

SHARK SENTIMENT REPORT

EXECUTIVE SUMMARY AND
RECOMMENDATIONS

This report is produced for The Department of Primary Industries, NSW.
The report was commissioned in December 2016 and completed November 2017.

ISBN: 978-1-86-467303-6

AUTHOR DETAILS

Associate Professor Peter Simmons Charles Sturt University

Peter Simmons is Acting Associate Dean (Research) for the Faculty of Arts and Education and a member of the Institute for Land, Water and Society at Charles Sturt University, Australia. Peter's professional career and research span strategic communication in health, sport, and government contexts. His recent research focuses on social media, local government communication, and human/wildlife relations. psimmons@csu.edu.au

Dr Michael Mehmet Charles Sturt University

Dr Michael Mehmet is a Lecturer in Marketing, specialising in digital media and social marketing. He sits on the Social Media Reference Committee (SMRG) at Charles Sturt University and is a member of the Collaboration Laboratory (Co-Lab) at the SMART Infrastructure Facility. His PhD (UOW 2014) explored how meanings are composed in social media integrated marketing campaigns and pioneered a social semiotic multimodal and campaign approach he named Fabric. His current research interests involve digital, social marketing, and complex sentiment analysis. mmehmet@csu.edu.au

Associate Professor Rodney J. Clarke University of Wollongong

Rodney Clarke is Associate Professor and Discipline Leader (Operations), Faculty of Business, University of Wollongong (UOW), Australia. He is Director of the Collaboration Laboratory (Co-Lab) at the SMART Infrastructure Facility and Co-Director, Centre for Responsible Organisations and Practices (CROP), Faculty of Business. His PhD (UOW 2000) was in the intersection of semiotics and information systems, and his postdoctoral docent (Karlstad, Sweden 2007) was in the semiotics of work practices and business processes, multimedia interfaces/applications and decision making processes. His current research interests involve social media, sentiment analysis and semantic analysis from a communication perspective. rclarke@uow.edu.au

EXECUTIVE SUMMARY

This project was commissioned with support from The Department of Primary Industries (DPI) NSW Shark Management Strategy (SMS) Competitive Annual Grants Program, Charles Sturt University, the Institute for Land, Water and Society, and the University of Wollongong. The project explored perceptions of sharks, and attitudes to coexisting with sharks, among a range of NSW stakeholders, including coastal users and interest groups. The aim was to provide insights and evidence of community sentiment that will help to develop and communicate shark-related policy.

Main findings - Shark coexistence, management, and contextual influences

Among hundreds of different opinions and emphases, five salient beliefs and themes emerged:

1. People overwhelmingly would prefer to coexist with sharks (*'it's their ocean'*). They don't want sharks harmed or killed.
2. People must always take personal responsibility when entering the ocean, but at populated sections of the coast they expect patrols and some protection from sharks. Popular beaches are considered a frontier between the protected urban and the unprotected wild ocean. Away from protected areas, people are expected to use whatever personal protection is available.
3. People prefer mitigation of risk and harm from sharks that is non-lethal to sharks and other marine life. There is very strong support for developing and trialling non-lethal technologies, devices and other innovations to replace traditional nets.
4. The shark problem is real, but it is small compared to the fear of sharks. In every focus group, people said traditional media sensationalise harm and feed fear, and online media multiply exposure beyond the exponential to distort perception.
5. Clearer communication and education are needed for informed self-protection from sharks, perspectives of risk, and the SMS (people need more information about what is being done and why). In promoting education and information, we need to take care not to feed the fear of sharks.

Background

There is an increasing recognition that some voices are heard loud and often in disputes about wildlife, and that authorities can make better decisions affecting humans and wildlife when they understand the views, and listen to the suggestions of, a range of different community stakeholders.

The project analysed situational and contextual influences on community perceptions, and perceptions of different approaches to the management of sharks. In particular, it sought to assess community perceptions of the NSW Shark Management Strategy and its components.

Method

A mix of sentiment analysis and interview methods was used to gather information about community perceptions and attitudes. Stage one social media analysis coded more than 13,000 sentiment items from publicly available (Facebook and Twitter) sites where sharks and shark management were discussed (including media and special coastal interest sites) between December 2015 and December 2016. This data revealed type and levels of sentiment online for a large sample across time. It showed spikes of intense reaction

around shark encounters, policy announcements, and new initiatives. In stage two, the researchers ran a series of focus group discussions and interviews with a total of 67 people with an interest in NSW coastal waters (surfers, swimmers, lifesavers, small business owners, tourism operators, conservationists, anglers etc). This stage explored justifications and emotions associated with different attitudes and positions.

