SharkSmart drone trial

Community sentiment report
April 2021

Department of Agriculture and Fisheries

Queensland Government

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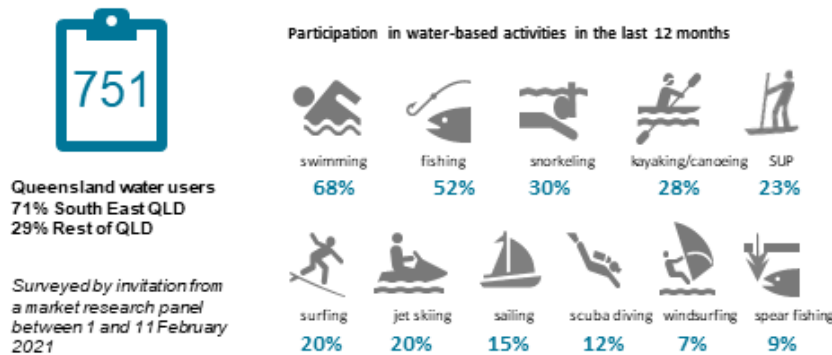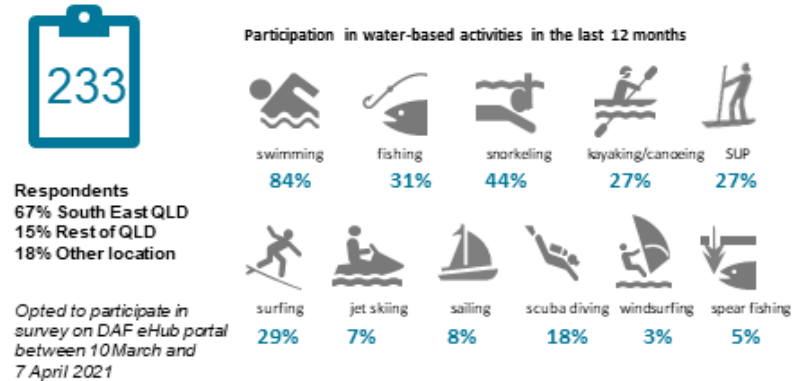
Executive summary

Our approach

The SharkSmart drone trial began at five South East Queensland beaches in September 2020. Between February and April 2021, the Department of Agriculture and Fisheries sought community feedback through a market research survey (by invitation) and a community survey (open to all). Feedback received will help inform future decisions about the SharkSmart drone trial.

Who we heard from

Market research survey

751

Queensland water users
71% South East QLD
29% Rest of QLD

Surveyed by invitation from a market research panel between 1 and 11 February 2021

Participation in water-based activities in the last 12 months

swimming	fishing	snorkeling	kayaking/canoeing	SUP
68%	52%	30%	28%	23%

surfing	jet skiing	sailing	scuba diving	windsurfing	spear fishing
20%	20%	15%	12%	7%	9%

Community survey

233

Respondents
67% South East QLD
15% Rest of QLD
18% Other location

Opted to participate in survey on DAF eHub portal between 10 March and 7 April 2021

Participation in water-based activities in the last 12 months

swimming	fishing	snorkeling	kayaking/canoeing	SUP
84%	31%	44%	27%	27%

surfing	jet skiing	sailing	scuba diving	windsurfing	spear fishing
29%	7%	8%	18%	3%	5%

Community quick poll

1,761
responses
on DAF eHub portal between 10 March and 7 April 2021

Social media

206
comments
on Fisheries Queensland social media between 10 March and 7 April 2021

Emails

6
email submissions
received between 10 March and 7 April 2021

What we heard

Community feedback

Attitudes toward drones as a shark spotting tool

4% — 0%

- Support
- Neutral
- Do not support

96%

Survey (n=233)

1% 1%

- Support
- Neutral
- Do not support

98%
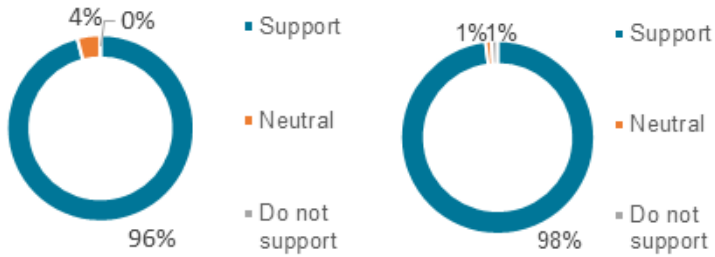
Quick poll (n=1,761)

Likelihood of choosing a beach with a shark spotting drone

12%

13%

- Total likely
- Total neutral
- Total unlikely

75%
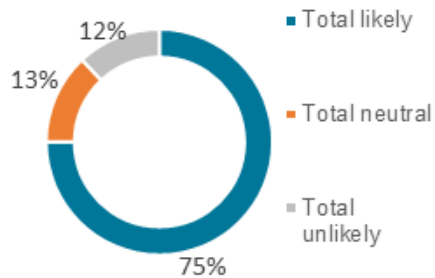
Survey (n=233)

Market research survey

Attitudes toward drones as a shark spotting tool

Survey (n=751)

5%

12%

- Support
- Neutral
- Do not support

83%
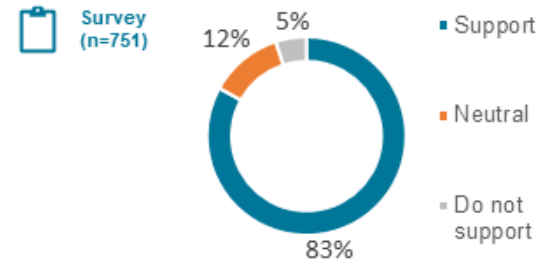
Key feedback themes across all methods

- Drones do not harm sharks / non-invasive / better than nets or drumlines
- Good / great idea which I support
- Drones are efficient / have good overhead vision / can cover areas quickly
- Drones don't endanger marine life and are safe for all creatures
- Drones are cost effective / cheaper than helicopter surveillance
- Drones ensure swimmer safety / can save lives

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1. Introduction

The Queensland Shark Control Program has operated since 1962 using nets and drumlines to catch and remove large sharks that may pose a threat to water users. In June 2019 the Queensland Government committed $1 million per year toward research and trials of alternative shark detection and mitigation technology, with the aim of determining technology suitable for Queensland conditions.

The Department of Agriculture and Fisheries (DAF) commissioned Cardno to prepare a report on alternative non-lethal shark control measures and their potential use in Queensland waters. Drone based surveillance was identified as one of the key alternatives available, especially for South East Queensland where there is good water clarity throughout the year.

In September 2020 DAF began the SharkSmart drone trial at five beaches in South East Queensland in partnership with Surf Life Saving Queensland (SLSQ). SLSQ drone pilots operate the drones and report data to DAF for scientific review and analysis. The trial has been extended to continue until 4 October 2021, with additional beaches being considered for inclusion in the trial.

Understanding community attitudes toward using drones to detect sharks is a key part of evaluating the suitability of drones as a long-term shark mitigation tool in Queensland. This report details the results of market research feedback and community feedback collected between February and April 2021 to measure community attitudes toward using drones as a shark mitigation tool in Queensland. The results of this report form part of the SharkSmart drone trial evaluation.

2. Methods

A blended approach of market research and open community feedback was implemented to measure community sentiment toward drones as a shark mitigation tool.

2.1 Market research survey

DAF commissioned Kantar Public to conduct a quantitative survey of Queensland water-users as part of the SharkSmart program. Two questions within this survey sought feedback on the use of drones as a shark mitigation tool. The survey was administered online from 1 to 11 February 2021 by invitation from Kantar Public to a sample size of 751 people living in Queensland (n=751). To qualify, participants must have participated in at least one water-based activity in Queensland in the past 12 months. Kantar Public recruited participants who had registered with a market research agency based on a mix of ages, gender and locations. All participants who completed the survey received an incentive of a prepaid cash gift card.

2.1.1 Data analysis

Data analysis was undertaken by Kantar Public using their rigorous data cleaning and checking processes. This included cleaning and checking survey data for 'skimmers' (those who completed the survey very quickly and/or responded the same way to multiple questions). Survey data was weighted to ABS Census data for age, gender and location at a total population sample level.

