

# Chapter 8

## Committee view and recommendations

8.1 Over the past century, the beach and beach culture has been an important part of the Australian identity. Most of the country's population is located in coastal regions, giving millions of Australians access to remarkable beaches. In addition, popular beaches in these areas are a major drawcard for domestic and international tourists. Going to the beach and the beach lifestyle is generally enjoyable for all, however, there are dangers associated with swimming and other ocean activities. One of these dangers, although a very low probability, is the risk of a person being bitten by a shark.

8.2 Shark bite incidents are not unique to Australia, but it is apparent that the risk of a human–shark interaction is generally greater in certain parts of Australian waters than elsewhere. Several unprovoked shark encounters occur each year. These events can cause serious and life-changing injuries and, in a small number of cases, tragically, the people involved died.

8.3 The committee wishes to make clear that, in examining this subject, it understands that it is dealing with terrible, traumatic events. The emotion attached to this subject is evident from the evidence given by family members of victims of fatal shark bites and the evidence taken by the committee during its first public hearing in Perth, which coincidentally took place days after a young Western Australian tragically died as the result of a shark bite incident. The committee acknowledges that responders to shark bite incidents and others in the local community can also be deeply affected.

8.4 In conducting this inquiry, the committee is seeking to make a valuable contribution to the public debate on this important and controversial matter. Although it is clear that there is widespread sympathy and a heightened sense of community when fatal shark bites occur, this unity dissipates when whether, and how, governments should respond to the risk of shark bites is debated. For example, as this report has demonstrated, fiercely divergent views are held in coastal communities on whether lethal shark control programs are an effective response to the risk presented by dangerous species of sharks. Although shark bites can understandably trigger emotional responses, there is a need for policymakers across the country to consider how to respond to shark bites objectively and critically, using an evidence-based approach. Diverging from this practice is not in the public interest.

8.5 The risk of encountering a shark is rare and needs to be placed in perspective. As has been observed in evidence received during this inquiry, the number of shark bites should be considered in context. Millions of beach visitations occur each year without incident, and drowning is far more likely to be the source of a coastal fatality. Injuries and deaths from interactions between humans and many other animals, such as farmyard animals, dogs and kangaroos occur much more frequently than

shark-related incidents. The number of deaths and injuries associated with shark bites is also greatly outnumbered by the number of road deaths that occur across Australia (1300 in 2016). While all accidental deaths are tragic, and the committee is not arguing one cause of death deserves greater attention than another does, it is relevant that shark-related fatalities, injuries and near misses capture far greater public and media attention than deaths linked to other aspects of life. This likely influences community demands for action and decisions about how government resources should be utilised.

8.6 With the limited resources available to governments, a tension exists between the extent to which governments can intervene to enhance public safety and the need for individuals to take personal responsibility for decisions made of their own free will to participate in activities involving a known degree of risk. In addition, governments need to consider the safety of particular segments of the population that might have a different approach to or understanding of risk, such as children and young people and visitors to Australia's beaches who may not have grown up understanding the risks associated with entering the ocean.

8.7 After conducting this inquiry, the committee is concerned that a heightened fear of sharks has led to responses that may calm the public and appear to provide an effective response, but which are not verified by scientific evidence. That is, communities and governments may be attracted to lethal measures as a simple solution to a complex problem, when a more sophisticated, multifaceted approach is actually required. In particular, the committee is of the view that the available evidence about the effectiveness of lethal shark control measures (mesh nets and traditional drum lines) used in New South Wales and Queensland does not warrant their continuation. The committee is concerned that the existence of lethal measures and the government resources devoted to their management provides the beach-going public with a false sense of security.

8.8 Logically, it follows that for every shark of a species known to be dangerous to humans which is killed by a lethal measure, there is one less shark that can harm a person swimming, surfing or diving in the ocean. It also follows, therefore, that to guarantee public safety using lethal measures, all dangerous sharks in coastal areas around Australia would need to be killed.

