| ITEM 25 | NOTICE OF MOTION - COUNCILLOR CATH BLAKEY - NSW SHARK MANAGEMENT STRATEGY REVIEW |

Councillor Cath Blakey has submitted the following Notice of Motion –

"I formally move that Council make a submission to the NSW Government's review of the Shark Management Strategy which supports the phasing out of the current shark meshing program and replacing it with a combination of alternative shark mitigation strategies (such as drone surveillance, personal shark deterrents, education and SMART drumlines) that more effectively protect beach users without damaging marine wildlife."

Background provided by Councillor Blakey:

The Department of Primary Industries (DPI) is seeking feedback from NSW coastal councils regarding the next Shark Management Strategy (SMS). A proposed completed survey is outlined below.

The 2015 Shark Management Strategy involved trials and research into a range of approaches, including:

- Drone surveillance

- SMART (Shark Management Alert In Real Time) drumlines

- VR4G shark listening stations

- Shark meshing/nets

- Helicopter surveillance

- Personal shark deterrents

- Clever buoys

- Barriers

An evaluation report of these methods is available on the Shark Smart website: www.sharksmart.nsw.gov.au

In the Summer of 2020/21 shark management in Wollongong involved shark nets, drones and listening stations to detect tagged sharks.

Shark nets were first introduced in NSW in the 1930s. This summer there were 51 beaches with shark nets installed in NSW, and 85 beaches in Queensland. No other state or territory in Australia use shark nets. On the North Coast shark nets have been discontinued and replaced with smart drumlines since 2018. Across the Wollongong local government area (LGA) there were 5 beaches where shark nets were installed last summer: Coledale, Austinmer, Thirroul, North Wollongong and City Beach (South Wollongong). Shark nets are each 150 m long, 6 m high and sit in a depth of around 10 m. These nets are not comprehensive in their coverage, as they are much shorter than the lengths of each beach area. They are not a barrier to the open sea and do not exclude sharks from coming near the beach. Indeed, 40% of sharks caught in nets were on the beach-side as they headed back out to the open ocean.

Table 1: Summary of animals caught and killed in Wollongong LGA shark nets between 2012 to 2020 (Species data available at end of document in Table 2)

	Caught	Killed
Total Animals	263	146
Threatened/Protected Species	112	102
Dolphins	1	1
Turtles	4	4
Target Sharks	11	6

DPI's research showed drones are the most effective shark detection and surveillance tool for NSW ocean beaches. The NSW Government has partnered with Surf Life Saving NSW (SLSNSW) to trial deploying drones at many beaches across the State, including 1 in the Wollongong LGA in the summer of 2010/21. Drone devices are capable of flying thousands of kilometres and can automatically detect the size and species of a shark. Drones can also be used to communicate with water users through sirens and a loudspeaker, for identifying swimmers in distress and can be equipped to drop personal floatation devices.

In December 2020, Wollongong received a $45,000 DPI "Shark Observation" Grant for a Junior Surveyor Lifeguard Tower.

SMART drumlines have been trialled in numerous locations on the NSW coast, including between Shellharbour and Kiama from November 2017 to May 2018. Researchers are alerted when a shark takes the SMART drumline's baited hook. The sharks are tagged and released one kilometre offshore, then tracked using satellite and listening stations. Initial findings from the trial suggested that once tagged the sharks stay in deeper offshore water for up to four weeks before re-joining their counterparts in their general movement north and south. SMART drumlines were found to be far more effective (10x) than nets at catching target sharks (tiger, great white and bull), catch far fewer non-target animals, and kill less than 1% of animals caught.

The review of the NSW Shark Management Strategy is a chance to modernise the way shark bite risk is managed in Wollongong, to implement more effective technological solutions that don't take a toll on our marine wildlife.

DPI Shark Management Strategy Survey – Wollongong City Council Proposed Submission

When do you think shark mitigation measures should be deployed?
Please select all that are relevant

All year

September-April when people swim in the ocean

Winter

Summer

Spring

Autumn

Never

The list below includes different **community education and shark-alert measures**. Which, if any, do you support in your local government area (or NSW in general)?