Results of the questions relating to drones in the market research survey are included in Appendix C. As results are presented as percentages rounded to whole numbers, totals may not equal 100%.

Results of coded qualitative feedback themes are included in Appendix D. Responses to open ended questions were coded against common themes, enabling a detailed thematic analysis of responses. As many respondents mentioned more than one feedback theme in their response, results presented as percentages do not total 100%.

2.2 Community survey

DAF conducted an open community survey on the DAF eHub online engagement portal. The survey was open from 10 March to 7 April 2021 and was targeted to beachgoers near the five South East Queensland beaches included in the SharkSmart drone trial through paid Facebook posts and direct emails to key stakeholders. To incentivise participation, participants who completed the survey could opt-in to enter a prize draw to win one of three Surf Life Saving Queensland beach packs. The survey included a mix of quantitative questions (multiple choice, single choice, ranking scale) and open-ended questions. The survey was open to anyone to complete.

2.2.1 Data analysis

Results of the community survey questions are included in Appendix A. As users were required to register with their email address on eHub to complete the survey, the survey could only be completed once per registered user. As this was an open community survey which anyone could complete, results are not representative of the total population.

Data analysis was undertaken by DAF officers based on the quantitative reporting outputs from the eHub portal. As results of quantitative questions are presented as percentages rounded to whole numbers, totals may not equal 100%.

Results of coded qualitative feedback themes are included in Appendix D. Responses to open ended questions were coded separately by two DAF staff members against common feedback themes, enabling a detailed thematic analysis of responses. As many respondents mentioned more than one feedback theme in their response, results presented as percentages do not total 100%.

2.3 Community quick poll

For people who did not wish to complete the full survey, a quick poll with one question asking whether respondents supported, did not support or were neutral about drones as a shark spotting tool was added to the eHub portal. The quick poll could be completed by the same person multiple times as participants were not required to register their details.

2.3.1 Data analysis

Results of the community quick poll are included in Appendix B. Data analysis of the quick poll responses was undertaken by DAF based on the quantitative reporting outputs from the eHub portal.

2.4 Social media feedback

DAF received open-ended feedback via comments on the Facebook posts promoting participation in the community survey.

2.4.1 Data analysis
Results of coded qualitative feedback themes are included in Appendix D. Social media comments were coded separately by two DAF staff members against common feedback themes, enabling a detailed thematic analysis of responses. As results are presented as percentages rounded to whole numbers, totals may not equal 100%.

2.5 Email feedback
Some community members opted to email their feedback to the Shark Control Program team rather than complete the community survey between 10 March and 7 April 2021. Email feedback has been considered and reviewed and included in the results.

2.5.1 Data analysis

Results of coded qualitative feedback themes are included in Appendix D. Email feedback was coded separately by two DAF staff members against common feedback themes, enabling a detailed thematic analysis of responses.

3. Results

3.1 Market research survey
A total of 751 respondents (n=751) completed the market research survey. Results are in Appendix A.

3.1.1 Demographics and beach use
All respondents lived in Queensland, with 71% living in South East Queensland and 29% of respondents living in the rest of Queensland (Appendix A, Q1). All respondents had undertaken at least one water-based activity in the last 12 months, and respondents were likely to participate in more than one water-based activity (Appendix A Q2). Swimming (68%) and fishing (52%) the predominant water-based activities undertaken. Other water-based activities included snorkelling (30%), kayaking/canoeing (28%), stand up paddle boarding (23%), surfing (20%) and jet skiing (20%).

3.1.2 Perceptions of drones for shark spotting
The majority of respondents (83%) supported the use of drones as a shark spotting tool at Queensland beaches (Appendix A Q3). Table 1 details the five most mentioned feedback themes which indicated support for drones.

Table 1 – Feedback themes indicating support for drones | market research survey

Key feedback theme	Percentage of total respondents (n=751)	Example of comments received
Drones are important, ensuring swimmer safety and saving lives	16%	"The drones will alert if there are sharks around and this will save lives." "Drones can pick up things that we cannot see and give relevant information to authorities and save lives."
A good/great/smart idea that I support	16%	"It's a great idea saves a lot of man power." "Provided they are used properly and controlled they are a great means of advising people of where sharks are and get them to safety."
Cost effective / cheaper than helicopters	15%	"They are small and cost effective compared to a helicopter or light plane." "Cost effective and allows use of helicopters for more critical operations." "Low cost and hopefully very effective way to monitor sharks."
Efficient – drones cover the area quickly, can fly at low levels, can be used at multiple locations and provide good vision from overhead	14%	"Efficient and able to cover broad area." "Simple to cover any particular area quickly. They have already proved to be effective in spotting nasty critters lurking in the depths."
Effective at spotting and monitoring sharks	14%	"Cost effective, real time and technological advances mean accurate information." "It's an effective and low cost method. Better for sharks than the nets too."

Twelve percent of respondents were neutral toward drones and 5% said they did not support drones as a shark spotting tool (Appendix A Q3). Table 2 details the most mentioned feedback themes which raised concerns about drones.

Table 2 – Feedback themes indicating concerns about drones | market research survey

Key feedback theme	Percentage of total respondents (n=751)	Example of comments received
Not effective / can be noisy and annoying / batteries go flat	2%	"If they are noisy and interfere with the peace I feel when swimming then I would not like them."
Don't know enough about drones or how they work	2%	"I don't know if is useful or not." "I don't know much about drones so I feel I can't say if they would help."
There may be privacy issues from drones	1%	"If swimmers are nearby just for privacy reasons people may not be comfortable being caught on camera." "I think it's a really great use of this kind of technology, but the fact that these devices can indiscriminately film and photograph everything below them is extraordinarily invasive."
Not sure if they'd be effective	1%	"Not sure if they would be effective." "I am not sure how it can be effective."

3.2 Community survey

A total of 233 respondents (n=233) completed the community survey. Results are in Appendix B.

3.2.1 Demographics and beach use

Most respondents lived in Queensland (82%), comprised of 67% living in South East Queensland (Sunshine Coast, Moreton Bay, Brisbane, Ipswich, Logan, Gold Coast) and 15% living in the rest of Queensland (Appendix B Q1). 18% of respondents were from outside Queensland (VIC, NSW, WA, SA, New Zealand). 90% of respondents had undertaken at least one water-based activity in Queensland in the past 12 months and respondents were likely to participate in more than one water-based activity (Appendix B Q2). Swimming (84%), snorkelling (44%) and fishing (31%) were the predominant water-based activities undertaken. Other popular water-based activities included surfing (29%), stand up paddle boarding (27%), kayaking/canoeing (27%). Eighteen respondents opted to indicate the times they undertook water-based activities, with the majority entering the water on weekends (Appendix B Q2a).

A slight majority of respondents had visited one of the beaches in the SharkSmart drone trial (Appendix B Q5). Fifty-two percent of respondents had visited either Burleigh Beach or Main Beach on the Gold Coast, 45% of respondents had visited either Coolum North Beach or Alexandra Headland Beach on the Sunshine Coast and 44% of respondents had visited

either Main Beach or Cylinder Beach on North Stradbroke Island. Thirty-seven percent of respondents had not visited any of the five beaches included in the SharkSmart drone trial. Twelve respondents who had visited a trial beach opted to answer an optional question about whether drones were operating while they were at the beach. The majority (67%) said drones were not operating and 33% were unsure if drones were operating while they were at the beach (Appendix B Q5a)

3.2.2 Awareness of the SharkSmart drone trial
Fifty-eight percent of respondents were aware of the SharkSmart drone trial (Appendix B Q3). Ten respondents described how they find out about the SharkSmart drone trial. Most found out through social media (50%) or word of mouth (40%).

3.2.3 Perceptions of drones for shark spotting
The majority of respondents (96%) supported the use of drones as a shark spotting tool at Queensland beaches (Appendix B Q4). Seventy-five percent of respondents said they were more likely to choose a beach which is monitored by drones (Appendix B Q6).

Table 3 details the five most mentioned feedback themes which indicated support for drones.

