for the information to be relevant.</i>
<i>Did not receive any SMS from govt authorities about anything to do with warnings etc</i>
<i>None</i>

<i>In a Major disaster event local's should their closest evacuation centre. and how do they get there. especially the elderly and those who don't have all the latest technology</i>
<i>How long power would be out for</i>
<i>Better communication about local groups that could provide assistance other than emergency services. For example volunteer groups to help with green waste fir those requiring this</i>
<i>Local television stations did not advertise updates, they kept repeating previous reports.</i>
<i>Council pages were very slow to update. Local news should have done better with more frequent updates on TV and socials.</i>
<i>Zero advertising on where to go, where the community could shelter safely</i>
<i>Ergon needed better coms and updates</i>
<i>Utilise local meteorologists to aid in BOM data accuracy.</i>
<i>I manned evac centre for period no need to evacuate</i>
<i>As processes improve, it would be nice to see more updates from the BOM, including real time tracking/forecasting.</i>
<i>Hard to get service in rural area</i>
<i>Warnings were much better than 2019</i>
<i>Everyone did very well</i>
<i>Happy with information given including warnings. Did not evacuate but knew where evacuation centres were.</i>
<i>Help for people with vulnerable or people with disabilities to prepare</i>
<i>information regarding travel and emergency services/essential workers would be good, so that we can better plan whether we go to work, go to work early etc. Does qld health (And mater, nursing homes etc) specific info like this given to them from him, QLD gov, council etc, or do they just make it up after seeing general warnings and information given by the BOM etc? Passing such info on to the relevant services would be good, so that there can be a standard plan and they can pass that along, and also have this available on general public info sites so staff can have some idea, even if they haven't been in contact/ contacted by work. It seemed like different departments in the hospital had differing ideas on what to do. Sorry to keep bringing it up, but that was seriously my biggest issue this time.</i>
<i>For those who are only new ro cyclone activity, don't understand the severity of what it can. We are only new and was our 1st. And certainly didn't expect what we fot.</i>
<i>Media releases were overstated. When we were able to get info, it seemed the cyclone force was predicted to be much worse than it actually was.</i>
<i>Radio station especially locals to give priority to warnings and updates What happened to the warning signal that was used on radio and television years ago</i>
<i>A live online presence via social media rather than just updates every few hours. If just a live stream from various traffic cams etc</i>
<i>BOMs inaccurate forecast of cyclone rating & causing hype amongst the media. Other independent weather forecasters were more accurate.</i>
<i>So called experts predicting when and where a cyclone will hit way before anyone knows should be banned from social media.</i>
<i>Each media outlet had different information. It seemed like that because it was just North Qld that the reporting was spasmodic and not covered like the events were in a SEQ, NSW, ACT or Vic</i>
<i>Good thanks...</i>
<i>Accuracy was sadly lacking</i>
<i>None</i>
<i>None.</i>
<i>Faster generation of information from BOM site</i>

Survey Instrument – Both Surveys

Human Ethics Approval Number H5813

PROJECT INFORMATION

Project Title: Understanding Community Preparedness and Response to Tropical Cyclone Jasper and the Major Flood Event in Far North Queensland 2023

You are invited to take part in a Centre of Disaster Studies research project to understand how affected communities accessed information and responded to Tropical Cyclone Jasper and the Major Flood event in Far North Queensland 2023.

The questions in this survey replicate a study undertaken after the 2019 North Queensland Townsville Flood event, and results of this research will be compared to inform "best practice" information provision and communication in future disaster contexts. The study is being conducted by Dr Yetta Gurtner and Dr David King from the Centre for Disaster Studies, James Cook University.

If you agree to be involved in the study you must be over 18 and are invited to complete the following online questionnaire regarding the information received and community response to the recent tropical cyclone and flood event in Far North Queensland. The completion of this questionnaire takes approximately 15 minutes of your time. The questionnaire is administered and analysed through the online platform SurveyMonkey.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice.

Your responses are strictly anonymous as no names or contact details are required. The data from the study may be used in research publications and reports. You will not be identified in any way in these publications.