8.9 This is simply not practicable. The lethal shark control programs are limited to certain parts of the coastline and, in places where lethal measures are deployed, they do not separate humans and sharks. The most striking example of this relates to the size of the shark nets, which range from only 150 to 180 metres in width. The nets may catch some dangerous and non-dangerous sharks, along with vast quantities of other marine life, however, sharks can swim around and under the nets. This is demonstrated by the 2009 review of the New South Wales program, which noted that

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23 shark encounters had occurred at meshed beaches since the program began.<sup>1</sup> The committee understands and notes that when finalising this report such an encounter occurred. On 13 November 2017, a surfer was bitten near the lagoon at Avoca Beach on the Central Coast. Avoca is one of the beaches netted between 1 September and 30 April each year under the New South Wales shark meshing program.

8.10 The New South Wales and Queensland shark control programs have been operating for decades, during which time medical responses have improved and surf lifesaving and other beach surveillance has increased. Most netted areas are near high population centres, where these various forms of beach surveillance are in place. Compelling evidence was also given to the committee that 83 per cent of drum lines in Queensland have been deployed at locations where fatal shark bite incidents had not been recorded before the program commenced.

8.11 It also cannot be known whether a particular white, tiger or bull shark that has been removed would have bitten a person and, therefore, whether the removal has enhanced public safety. There are significant gaps in knowledge about the triggers for shark encounters and, with the clear difficulties and ethical issues involved in such research, questions about the causes of shark bite incidents may not be answered. The very low number of shark fatalities before and after lethal measures were introduced makes rigorous analysis difficult. Simply put, however, any correlation between the deployment of lethal shark measures and zero or low numbers of human–shark encounters does not prove causation.

8.12 Although the effectiveness of lethal shark control measures for public safety is difficult to evaluate, the significant damage to the marine environment these measures cause by killing many non-dangerous species of sharks and other marine species is clear. Passive fishing activities such as nets do not target dangerous sharks specifically and entangle vast amounts of marine life.

8.13 In making this observation, the committee emphasises that it wants to enhance the safety of the oceangoing public; the committee's consideration of these impacts might differ if the lethal measures were clearly effective at protecting beachgoers. However, measures that cannot be proven to have a significant positive effect on public safety but which significantly damage the environment and affect the structure of the marine ecosystem should not be permitted to remain in place. Despite Australia's international obligations to conserve migratory sharks and advances in scientific knowledge of the marine environment, including about the importance of sharks for healthy oceans, the decades-long New South Wales and Queensland shark control programs continue to escape assessment under the Commonwealth's

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1 New South Wales Department of Primary Industries, *Report into the NSW Shark Meshing (Bather Protection) Program: Incorporating a review of the existing program and environmental assessment*, March 2009, p. 27.

*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This is simply because the programs predate the commencement of the Act.

8.14 Despite the many arguments and counterarguments that can be made about the effectiveness of lethal measures, fundamentally, it is impossible to determine whether there would have been a higher number of deaths if they were not in place. Nevertheless, for the reasons outlined above, it can be concluded that it is impossible for lethal shark control measures to guarantee public safety. Relying on outdated approaches from the 1930s that are not backed by science would not be tolerated in other areas of public safety. The committee, therefore, is of the view that it is necessary to carefully consider the effectiveness of alternative approaches.

8.15 The committee received detailed evidence about a wide range of alternative approaches to shark management. These included eco barriers that, unlike traditional shark nets, actually separate swimmers from sharks and may be a suitable solution, which can be deployed now, for beaches where the predominant activity is swimming. The committee also received evidence about personal shark deterrent devices for surfers and divers, sonar technology and various shark-spotting techniques. Further new technologies are currently in development. Noting that different measures will be necessary for different conditions and types of activities, the committee is not endorsing a particular category of product over others: the committee expects that a successful shark mitigation and deterrent strategy would feature a wide range of non-lethal measures.