	Yes, supported	No, do not support
Digital communications (through social media or special interest websites)	●	○
Community education forums (e.g. information nights at surf clubs, community meetings)	●	○
SharkSmart Education 'packages' for different beach user groups (videos or FAQs relevant to surfers, divers, surf life savers)	●	○
Pop-up Mobile SharkSmart Education (e.g. DPI SharkSmart education trailer attends beaches, schools and surfing events)	●	○
SharkSmart App (using alerts from shark listening stations)	●	○
Beach signage informing beachgoers about how to avoid the chance of a shark encounter	●	○

*We are now going to ask you about **shark mitigation measures**, many of which DPI has trialled over the last five years under the NSW Shark Management Strategy. This includes public and personal protection measures to increase the safety of beachgoers to reduce the chance of a shark-human interaction occurring.*

The list below includes different **aerial surveillance measures** like helicopters and drones. Which, if any, do you support in your local government area (or NSW in general)?

	Yes, supported	No, do not support
Drones drone surveillance fact sheet	●	○
Helicopters helicopter surveillance fact sheet	●	○

The list below includes different **in-water measures.** Which, if any, do you support in your local government area (or NSW in general)?

	Yes, supported	No, do not support
Shark Listening stations linked to the SharkSmart app (detection tracking notifications) Shark listening stations fact sheet	●	○
Personal shark deterrent devices Personal deterrent devices fact sheet	●	○

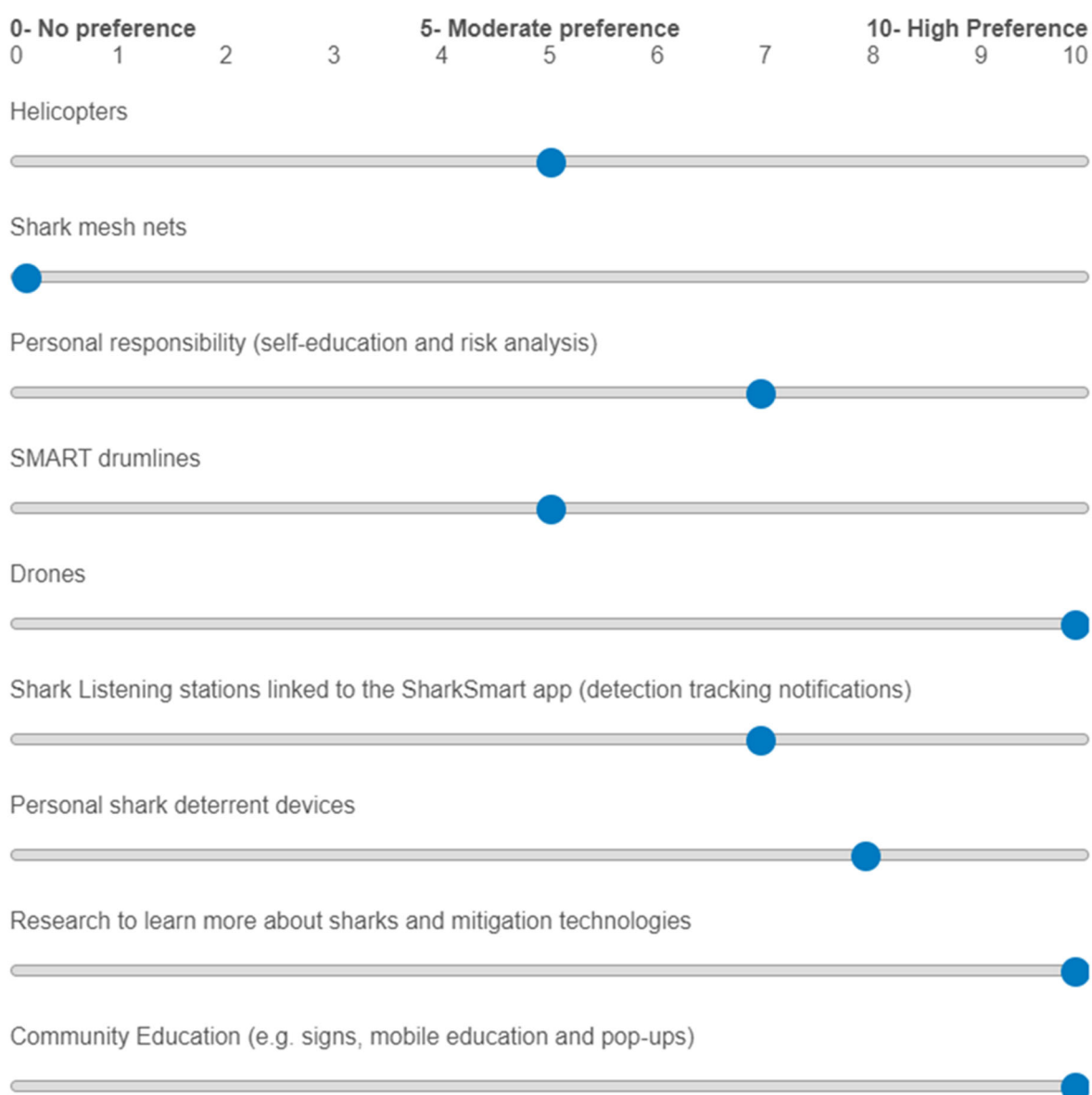|	Yes, supported	No, do not support
Shark mesh nets Shark mesh nets fact sheet	○	●
SMART drumlines SMART drumlines fact sheet	●	○

And, which of the following **research** topics, should the government focus on in your local government area (or in NSW in general) to increase protection of beachgoers?