Table 3 – Feedback themes indicating support for drones | community survey

Key feedback theme	Percentage of total respondents (n=230)	Example of comments received
Drones do not harm sharks / are non-invasive / better than shark nets or drumlines	49%	"It is amazing that the drone trial is finally going ahead! The shark nets are an outdated system so I can't wait for the day when the drones replace the nets. I will feel more safe once the nets are out of the water!" "I think this is a much better method for shark spotting/control than using shark nets as the drones will not cause unwanted bycatch or entanglements of other marine species."
A good/great/smart idea that I support	43%	"Another great way to keep swimmers and water sports participants safe" "Great use of tech to assist Aussies and tourists to enjoy our beaches safer!"
Drones do not endanger marine life / are good for the environment / safe for all creatures	29%	"I feel safer at a beach with drone technology used for shark/human incidents than I do at a beach with shark nets and/or drumlines. I also feel better knowing there won't be any incidental bycatch. If you ask me it's a win win!" "I am concerned about the impact of nets and drum lines on the environment in particular other marine species and the danger to migrating whales and their calves. Alternatives need to be explored."
Other, including • Won't work in murky water • Program drones for automated flights • Don't use drones to hunt sharks	22%	"I'm sure in clear water it will work. However, in dirty north Queensland water there's no chance of it working." "Automated deployment would be a great use of technology." "I'd be sad to hear if sharks were hunted down as attack revenge with the support of the drones."

Key feedback theme	Percentage of total respondents (n=230)	Example of comments received
Drones are important, ensuring swimmer safety and saving lives	17%	"I'm not particularly worried about sharks, but if a drone saves one life? Then it 100% justifies their use." "This technology has the potential to aid the safety of both human and marine life".

One survey respondent said they did not support drones as a shark spotting tool and nine respondents (4%) said they were neutral (Appendix B Q4). Thirteen percent of respondents said they were neither more or less likely to choose a beach monitored by drones and 12% said they were less likely to choose a beach monitored by drones (Appendix B Q6). Table 4 details the most mentioned feedback themes which raised concerns about drones.

Table 4 – Feedback themes indicating concerns about drones | community survey

Key feedback theme	Percentage of total respondents (n=230)	Example of comments received
Not effective / can be noisy and annoying / batteries go flat	2%	"They are noisy." "The deployment of drones ought to allow the full monitoring of beach fronts continuously if sufficient drones and drone stations are deployed to allow for flight times and battery recharging times."
There may be privacy issues from drones	2%	"I think this could make our beaches safer to swim at by avoiding shark attacks. However, video should be turned off when back on the beach to allow privacy for individuals on the beach." "Great idea as long as the people operating them are respectful of others privacy."

3.3 Community quick poll

There were 1,761 responses to the community quick poll (Appendix B). Ninety-eight percent of respondents said they supported drones as a shark spotting tool, 1% did not support drones and 1% were neutral.

3.4 Social media feedback

There were 206 individual comments on the social media posts about the SharkSmart drone trial community survey. Each individual social media comment was coded against the key

feedback themes (Appendix D). The most mentioned feedback themes about the SharkSmart drone trial in social media comments are shown in Table 5.

Table 5 – Feedback themes | social media comments

Key feedback theme	Percentage of total comments (n=206)	Example of comments received
A good/great/smart idea that I support	43%	"This would be a great addition to the current measures and help reduce the shark attacks." "Great idea - cheap and easier than a helicopter and several can be deployed at once meaning more areas can be seen simultaneously."
Other including: • Change commercial or recreational fishing regulations for shark catch • Use drones for other purposes such as monitoring illegal fishing activities	44%	"Maybe, if you didn't make it so difficult (rules and regulations) for commercial fishermen to catch sharks there wouldn't be so many eating humans." "Can be used for a number of causes - swimmers in difficulty, illegal activity at sea, people misbehaving on the shore, marine life trapped in shark nets, guiding surf life rescuers and police to areas of concern that need immediate attention."
Drones do not harm sharks / are non-invasive / better than shark nets or drumlines	7%	"Great, if it gets rid of drum lines and nets." "Much better than nets and drum lines."

3.5 Email feedback

Six people provided feedback on the SharkSmart drone trial via email rather than completing the community survey. Each individual email was coded against the key feedback themes (Appendix D). All email respondents supported the use of drones as a shark spotting tool, with five respondents mentioning they were concerned about the use of nets and drumlines and support drones as a non-lethal method.

4. Discussion

The level of participation in water-based activities across market research survey respondents (n=751) and community survey respondents (n=233) was fairly consistent, with most respondents undertaking more than one water-based activity. Swimming was the most popular water-based activity, with high levels of participation in fishing, snorkelling and kayaking/canoeing. Most respondents across both the market research survey and community survey resided in South East Queensland.

Across all feedback methods there was a high level of support (83% or higher) for using drones a shark spotting tool in Queensland waters. There were slightly higher levels of support for drones across the community survey and community quick poll. The majority of community survey respondents (75%) said they were likely to choose to undertake water-based activities at beaches monitored by drones. This indicates that if people are aware of where drones are operating, they may favour choosing a location with a shark spotting drone for their chosen water-based activity. Future communication activities for the SharkSmart drone trial could focus on promoting the days, times and locations drones are operating to enable people to make an informed choice about where they undertake their chosen water-based activities.

There were some differences in the most commonly mentioned feedback themes across the methods. The three most mentioned feedback themes by market research survey participants (n=751) were that drones are a 'good/great/smart idea' (16%); are 'important/ensure swimmer safety/save lives' (16%) and are 'cost effective/cheap/cheaper than helicopters' (15%). The three most mentioned feedback themes by community survey participants (n=233) were that drones 'do not harm sharks/ are non-invasive / better than shark nets or drumlines' (49%); are a 'good/great/smart idea' (43%) and 'don't endanger marine life/ are good for the environment / safe for all creatures' (29%). These differences may be due to the way participants were recruited for the market research survey and the community survey. Participants in the market research survey (n=751) were recruited and screened to provide a representative sample of the Queensland population, including a mixture of ages groups, gender, location and type of water-based activity. Therefore many market research participants may not have had specific knowledge or interest in shark mitigation measures or swimmer safety prior to completing the market research survey. The community survey (n=233) was open to anyone to complete and was promoted through Fisheries Queensland social media and email notifications to key stakeholder groups. The qualitative feedback from the community survey indicates many participants had a good understanding of current shark mitigation methods use in Queensland, Australia and around the world. This is evidenced by many community survey respondents mentioning they would like to see non-lethal shark mitigation measures such as drones replace lethal measures of nets and drumlines in Queensland.

Respondents across the market research survey and community survey mentioned few concerns about using drones as a shark spotting tool. The most mentioned concerns were 'privacy issue / too much surveillance', with a small number of respondents across both the market research survey and community survey saying they were concerned about drones filming water-users from above. Small numbers of market research respondents said they were unsure about using drones to spot sharks (10%) or didn't know enough about drones or how they worked to comment (2%).

A small number of community survey respondents (4%) suggested improvements to public communication about the SharkSmart drone trial. Suggestions included providing more

signage at beaches, sharing videos of sharks spotted by drones online and live-streaming drone footage to a website. There is opportunity to improve real-time communication about the SharkSmart drone trial, with updates on days, times and locations of monitoring to encourage water-users choose a beach with drones.

While only 18 community survey respondents indicated the times of day they undertake water-based activities, most of them said they are in the water on weekends. There is opportunity to continue collecting feedback from water-users at SharkSmart drone trial beach locations to identify peak times of water use and explore options to align drone operating hours to these times.

Overall, the review of feedback themes across the market research respondents and community survey respondents shows there is opportunity to continue communicating the key benefits that drones offer to Queensland water-users. Communication should focus on how drones look out for water-users from above to keep them safe. Concerns about privacy raised by a small number of respondents should be addressed through providing clear information on the privacy procedures of the SharkSmart drone trial. There is a need to acknowledge and address the support for non-invasive methods and associated concerns about nets and drumlines raised by 49% of community survey respondents. Many of these respondents said they support drones or any non-lethal method of shark mitigation and called for the permanent removal of nets and drumlines from Queensland beaches. Releasing a public plan detailing the shark mitigation measures suitable for Queensland and the benefits and limitations of different measures may help improve public awareness and understanding of shark mitigation options.