### **Future of lethal shark control measures**

8.16 In the committee's view, the use of lethal shark control measures in Australia should end. The committee acknowledges that non-lethal measures are not 100 per cent effective in preventing a shark bite incident from occurring. However, the same observation applies to lethal devices. Evidence presented to the committee regarding non-lethal measures clearly indicates that new and emerging technologies can provide effective protection in many circumstances without causing the damage to the marine environment associated with nets.

8.17 The committee recommends that the end of lethal measures should occur as follows:

- Traditional drum lines—these should immediately be replaced by SMART drum lines, which differ from traditional drum lines in that they are not designed or operated to kill sharks. Given the development and success of SMART drum lines, the continued use of lethal drum lines cannot be justified.
- Mesh nets—Rather than recommending the immediate end of mesh nets, the committee is of the view that they should be phased out. Although the committee does not support mesh nets, it acknowledges that there is a need to build the public's understanding about the limitations of the lethal measures and the effectiveness of non-lethal measures before the removal of nets gains widespread public acceptance.

8.18 As lethal shark control programs involve matters of national environmental significance protected under Commonwealth legislation, the committee considers there is a role for the Australian Government in pursuing the committee's recommendation to end the use of lethal shark control measures at a future Meeting of Environment Ministers.

### **Recommendation 1**

**8.19 The committee recommends that the New South Wales and Queensland Governments:**

- **immediately replace lethal drum lines with SMART drum lines; and**
- **phase out shark meshing programs and increase funding and support for the development and implementation of a wide range of non-lethal shark mitigation and deterrent measures.**

**8.20 The committee further recommends that the Australian Government pursue this recommendation at a future Meeting of Environment Ministers.**

### **Building knowledge about sharks and shark management strategies**

8.21 As noted above, to facilitate the phasing out of nets, there is a need to build the public's understanding about sharks generally and the specific lethal and non-lethal measures that can be used as shark mitigation and deterrent measures. For example, the committee notes that there are many widespread myths about shark behaviour. In addition, there is evidence that lethal measures provide an important psychological benefit that has flow on effects for local businesses and tourism activity—it is important that non-lethal measures have the same effect. Accordingly, there is a clear role for governments to support research, develop or refine public education efforts and to increase support for the development and utilisation of effective non-lethal measures. The remaining recommendations of this report focus on how to enhance existing knowledge about sharks and how to respond most effectively to the risk of human–shark encounters.

8.22 While lethal measures remain in place, the committee considers there is a need to increase the scientific rigour and transparency associated with these programs. Accordingly, the committee agrees with CSIRO's position, as put to the committee during this inquiry, that there is a need for management arrangements for lethal programs to require more effective catch monitoring and for the programs to be underpinned by clear objectives and trigger points.

8.23 The committee notes that the New South Wales Government updated its management plan for the shark meshing program in July 2017, which included objectives, performance indicators and trigger points. However, the collection of further data on the operation of the lethal devices would assist the public debate on the effectiveness of the program; for example, whether sharks entangled by mesh nets were caught on the beach-side or ocean-side of the net is information that should be collected and made publicly available.

8.24 Regarding the Queensland shark control program, the committee considers the Queensland Government should similarly publish a management plan that commits to minimising the harm to marine life, particularly species protected under the EPBC Act, as well as further relevant data about the operation of the program.

8.25 There is also a need for a single source of reliable data on the bycatch associated with lethal shark control programs. Although some data are published, further historical data should be readily available to enable trend analysis and greater effort should be made to ensure the data collected are reliable. To address these issues, the committee recommends that the Australian Government establish a national database of interactions involving shark control programs that records interactions involving target and non-target species.

8.26 In addition to ensuring this information is promptly made publicly available at regular intervals throughout the year, the committee considers that the Australian Government should direct the Department of the Environment and Energy to prepare and publish an annual assessment of the impacts of lethal shark control measures on marine life. Given the Australian Government's responsibilities regarding the protection of matters of national environmental significance, the deaths and injuries of protected species linked to shark control programs should be a particular focus of the database and annual assessment.