Perceptions of NSW shark management strategies

There is support for the SMS as a strategic approach to managing sharks. Drones and Clever Buoys received the most positive support. Both use non-lethal, non-invasive mitigation strategies that were valued in social media and focus groups. Both are also expected to become more efficient and effective as technology advances to increase their range, detection sensitivity, and durability. Many focus group participants expressed support for investing in development of Drone and Clever Buoy approaches. The shark barrier concept was considered very desirable, but to date ineffective wherever there is ocean swell.

Research and monitoring

If we are to hope to learn to mitigate harmful encounters, we need information to strategise. Many in the community say that we need to know more about sharks, Great Whites in particular. Shark tagging, SMART drumlines and the V4RG listening stations were all considered favourably as means to track and learn about sharks. It was sometimes said that their contributions as research dimensions of the SMS, as distinct from mitigation of harm, needs to be communicated more clearly.

Mesh nets

Shark nets have been the most contentious element of shark management. Online sentiment about nets was by far more voluminous, negative, fervent and hostile than it was about other approaches to shark management. People in focus groups often said they did not accept current justifications for using nets. They said that over time authorities should pursue non-lethal replacements because nets are cruel and 'giving in to fear'. However, some said tourists feel safer when they know nets are being used. Others suggested they have a threshold of tolerance for shark incidents. For example, some said that nets are not needed in areas with infrequent shark encounters, but said they might feel differently if they lived in Ballina or on the far north of NSW.

Aerial surveillance

Helicopters were variously said to provide feelings of fear or security. Most often they were dismissed as far too expensive when compared with an ever increasing array of alternatives, most especially drones. Many believe drones will become central to coastal safety in patrolled and even unpatrolled areas.

Conclusions and recommendations

The project revealed some important considerations for shark policy and decision-makers. One consideration relates to detection and alerts about sharks. When sharks are detected communication should rapidly alert the people who need to know. There were frequent calls for improvements to communication and information relay, including low technology beach signs and sirens, and high technology wearable devices for people in the water.

The DPI has a reputation that is closely aligned with science and systematic evaluation. However, 2016 was a testing year for shark policy in NSW. Rightly or wrongly, policy makers were accused of, and associated with, backflips and 'knee-jerk' decision making in response to community and media pressure.

The DPI is expected to be competent, deliberative and rigorous, so association with knee-jerk reactions - creating policy and making decisions under pressure - undermines its credibility and reputation.

The online sentiment across 2016 shows clearly that when shark encounters and announcements occur there are spikes of very intense and often negative emotions. However, the intensity diminishes. The spike in emotion followed by dissipation was also found at several levels in the focus groups and interviews, for individuals experiencing encounters, for beaches where encounters occurred, and even for surfers when they hear mention of a shark attack on the radio.

Discussions with coastal users reveal authorities need to find ways to listen to and engage with coastal stakeholders. Expectations of authorities such as the DPI are broader than in the past. People expect evidence-based policy, but they also want to be consulted and listened to. The DPI is expected to inform, to listen, engage, and respond.

Fear is pertinent to almost all deliberations about sharks. The study found sharks are the focus of a special and horrifying fear for many, even among people who believe they are at miniscule statistical risk of coming to physical harm from sharks. Many feel that the media, since the movie *Jaws*, have sensationalised danger from sharks irresponsibly, and continually feed community fear. Many coast users and interest group representatives who participated in the study believe we need education and responsible information to allay fear and establish proportion. However, some say that any awareness raising risks feeding or exacerbating fear of sharks. Exploration of the relationship between information, awareness and influence on fear is one of several recommendations for future research.

Most participants said they believed people need to acknowledge and accept that there is a risk when you enter the ocean, and that they should take responsibility for themselves. However they are not inclined to leave safety entirely to chance. People expect reduction of risk and harm from sharks. This project presents a framework for understanding their views on different approaches to mitigation, and contextual and circumstantial influences on what is and is not acceptable.

RECOMMENDATIONS

This section discusses recommendations arising from the study and reflection on the balance of community sentiment. A summary of recommendations concerning shark management can be found in Table 1.

The 'continue' column indicates a balance of community support for the strategy. The 'discontinue or avoid' column indicates community sentiment and attitudes were either against the idea or thought it should be avoided as an SMS strategy. The 'advancements required' column indicates that with technological or other improvements the community may better understand or accept the strategy.