Feedback themes mentioned in social media comments were similar to the surveys, with most comments mentioning drones are a 'good/great/smart idea' (43%). Forty-four percent of social media comments were coded as 'other', with feedback including opinions on shark depredation and commercial and recreational fishing regulations for shark fishing. This is likely due to most followers on Fisheries Queensland Facebook and Instagram having a specific interest in fishing.

There are limitations to the feedback reviewed and included in this report. The community survey was administered online, therefore respondents required access to the internet to participate. Community survey participants may be more interested in sharks and shark mitigation strategies. The majority of respondents across the market research survey and community survey resided in South East Queensland. If the SharkSmart drone trial is to be extended to other areas of Queensland including North Queensland and the Great Barrier Reef Marine Park, further local research may be needed to understand attitudes toward drones. There is opportunity for future research to delve into the factors which influence the decisions on locations, days and times people undertake water-based activities to inform SharkSmart drone trial operations.

5. Conclusion

There was significant support for using drones to spot sharks in Queensland across all feedback methods. While this support is positive, an ongoing approach to communicating the benefits and limitations of using drones to spot sharks is needed to build public understanding and confidence in the role drones can play as part of a broader shark mitigation plan. While more research to understand attitudes towards drones in areas outside South East Queensland would be beneficial, feedback reviewed and detailed in this report shows there is overall support for drones to be a key tool in shark mitigation at Queensland beaches.

Appendix A – Market research response data

Q1 Respondent location
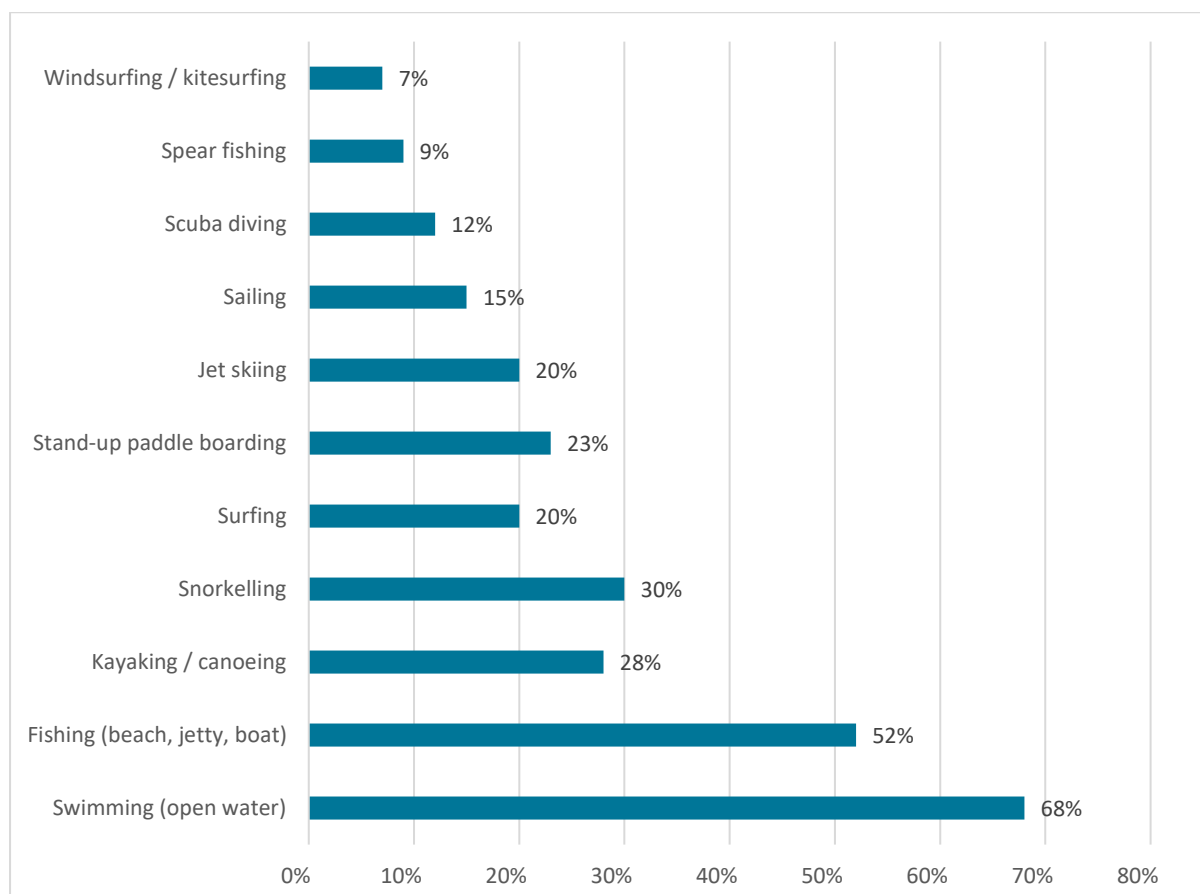**Q. Please enter the postcode for where you currently live.**

Responses: 751

Location	Percentage of respondents
South East Queensland	71%
Rest of Queensland	29%

Q2 Participation in water-based activities
Q. Have you undertaken any of the following water-based activities along the Queensland coast in the past 12 months? This includes sea, ocean, river, canal or estuary. Please select all that apply.
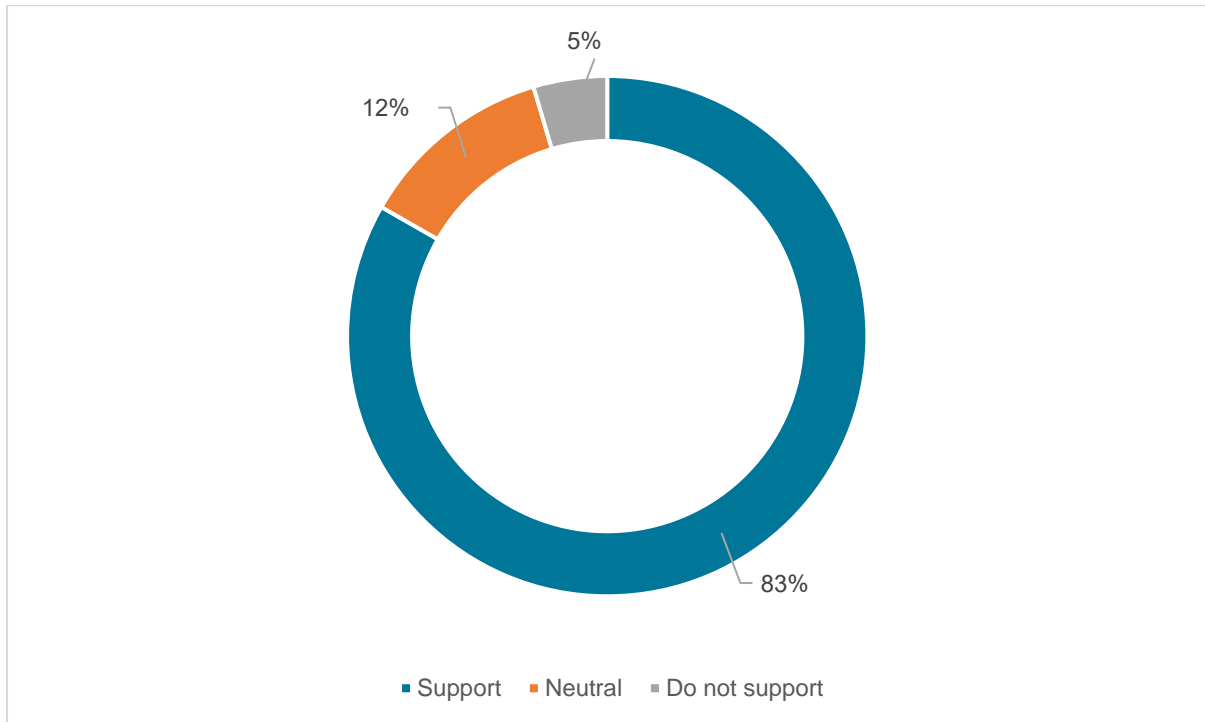
Responses: 751