8.27 To facilitate the national database, the Australian Government will need to require state governments to provide relevant data. In doing so, the Australian Government should oblige state governments to improve the reliability of the data collected, including through audits of information provided by contractors involved in clearing nets and drum lines.

## **Recommendation 2**

**8.28 The committee recommends that, while state government lethal shark control programs remain in place, management arrangements for these programs should include more effective and transparent catch monitoring with the objective of improving understanding of the efficacy of lethal measures for public safety and the effects of the measures on the populations of marine species.**

## **Recommendation 3**

**8.29 The committee recommends that the Australian Government:**

- establish a publicly accessible national database of target and non-target species interactions with shark control measures; and**
- require the Department of the Environment and Energy to use this information to prepare and publish an annual assessment of the impacts of lethal shark control measures on target and non-target marine species.**

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## Recommendation 4

**8.30 The committee recommends that state governments review and regularly audit the quality of the data collected on target and non-target species interactions with shark control measures.**

8.31 One area where there was some agreement between supporters and opponents of lethal shark control measures is that further research is necessary to gain a better understanding about sharks, particularly regarding their population, behaviour, movement and breeding patterns. The committee notes that CSIRO, in a partnership under the National Environmental Science Program, has been seeking to address the lack of reliable white shark population estimates. Estimates on white shark abundance are due for release soon and will assist the upcoming review of the white shark recovery plan. Although it will be some time before an estimate of trend in population can be established, the committee is hopeful that the initial data on abundance will lead to a more informed debate about shark conservation.

8.32 Further knowledge about shark behaviour would clearly help inform the development of effective shark management strategies and deterrent measures. It is known that there are key differences between the species of sharks in Australian waters that are dangerous to humans (white, bull and tiger sharks): for example, the committee was advised that white sharks are visual specialists, bull sharks rely on electro reception and tiger sharks utilise the sense of smell. The committee considers these differences need to be taken into account in shark management to a greater extent than is occurring at present, and further research could assist in building understanding of what measures may be successful at deterring particular species.

8.33 Given the states bear the direct costs of shark control measures and that research outcomes would be of benefit to multiple jurisdictions, the committee considers there is a role for the Australian Government to increase the support it provides for shark-related research. At a minimum, the committee considers that the Australian Government should ensure CSIRO has the resources necessary to undertake the potential areas for further investigation that CSIRO identified during this inquiry. These areas, which were discussed in Chapters 1 and 2, include:

- ongoing data collection and monitoring to support the determination of population trends;
- development of a predictive model of shark abundance and location; and
- a social survey to determine how the behaviour of water users has changed in response to recent human–shark interactions.

8.34 In addition, during this inquiry it became evident there are various theories or concerns about activities that might attract sharks or otherwise increase the risk of human–shark interactions. Among others, these concerns relate to the use of teaser baits in cage diving, crayfish pots and trophy hunting.

8.35 It is clear that speculation about these theories shape views on whether particular mitigation and deterrent measures are effective; however, there is a lack of scientific evidence to determine whether these views have merit. Although there would be clear value in obtaining research that can verify or disprove these theories and inform policymaking as a result, the committee acknowledges that there are ethical and practical difficulties in conducting research that relates to human–shark interactions.

8.36 Accordingly, as an initial step, the committee recommends that the Australian Government seek advice from CSIRO on whether research can be undertaken to address anecdotal evidence presented to the committee on the potential risks for human–shark interactions that may be associated certain ocean-based activities. The Australian Government should then review the funding provided for marine science research to enable CSIRO (or another research institution) to conduct the research CSIRO advises could be undertaken.