If you have any questions about the study, please contact the Principal Investigator Dr David King

Principal Investigator:
Dr David King
Director Centre for Disaster Studies
College of Science and Engineering
James Cook University
Townsville Queensland 4811
Phone: 4781 4430
Email: David.king@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:
Human Ethics, Research Office
James Cook University, Townsville, Qld, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

If you are experiencing emotional distress at any stage please contact Lifeline Telephone Counselling 13 11 14 or any of your local community support services as advised by The Department of Communities, Disability Services and Seniors

INFORMED CONSENT

I understand that the aim of this research study is to understand how the community prepared and responded to the Tropical Cyclone Jasper and the Major Flood event in Far North Queensland 2023. The results of this

research are intended to inform "best practice" communication in future disaster contexts. I consent to participate in this project, the details of which have been explained to me, and I have been provided with the relevant project information.

I understand that my participation will involve an online questionnaire and I agree that the researcher may use the results as described in the information section.

I acknowledge that: - taking part in this study is voluntary and I am aware that I can stop taking part in it at any time without explanation or prejudice; - that any information I give is strictly anonymous. Please only proceed to complete and submit the following electronic questionnaire if you consent.

Questions (boxes to record answers and comments)

1. Were you or your household impacted in any way by Tropical Cyclone Jasper and/or the major flood event in Far North Queensland during late December 2023?

Yes - please proceed to complete the following survey

No - please do not complete this survey - thank you for your time

2. What type of damage or impact did you experience during the event? Open ended.

3. Please indicate the town, suburb and postcode where you were impacted by this event. Open ended.

4. Do you feel that you/your household was adequately prepared for a disaster before the event happened?

Yes

No

Other (please specify)

5. Did you/your household have a disaster kit prepared before the event (minimum 3 days food, water and supplies)?

Yes

No

Other (please specify)

6. Did you/your household have a disaster evacuation plan before the event? Yes

No

Other (please specify)

7. Did you/your household have household and/or contents insurance before the event? Yes

No

Other (please specify)

8. What was your primary source of information regarding the tropical cyclone and flood event (you may select more than one option)

Television

Print media (newspaper)

Facebook

X (Twitter)

Instagram

Other social media platform (eg Flickr, YouTube, blogs)

Media website

Government web site (this includes Bureau of Meteorology)

Local Government Disaster Management Dashboard

- Community website
- Other internet source
- Weather based app (smart device)
- Radio
- Friends/family
- Telephone support service/hotline
- Other (please specify)

9. Please indicate the main reason you accessed information regarding the tropical cyclone and flood event (you may select more than one option)

- Monitoring of the event/local impacts
- Personal preparedness
- Sandbags and supplies
- Warning information
- Cyclone tracking
- Flood/inundation mapping
- Evacuation information
- Information about pets/evacuation
- Dam updates
- River/waterway levels updates
- Event tracking/updates
- Information on impacts
- Information on emergency response
- Information on relief efforts
- Information on recovery efforts
- Financial assistance
- Volunteering/donations
- Other (please specify)

10. Please indicate any official source/group you accessed to prepare or obtain information regarding the tropical cyclone and flood event (you may select more than one option)

- Queensland Fire and Emergency Services
- Bureau of Meteorology
- Queensland Health
- State Emergency Services (SES)
- Local Council Based Disaster Information Group
- Local Council Disaster Management Dashboard
- Flood Event Livestream Videos
- Queensland Police Service
- Local Politician
- Ergon Energy
- Department of Transport and Main Roads
- RACQ
- Other (please specify)

11. How would you rate the information provided by these official sources?

	Completely	Very	Moderately	Somewhat	Not at all
Accurate					
Up-to-date					
Useful					
Trustworthy					

If you wish, you can provide comments here: open ended.

12. Please indicate if you accessed weather based information generated by the Bureau of Meteorology regarding this event Bureau of Meteorology website

Bureau of Meteorology facebook page
 Bureau of Meteorology severe weather warnings
 Bureau of Meteorology rainfall tracking maps
 Bureau of Meteorology live streams/videos None

13. Please rate the information generated by the Bureau of Meteorology

	Completely	Very	Moderately	Somewhat	Not at all	Accurate
Up-to-date						
Useful						
Trustworthy						
If you wish, you can provide comments here: open.						