Q3 Attitude toward drones as a shark spotting tool
Q. Please indicate your level of support for drones as a shark management tool

Responses: 751

5%

12%

83%

■ Support   ■ Neutral   ■ Do not support

Q3 Attitude toward drones as a shark spotting tool

Appendix B – Community survey response data

Q1 Respondent location
**Please enter the postcode for where you currently live.**

Responses: 233

Location	Percentage of respondents
South East Queensland (Sunshine Coast, Moreton Bay, Brisbane, Ipswich, Logan, Gold Coast)	67%
Rest of Queensland (all other QLD areas)	15%
VIC	4%
NSW	10%
WA	1%
SA	2%
NZ	1%

Q2 Participation in water-based activities
Q2. Have you undertaken any of the following water-based activities along the Queensland coast in the past 12 months? This includes sea, ocean, river, canal or estuary. Please select all that apply.
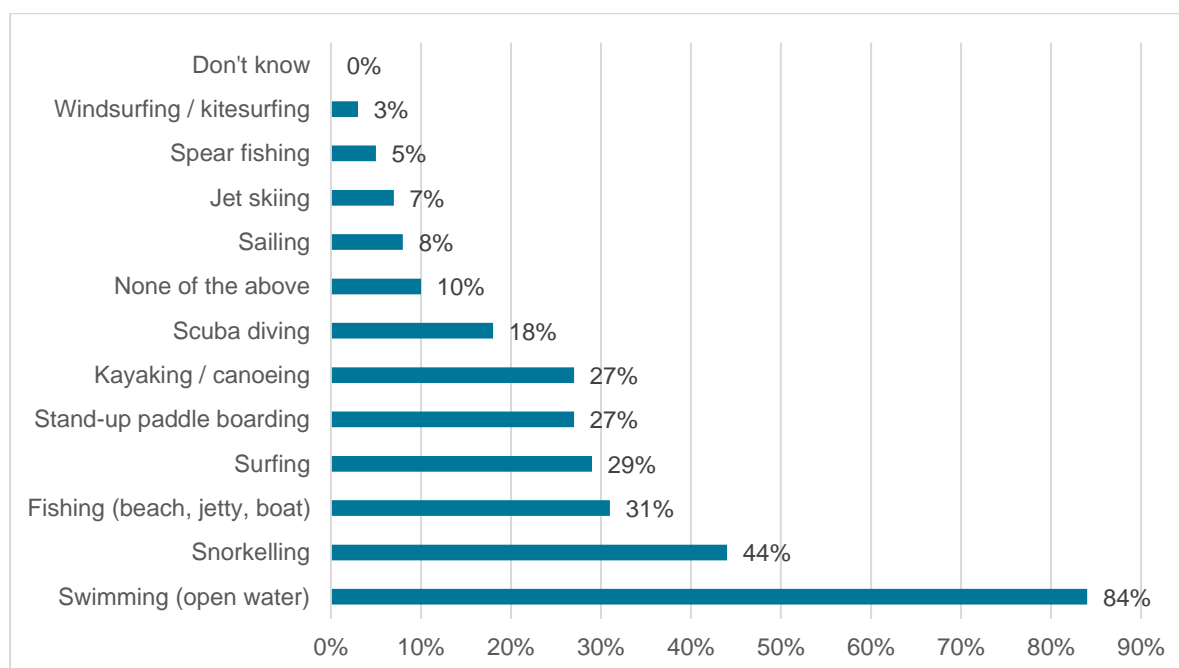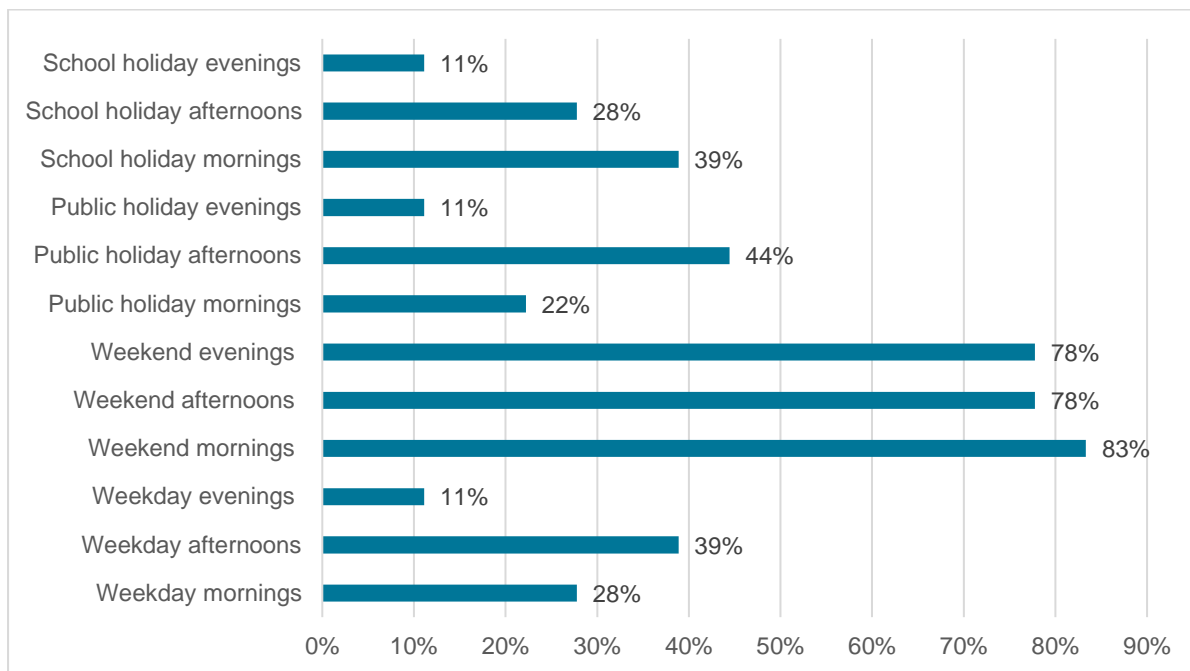
Responses: 233

Q2a Time of day for water-based activities
Question 2a - When do you typically undertake this activity? Select all that apply

Only shown to respondents who indicated they undertook a water-based activity in Q2. Optional response.
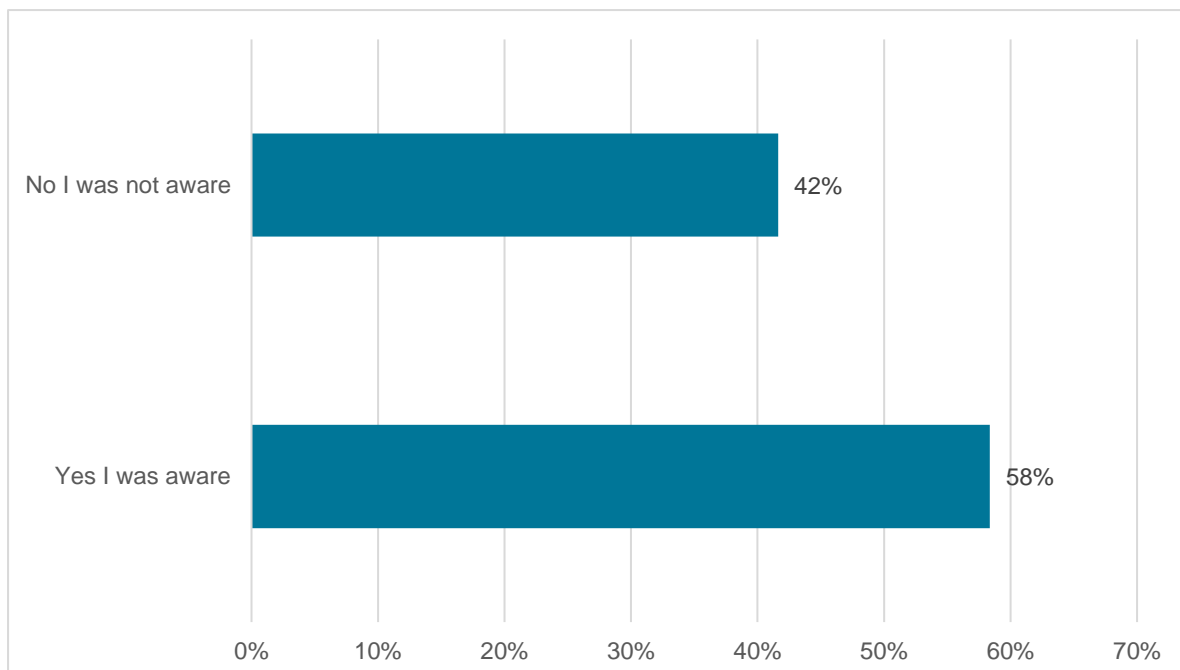
Responses: 18