In short, participants said they preferred SMS strategies that were non-invasive and non-lethal. Harm to sharks or other marine life, eg whales, dolphins and turtles was seen as unsatisfactory, and at times inhumane.

Summary of recommendations

Balance of community sentiment favoured:			
	Community support	Discontinue or Avoid	Advancements required
SMS overall	✓		Education and clearer communication
Drones	✓		Spotting technology, battery and range
Helicopters		X	
Nets		X	No-kill technology, more like shark barriers
Barriers		X	Need to be more robust to handle swell
SMART drumlines	✓		
Shark tagging	✓		
VR4G listening station	✓		
Clever Buoy	✓		Range, detection and communication reliability
Culling		X	
Announcements	✓		Range, detection and communication reliability
Manual Shark Monitoring	✓		Coordination with authorities and specialised viewing stations
PPE	✓		More affordable, reliable and convenient
Education	✓		Risk factors, international tourists, personal and shared responsibility

Table 1: Summary of Recommendations

SMS

The following recommendations related to key components of the SMS.

Drones

Drones were perceived as a useful part of the SMS. Drones were seen as a current and future replacement for invasive measures like nets. Community attitudes suggest more energy and research into drone technology advancement is required, some feel drones of the future will be far superior to drones of today in terms of automated camera surveillance, range and battery life.

Helicopters

Policy surrounding helicopters requires clearer explanation and articulation. Community members said helicopters were an expensive option compared to drones. The positives were very similar to drones (they offer aerial surveillance), but the weaknesses are less addressable in the long term. Community attitudes suggest they believed the long-term helicopter strategy should be to replace them with advanced drone technology.

Mesh nets

Netting was the most contentious SMS strategy. Based on community sentiment online and in focus groups, one recommendation would be to improve the justification for using nets. Many community members did not accept current arguments for using nets. They said that over time authorities should pursue non-lethal replacements. Based on community feedback, this report recommends authorities explore combinations of other measures, including drones, SMART drumlines, tagging, education, and PPE subsidies as replacement strategies. This should be supplemented by further research into shark behaviours, which was frequently suggested.

Shark barriers

The public saw barriers playing a role in shark-free areas. The community saw a role for them in calmer waters, but were very sceptical about their use in open coastal settings, particularly where there are high seas and swell.

SMART drumlines, shark tagging and VR4G listening stations

Some (but not all) people identified these strategies as the research component of the SMS. A clearer articulation of the mitigation/research mix is needed. The community made specific mention that tagging was often considered an important strategy for learning about sharks to advance shark and human safety, and cohabitation. Providing insight to the community from this perspective would align with their expectations.

Clever Buoy

This technology has the potential to be an important part of the long-term future of shark management. Once explained, the sonar technology was very well received (especially when coupled with shark tagging), and should be further explored as an option on patrolled beaches. People liked the Clever Buoy approach because it is a non-lethal strategy for harm mitigation that makes plausible sense. There was concern over the potential for 'alarming the public', so further exploration of the communication mix is recommended.

No culling

The idea of a general cull was not well supported. For several (generally three) days after an encounter tensions are high, however, when the public is allowed to reflect, clear evidence suggests that culling would be an unpopular approach. Sentiment clearly favoured non-lethal innovation and technological solutions.

Announcements

There needs to be a balance sought between informing and creating hysteria. The community recognise an opportunity to integrate human technology (e.g. smartwatch or embedded in surfboard) with announcements, to enable warning messages to reach people while they are in the water (especially surfers). Some participants in focus groups report using the technology for decision making (whether to go in the water or not). However, there are concerns about the specificity and frequency of alert processes needing resolution before the public will fully trust the technology.

Manual shark monitoring

This project found considerable public support for human shark monitoring from purpose built shark towers on popular beaches. The recommendation of this report is to explore options for human monitoring.

Subsidies for personal protection equipment

This project found support for subsidies for proven personal protection devices. There was also support for investment in research into improving the effectiveness of personal protection devices. Strong support arises from widespread belief that the SMS focuses on populated coastal regions, but most harm has occurred away from protected areas.

Education

Education needs to be included as a shark harm mitigation strategy. There was strong support for education across all focus groups and interviews, as well as comments in social media advocating education. Discussion mostly emphasized the need to raise general awareness of risk factors and dangerous ocean conditions, and specifically to target international tourists, holiday makers and school children.