14. Please rate the information from other weather focused source/groups you may have accessed

	Completely	Very	Moderately	Somewhat	Not at all	N/A
Accurate						
Up-to-date						
Useful						
Trustworthy						
If you wish, you can provide comments here: open.						

15. Please indicate any news media outlet source/group you accessed to prepare or obtain information regarding the tropical cyclone and flood event (you may select more than one option)

ABC News
 SBS News 7 News WIN News
 Sky News
 Other commercial news network
 Other print based news network (eg. Local newspaper, The Australian, Guardian, Reuters etc) Online news based services (eg. news.com)
 ABC radio
 Local commercial radio station
 None
 Other (please specify)

16. Please rate the information from the news media outlet source/groups

	Completely	Very	Moderately	Somewhat	Not at all	N/A
Accurate						
Up-to-date						
Useful						
Trustworthy						
If you wish, you can provide comments here:						

17. Please indicate any non-government organisations or agency source/groups you accessed to prepare or obtain information regarding the tropical cyclone and flood event (you may select more than one option)

Australian Red Cross
 RSPCA
 The Salvation Army
 Volunteering Queensland
 GIVIT
 Lifeline
 N one
 Other (please specify)

18. Please rate the information from non-government organisations or agency sources/groups
- | | Completely | Very | Moderately | Somewhat | Not at all | N/A |
|---|------------|------|------------|----------|------------|-----|
| Accurate | | | | | | |
| Up-to-date | | | | | | |
| Useful | | | | | | |
| Trustworthy | | | | | | |
| If you wish, you can provide comments here: | | | | | | |
19. Please indicate any community based forum source/group you accessed to prepare or obtain information regarding the tropical cyclone and flood event (you may select more than one option)
- Disaster Response on Facebook
 - Local questions and answer group
 - Local animal or pet focused group
 - Local church or religious group
 - Community support group
 - TC Jasper/Flood event group
 - Local sporting group
 - Friend/family
 - None
 - Other (please specify)
20. Please rate the information from community based forum sources/groups
- | | Completely | Moderately | Somewhat | Not at all |
|---|------------|------------|----------|------------|
| Accurate | | | | |
| Up-to-date | | | | |
| Useful | | | | |
| Trustworthy | | | | |
| If you wish, you can provide comments here: | | | | |
21. Which group/source did you find most useful/valuable? why? Open ended.
22. Did you come across any inaccurate, conflicting or misleading information regarding the tropical cyclone and flood event?
- Yes
 - No
 - If yes, please give details
23. Please indicate your overall level of trust in the information provided for the tropical cyclone and flood event.
- | | Completely | Moderately | Somewhat | Not at all |
|-------------|------------|------------|----------|------------|
| Accurate | | | | |
| Up-to-date | | | | |
| Useful | | | | |
| Trustworthy | | | | |
24. Is your home located in a previously identified flood inundation zone? Yes
- No
 - Unsure (please specify)
25. Did you receive advice to evacuate your home/location (you may select more than one option)?
- No
 - Door knock by emergency services/military
 - Text message
 - General warning via media
 - Advised by friends/family

Self evacuated before any notifications

26. Did you evacuate your home/location?

- Did not evacuate
- Self evacuated early
- Self evacuated after general warning
- Self evacuated after text
- Self evacuated after door knock/warning
- Assisted evacuation (friends/family)
- Assisted evacuation (emergency services/support)
- Emergency evacuation
- Other (please specify)

27. What influenced your decision to evacuate or stay in place? Open ended.

28. If you/your household evacuated - where did you go?

- Did not evacuate
- Friends/family
- Accommodation service provider
- Evacuation centre
- Evacuated out of town
- Other (please specify)

DEMOGRAPHIC

30. Do you identify as male or female?

- Female
- Other
- Prefer not to say

31. What is your age?

- 18-20
- 21-29
- 30-39
- 40-49
- 50-59
- 60 or older
- Prefer not to say

32. What is the highest level of education you have completed?

This is the end of the survey.

Thank you for taking the time to provide us with your views and opinions.

We hope that this information will help improve hazard communication in the future.

For further information or interest in the research conducted by the Centre for Disaster Studies please visit:

<https://www.jcu.edu.au/centre-for-disaster-studies>

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