### **Recommendation 5**

**8.37 The committee recommends that the Australian Government establish a review into the effectiveness of shark research and, following the review, commit to providing funding on a long-term basis for research areas that are considered likely to significantly contribute to improved knowledge about effective shark mitigation and deterrent measures.**

### **Recommendation 6**

**8.38 The committee recommends that the Australian Government review the funding provided to CSIRO to enable CSIRO to:**

- **undertake ongoing data collection and monitoring to support the determination of white shark population trends;**
- **develop a predictive model of shark abundance and location; and**
- **undertake a social survey to determine how the behaviour of water users has changed in response to the recent human–shark interactions.**

**8.39 The committee further recommends that the Australian Government seek advice from CSIRO as to whether research can be undertaken to address anecdotal evidence presented to the committee on the potential risk that certain ocean-based activities, such as the use of teaser baits in cage diving, crayfish pots and trophy hunting, might increase the risk of human–shark interactions. The Australian Government should review the funding provided for marine science research to enable CSIRO (or another research institution) to conduct the research CSIRO advises could be undertaken.**

8.40 To improve scientific understanding of shark behaviour and to assist evaluations of the effectiveness of non-lethal devices, the committee also considers there is a need to consider how information on shark bite incidents is used. It is possible that shark bite incidents yield valuable information on the intent of the shark involved; that is, whether the shark involved in the bite incident was, to use the terms commonly used during this inquiry, 'curious' or in 'full attack mode'. The committee notes the concerns among stakeholders and in the community that, at present, personal deterrent devices will not prevent incidents involving a shark that is determined to attack.

8.41 The collection of information at a clinical level for subsequent expert interpretation would likely be useful for better understanding shark behaviour. It could also assist in assessing the effectiveness of personal deterrent devices. Although the collection of this information is in the public interest, the committee acknowledges that this information is linked to traumatic events and the rights of the individual and their families need to be considered. Accordingly, the committee recommends that the Australian, state and Northern Territory governments consider how information on shark bite incidents can be collected and centrally reported with a view to enhancing knowledge about shark behaviour, provided that the information can be collected respectfully and, in the case of fatalities, that family and cultural concerns are considered.

### **Recommendation 7**

**8.42 The committee recommends that the Australian Government initiate discussions with state and Northern Territory governments regarding the clinical information collected about shark bite incidents to enable subsequent expert analysis of shark behaviour.**

### **Supporting the transition to non-lethal mitigation and deterrent measures**

8.43 The committee supports the development of effective, scientifically tested, non-lethal shark mitigation and deterrent measures. Such measures provide swimmers, surfers and divers with protection without causing damage to the marine environment. Non-lethal measures are cost-effective and enable individuals to take personal responsibility for their safety. In addition, the committee considers that an economic opportunity exists in that Australia could be a world leader in the development and commercialisation of new technologies. Governments need to provide a supportive environment so this opportunity can be realised.

8.44 The committee notes that state governments have backed certain trials of new technologies, however, the degree of interest and willingness to back such trials varies. Although there is evidence of Australian ingenuity and innovation at work, the committee is concerned by the possibility that new technology may need to be taken overseas to be commercialised. The Australian Government could perform a greater role in this area. In particular, the Australian Government could assist by matching funding committed by state governments to the trialling and development of

non-lethal measures, which in turn would enable state governments to support a wider range of trials or facilitate trials that are more extensive.

8.45 To ensure the amount of funding provided is appropriate, the committee suggests that the Australian Government seek advice about funding requirements, if necessary from a consultant with expertise in shark management. Specifically, the advice should consider the amounts spent by state governments on various shark management activities and provide an estimate of the quantum of funding from the Australian Government necessary for supporting the objective of ending lethal measures.

### **Recommendation 8**

**8.46 The committee recommends that the Australian Government match funding provided by state governments in support of the development of new and emerging shark mitigation and deterrent measures.**

8.47 As the above recommendations indicate, the committee supports a transition from lethal shark control measures to effective non-lethal measures. There is a range of non-lethal measures that can, and should, be considered as part of a comprehensive strategy for promoting public safety. However, the committee considers that an impediment to a successful transition from lethal to non-lethal measures is ensuring consumer confidence in the personal deterrent product category. The committee is concerned that the marketplace for personal deterrent devices includes products that have not been subject to independently verified scientific testing.