Q3 Awareness of SharkSmart drone trial
Q3. Before completing the survey, were you aware of the SharkSmart drone trial at South East Queensland beaches?
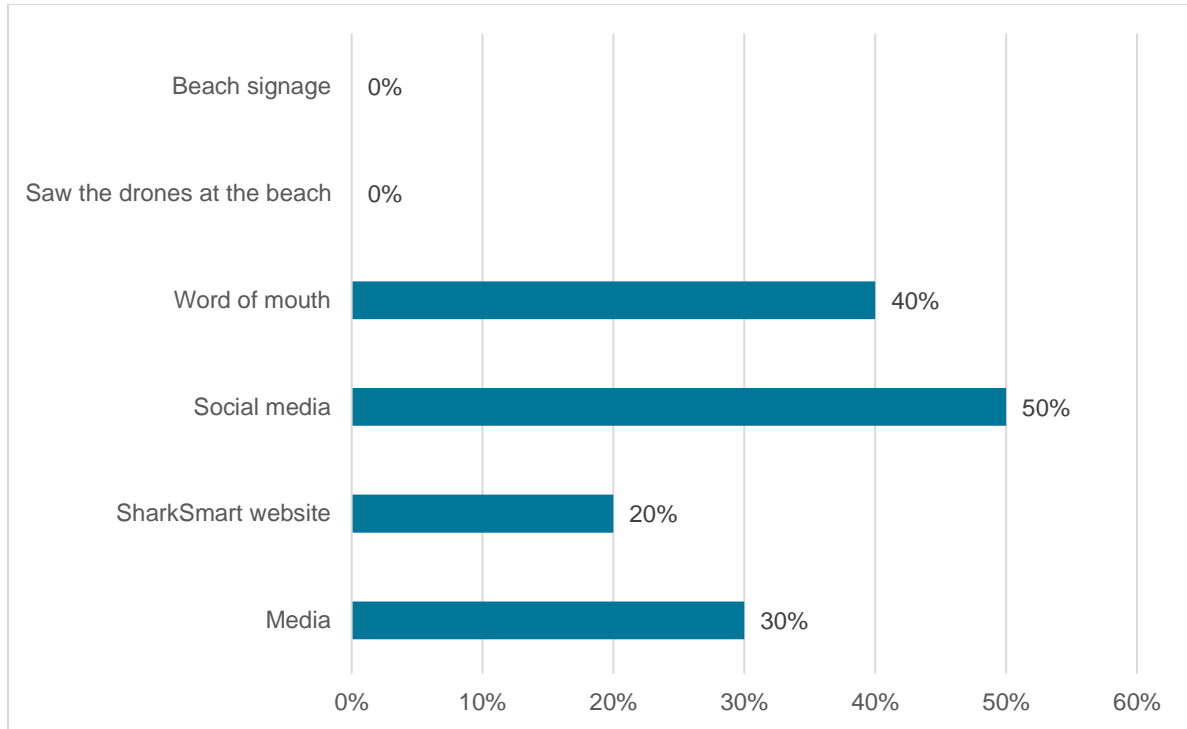
Responses: 233

Q3a Information about SharkSmart drone trial
Question 3a – How did you find out about the SharkSmart drone trial? Select all that apply.

Only shown to respondents who answered 'Yes, I was aware' to Q3. Optional response.

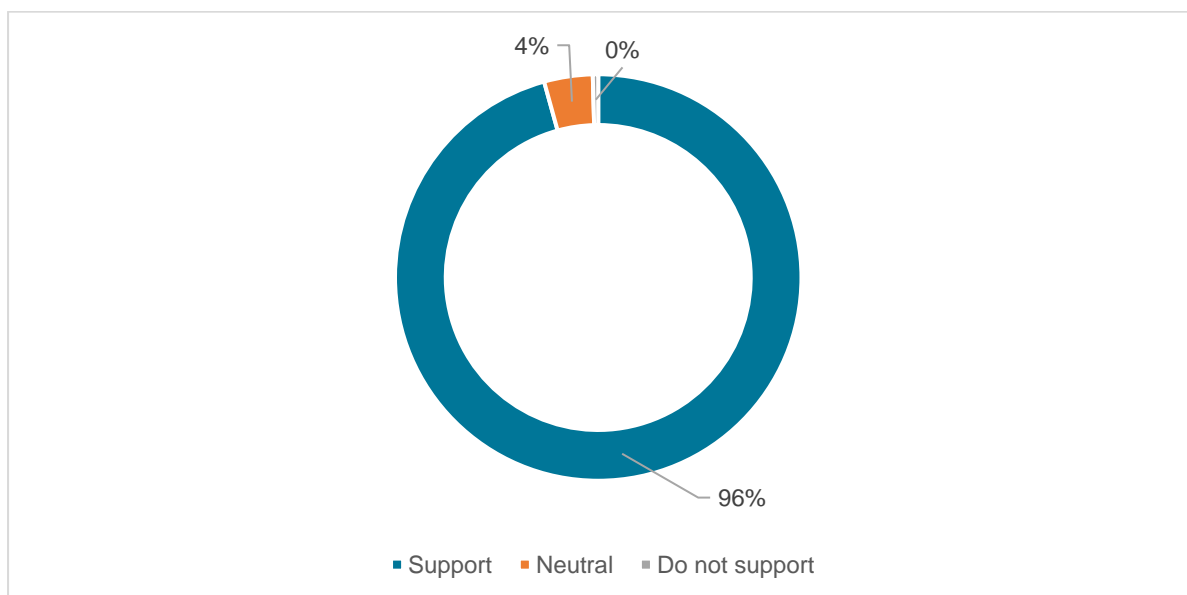Responses: 10

Q4 Attitude toward drones as a shark spotting tool
Q4. Please indicate whether you support, do not support or feel neutral about drones as a shark spotting tool at Queensland beaches.
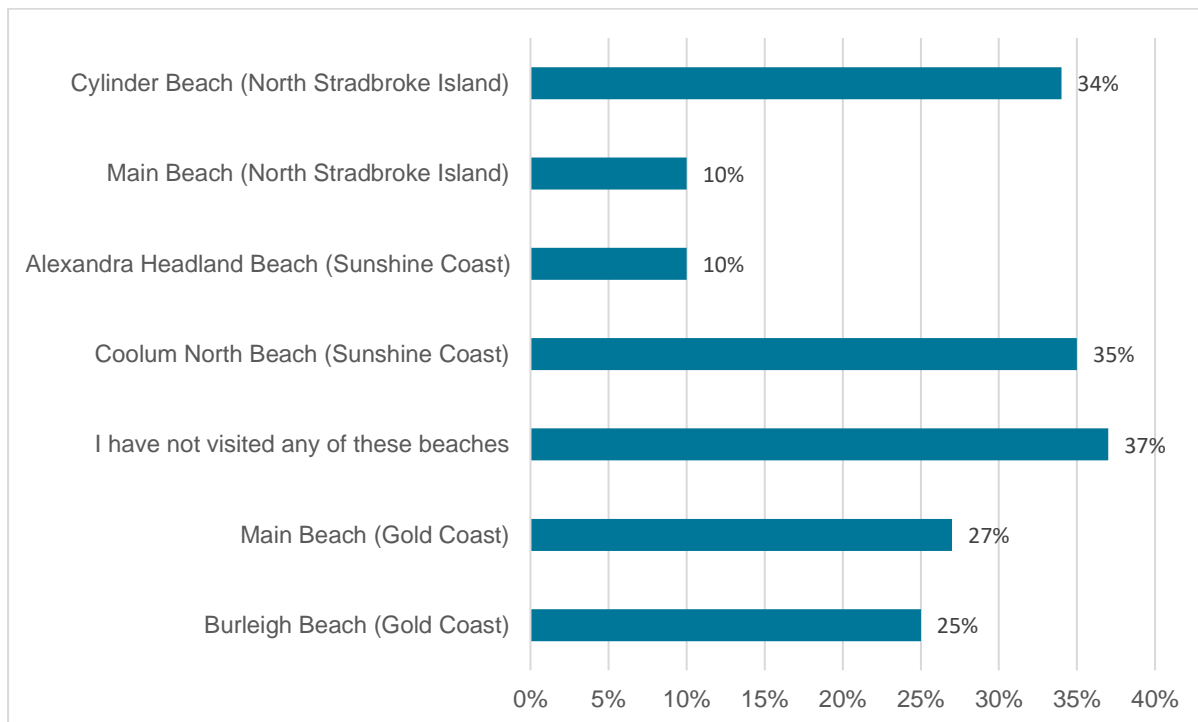
Responses: 233