	Yes, supported	No, do not support
Shark movement patterns and behaviour	●	○
Patterns in human-shark interactions	●	○
Monitoring of shark populations	●	○
Role of sharks in the marine ecosystem	●	○
Drone technology improvements	●	○

Please indicate which (if any) of the shark mitigation measures listed below you would prefer for your region (or NSW in general).

For each option, please use the slider bar to indicate your preference on a scale of 0 to 10 where 0=No preference and 10=High preference. **If you have no preference for a measure, please click on the slider and ensure it is at 0.**

NOTE. We have also included personal responsibility as a mitigation option. This refers to the responsibility of individuals for their own safety when deciding to enter the ocean and includes self-education and assessing possible risk factors (e.g. bait fish, diving birds).

0- No preference				**5- Moderate preference**				**10- High Preference**		
0	1	2	3	4	5	6	7	8	9	10

Helicopters

Shark mesh nets

Personal responsibility (self-education and risk analysis)

SMART drumlines

Drones

Shark Listening stations linked to the SharkSmart app (detection tracking notifications)

Personal shark deterrent devices

Research to learn more about sharks and mitigation technologies

Community Education (e.g. signs, mobile education and pop-ups)

In 2000 characters or less (approximately 300 words), can you tell us why you selected those options the way you did based on the needs in your local area (or NSW in general)?

"Shark Nets are no longer suitable as shark a bite risk mitigation measure due to their inability to protect ocean-users, the terrible toll they take on marine wildlife and their resultant unpopularity. Alternative measures can actually reduce the risk via detection (drone surveillance) and deterrence (personal shark deterrents, SMART drumlines, etc.) without the cost to marine wildlife."

Do you have any further comments or suggestions for the NSW Government regarding shark mitigation in your region (or NSW in general), including any local factors that you feel should be considered?

Yes	No

Thank you for participating in the survey. Before you submit your responses, we would like to know how satisfied you were overall with the information provided to you in this survey.

Extremely satisfied

Moderately satisfied

Neither satisfied nor dissatisfied

Somewhat dissatisfied

Extremely dissatisfied

Table 2: Wollongong LGA Shark Meshing Program Catch – 2012 to 2020
(Coledale, Austinmer, Thirroul, North Wollongong and City Beach)

Species	Caught	Killed	Notes
Australian Angelshark	2	1	
Australian Cownose Ray	33	6	
Black Stingray	16	2	
Broadnose Sevengill Shark	32	30	IUCN listed Vulnerable
Bronze Whaler	15	15	IUCN listed Vulnerable
Bull Shark	1	0	Target Species
Common Blacktip Shark	10	10	
Common Dolphin	1	1	Protected under the EPBC Act
Devil Ray	1	0	No distinct species indicated; most devil ray species IUCN listed as Endangered
Dusky Whaler	10	9	IUCN listed Vulnerable
Great White Shark	8	6	Target Species, IUCN listed Vulnerable, EPBC listed Vulnerable
Green Turtle	2	2	IUCN listed Endangered, EPBC listed Vulnerable
Grey Nurse Shark	5	1	EPBC listed Critically Endangered, IUCN listed Vulnerable
Hawksbill Turtle	1	1	IUCN listed Critically Endangered, EPBC listed Vulnerable
Indo-Pacific Bottlenose Dolphin	1	1	Protected under the EPBC Act
Loggerhead Turtle	1	1	IUCN listed Vulnerable, EPBC listed Endangered
Longtail Tuna	1	1	
Mulloway	1	1	
Shortfin Mako	2	2	EPBC listed Migratory, IUCN listed Endangered
Smooth Hammerhead	30	30	IUCN listed Vulnerable
Southern Eagle Ray	80	19	
Spinner Shark	3	3	IUCN listed Vulnerable
Tiger Shark	2	0	Target Species
Unidentified Shark/Ray	5	4	