8.48 When buying a safety product, consumers expect that the product will be effective. An attractive feature of personal deterrent devices from a policymaking perspective is that they enable individuals to take personal responsibility for the risks they take. Governments have a duty to ensure there is appropriate information available so that individuals can make informed decisions. The committee urges the Australian Government to support consumers by establishing an appropriate framework to encourage the commercialisation and take up of reliable products that consumers can trust.

8.49 Furthermore, in light of the evidence received during this inquiry about the effectiveness of personal deterrent devices, the committee questions why some key organisations are reluctant to endorse this category of products. Scientific testing has concluded that the use of a particular product in an environment with a high number of white sharks resulted in the probability of a shark bite falling from 90 per cent to 16 per cent. Other studies similarly support the conclusion that the use of a certain personal deterrent device reduces the risk of shark bite. The committee is aware that other products are also undergoing independent scientific testing.

8.50 It follows that a significant reduction in the risk of shark bite does not mean the risk is eliminated. In the committee's view, however, it is unreasonable to withhold support for personal deterrent devices on the basis that they do not eliminate the risk

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of shark bite for divers and surfers when, at present, no measure will eliminate this risk.

8.51 As with many other adventurous activities, diving and surfing are associated with some degree of risk. By choosing to undertake these activities, the individual accepts this. Nevertheless, there are steps that can be taken to reduce the risk, including by using an effective personal shark deterrent product. The available evidence indicates that, overall, users of independently verified personal deterrent devices will be at a significantly lower risk of shark bite than they would be if they were not using the device. Provided that users understand the remaining risk, this evidence should be sufficient for relevant stakeholders to promote this product category among their members. The committee hopes that such action may avoid a tragic shark bite incident which could have been avoided had the individual involved been using an effective personal deterrent product.

### **Recommendation 9**

**8.52 The committee recommends that the Australian Government develop a process to ensure products marketed as personal shark deterrent devices are independently verified as being fit-for-purpose.**

### **Recommendation 10**

**8.53 The committee recommends that the Minister for the Environment and Energy and relevant state governments work with key stakeholder groups, such as national surfing organisations, to encourage water users to take all reasonable steps to reduce the probability of being involved in a shark bite incident, including by endorsing the use of independently verified personal deterrent devices.**

8.54 On the evidence available, the committee supports the Western Australian Government's trial rebate program for independently verified personal deterrent devices. The committee recommends that all state governments with shark management programs consider initiatives to support the take up of new, effective approaches to public safety, including rebate programs for independently verified personal shark deterrent devices.

### **Recommendation 11**

**8.55 The committee recommends that the Western Australian Government's trial rebate program for independently verified personal deterrent devices be made ongoing in Western Australia and adopted by other relevant state governments.**

**8.56 The committee further recommends that relevant state governments consider developing programs for subsidising independently verified personal deterrent devices for occasional surfers at beaches associated with the risk of dangerous shark encounters.**

## **National cooperation and coordination**

8.57 Although state governments are most directly involved in shark management, the committee considers all levels of government have a role. Importantly, the committee considers that the Australian Government has a national leadership role in providing funding support for research and trials of new measures, as well as ensuring that consumers are informed when purchasing safety products. The Australian Government can also facilitate the sharing of knowledge from its research agencies and between jurisdictions, and can encourage the use of best practice management strategies. There is a need to ensure that knowledge about successful shark management strategies is shared effectively and that all jurisdictions have access to the latest expert advice. Accordingly, the committee considers there is a need for a National Shark Summit of shark experts from around the world, with the summit to be chaired by the Minister for the Environment and Energy.

8.58 In recommending a national shark summit, the committee is cognisant that the New South Wales Government hosted a shark summit in 2015. However, the committee considers there will be key differences between the summits. In particular, as the issue of human–shark bites is relevant to several states, and state governments have taken different approaches to the issue, a national summit would provide an opportunity for these varying approaches and lessons learnt in particular jurisdictions to be shared and assessed. A national summit would also facilitate the involvement of the Australian Government. This is appropriate for two reasons:

- first, the Australian Government has an established role in protecting matters of national environmental significance; and
- secondly, given the various statements made by the Minister for the Environment and Energy throughout 2017 about sharks, there appears to be acceptance of the Australian Government's emerging role in shark management matters.