Q5 Visitation to beaches in SharkSmart drone trial
Q5. Have you visited one or more of the following beaches since September 2020? Please select all that apply.
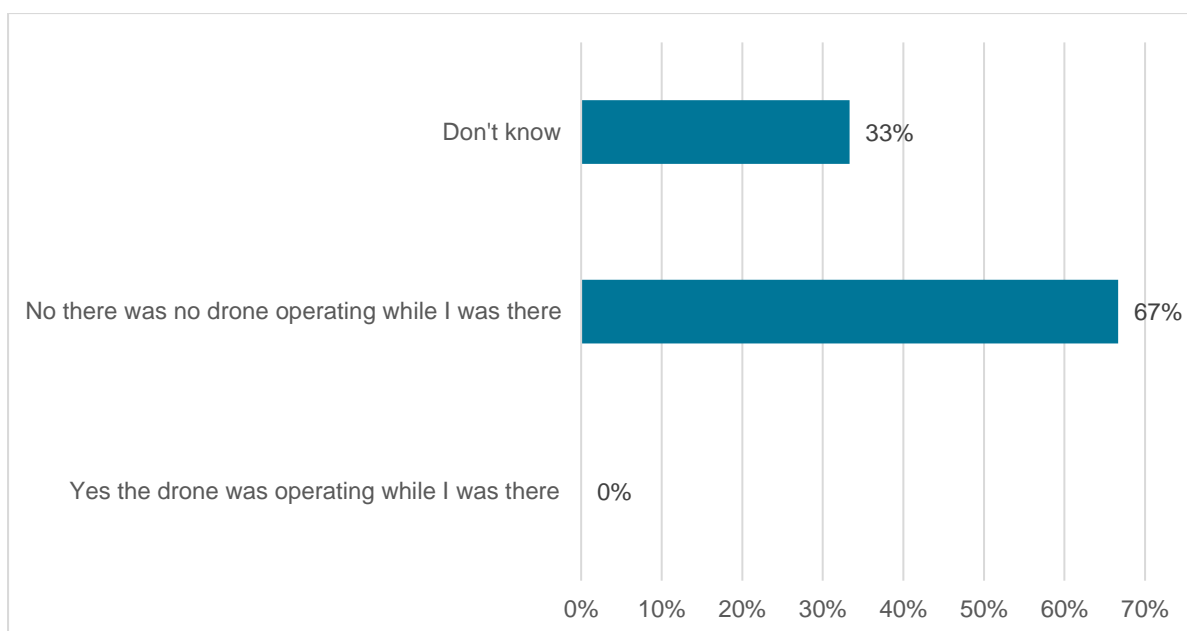
Responses: 233

Q5a Awareness of drones operating at the beach
Question 5a – Were you aware of a shark spotting drone operating at the beach during your visit?

Only shown to respondents indicated in Q5 that they had been to one of the trial beaches since September 2020. Optional response
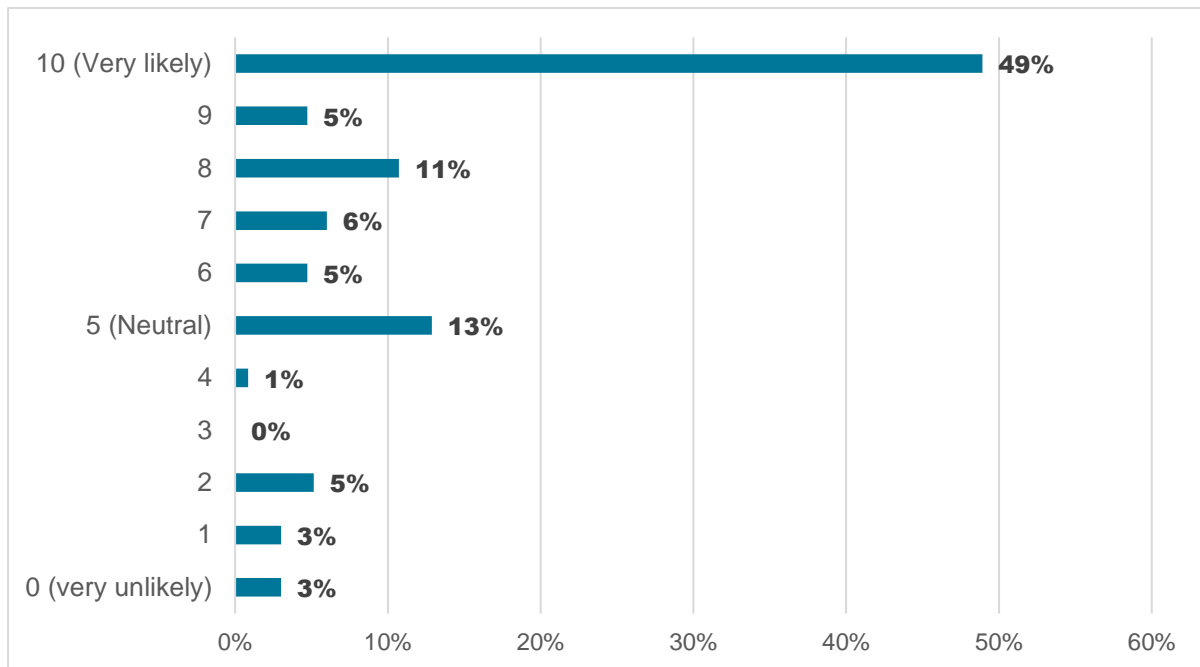
Responses: 12

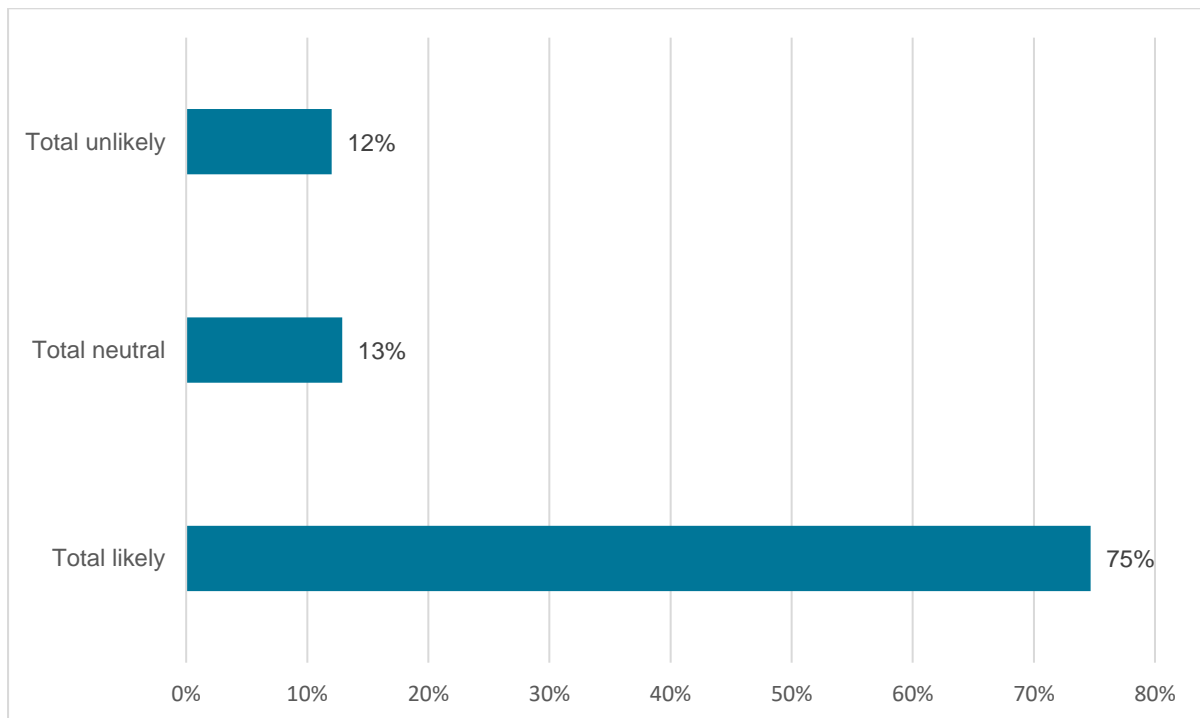## Q6 Likelihood of choosing a beach monitored by drone

Question 6 - Thinking about the water-based activities you do, are you more or less likely to choose a beach which is monitored by shark spotting drones? Please select a rank from 0 (very unlikely) to 10 (very likely).

Responses: 233

Likelihood tanking – 0 to 10

Aggregated likelihood

# Appendix C – Community quick poll response data

Quick poll - Attitude toward drones as a shark spotting tool
Quick poll question – Please select whether you support, do not support or feel neutral about drones as a shark spotting tool at Queensland beaches.

Responses: 1,761

Note – as respondents were not required to register to complete the quick poll, respondents could respond more than once.
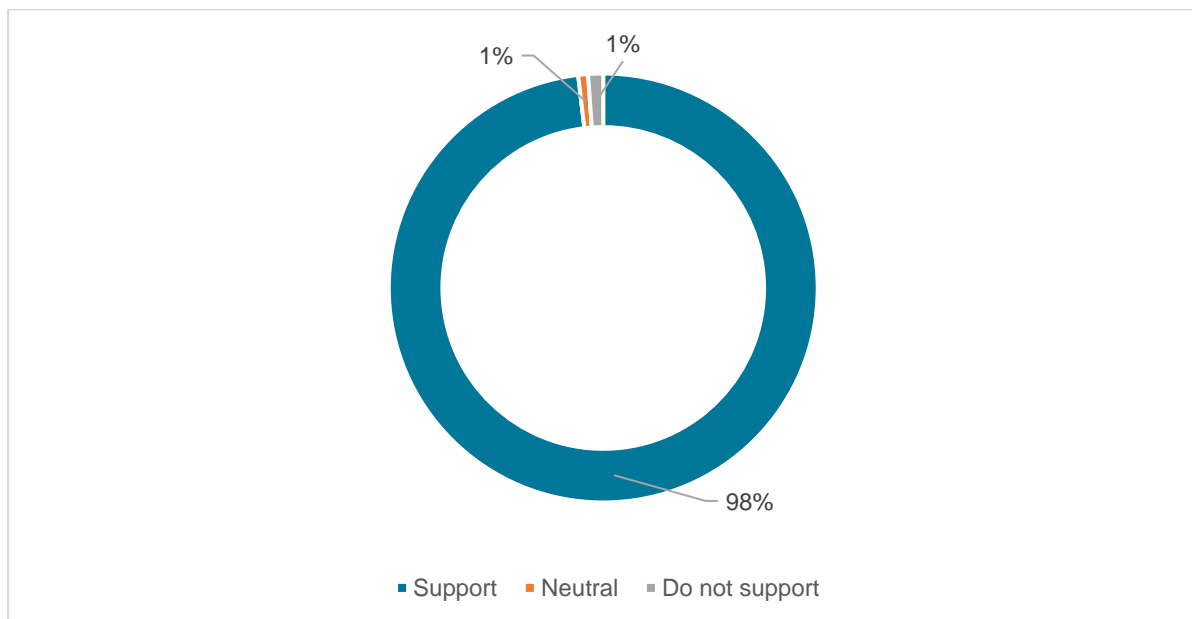
Appendix D – Feedback themes across all methods

Qualitative feedback was coded into key feedback themes. Respondents typically mentioned more than one feedback theme in their responses.

Table 1 – Themes indicating support for drones

Key feedback themes	Market research survey[2] (n=751) Mentioned by percentage of total respondents	Community survey[1] (n=230) Mentioned by percentage of total respondents	Social media comments (n=206) Mentioned by percentage of total respondents	Emails (n=6) Mentioned by percentage of total respondents
Themes indicating support for drones				
Does not harm the sharks / non-invasive / better than shark nets/drumlines	13%	49%	7%	83%
Good idea / great idea / smart idea / sensible / yes I support this	16%	43%	43%	100%
Not endangering other marine life / good for the environment / safe for all creatures	7%	29%	3%	50%
Other	2%	22%	44%	0%
Important - ensures swimmers safety / provides protection /save lives	16%	17%	3%	17%
Modern method / latest technology / accurate information / top of the range cameras	5%	8%	3%	0%
Make the trial permanent / extend to more beaches / extend drone operating hours	0%	8%	2%	17%
Effective - effective method to spot sharks / monitor sharks	14%	6%	2%	33%

Key feedback themes	Market research survey[2] (n=751) Mentioned by percentage of total respondents	Community survey[1] (n=230) Mentioned by percentage of total respondents	Social media comments (n=206) Mentioned by percentage of total respondents	Emails (n=6) Mentioned by percentage of total respondents
Safer option - they are no risk	6%	6%	0%	0%
Cost effective / cheap - cheaper than helicopters	15%	5%	6%	0%
Improve public communication about trial	0%	4%	1%	0%
Efficient - covers the area quickly / can fly at lower levels / can be used at more locations / good overhead vision	14%	3%	0%	0%
Immediate information / results / real time / early warnings	3%	2%	0%	0%
Use drones to learn more about sharks and educate people	0%	2%	0%	0%
Convenient - easy to use - operate / navigate / easy to control / frees up resources / reliable	7%	2%	1%	0%
'Minimal impact - quiet / doesn't impact the beach experience / non-invasive	4%	1%	0%	0%

1 Community survey Q7 'Please tell us any other feedback you have about the SharkSmart drone trial'
2 Community survey Q4 'Please type in the reasons why you support/do not support/feel neutral about drones as a use for shark control equipment'

Table 2 – Themes indicating concerns about drones

Key feedback themes	Market research survey[2] (n=751) Mentioned by percentage of total respondents	Community survey* (n=233) Mentioned by percentage of total respondents	Social media comments (n=206) Mentioned by percentage of total respondents	Emails (n=6) Mentioned by percentage of total respondents
Themes indicating concerns about drones				
Not effective / can see problems / noisy and annoying / battery will go flat	2%	2%	6%	0%
Privacy issue / too much surveillance	1%	2%	1%	0%
Unfair to be invading sharks in their natural habitat / stay out of the water	1%	1%	0%	0%
Don't know / unsure	10%	0%	0%	0%
Not sure if they would be effective	1%	0%	0%	0%
Don't know enough about them / how they work	2%	0%	0%	0%
How I feel / neutral / OK	1%	0%	0%	0%
Element of human error / how accurate would it be / too complicated	1%	0%	0%	0%
Waste of money	0%	0%	1%	0%

1 Community survey Q7 'Please tell us any other feedback you have about the SharkSmart drone trial'
2 Community survey Q4 'Please type in the reasons why you support/do not support/feel neutral about drones as a use for shark control equipment'