8.59 To ensure the results of the summit influence and are reflected in management strategies and government policies, and that there is an ongoing commitment to pursuing best practice shark management strategies following the summit, the committee further recommends that a National Shark Stakeholder Working Group be established. The Working Group should comprise senior Australian, state and Northern Territory government officials from relevant areas (environment, fisheries, and parks and wildlife services agencies), representatives of local government, scientific experts, surf lifesaving organisations and other relevant groups.

8.60 The committee envisages that, using the evidence gathered during this inquiry and the findings of the National Shark Summit, the Working Group would seek to develop a national risk management plan for sharks and an integrated approach to the development, promotion and use of a wide range of effective non-lethal measures. Practical advice to promote the use of non-lethal shark management strategies should be developed; for example, the committee considers that one impediment to the establishment of shark spotting programs is the lack of guidance available about

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suitable locations for these programs and how communities can establish successful programs.

8.61 The committee considers that the Working Group would also assist the Australian Government in developing strategies to address other recommendations of this report, such as the recommendation relating to the effectiveness of ensure products marketed as personal shark deterrent devices are independently verified as being fit-for-purpose.

### **Recommendation 12**

**8.62 The committee recommends that the Australian Government hold a National Shark Summit of shark experts.**

### **Recommendation 13**

**8.63 The committee recommends that the Australian Government establish a National Shark Stakeholder Working Group comprising key stakeholders in shark management policies. The principal function of the Working Group would be to further the objective of ending lethal shark control programs by developing strategies and facilitating information sharing about the effective use of non-lethal measures.**

### **Other practical actions**

8.64 During this inquiry, Dr Sharon Burden advised the committee that no signs are in place at the beach where her son died to warn beachgoers of past shark bite incidents and the continued risk. The committee shares Dr Burden's concerns about the lack of adequate signage and similarly questions why lethal measures are proposed when basic approaches such as public information strategies have not been pursued. In addition, although knowledge about previous shark incidents may help local residents to stay safe, this information should be readily available for the benefit of visitors to the area.

8.65 The committee considers the following approaches should be pursued as a matter of priority:

- adequate warning and information signage to be installed at beaches known to have a heightened risk of shark bite incidents;
- specialised trauma kits for responding to shark bite incidents to be made available at venues near beaches; and
- state governments to review (or introduce as necessary) education programs at schools in coastal areas on reducing the risk of shark interactions and improving knowledge about sharks, including by addressing myths about shark behaviour and educating about the important role of sharks in healthy marine ecosystems.

8.66 The committee also notes that there are various social media accounts and apps intended to distribute information about sharks and shark sightings, including those operated by state governments, surf lifesaving organisations and the Dorsal community shark reporting app. The committee supports the provision of real-time information about shark sightings. However, the committee questions whether the current arrangements of multiple platforms is the most effective means for disseminating information about sharks. One reliable, national source of information, provided it could be tailored to local conditions, would: be easier to promote (thus maximising the number of users); assist beachgoers who travel interstate; and allow for greater economies of scale. The committee considers there would be merit in the National Working Group considering whether an integrated national shark database and app would be a more effective use of available resources.

8.67 The committee further considers there is a need for the information provided through apps about shark sightings and shark risk updates to be readily available at beaches. The committee notes the evidence that online apps are not always accessible to beachgoers and that checking these apps may not be at the forefront of beachgoers' minds. In addition, this information is necessary to support the safety of visitors to the area who may be unaware of social media accounts and apps that distribute shark safety alerts.

#### **Recommendation 14**

**8.68 The committee recommends that the National Shark Stakeholder Working Group review the adequacy of information available to beachgoers regarding the risk presented by sharks, such as signage at beaches and how real-time information provided through shark alert apps can be made available at beaches.**

#### **Recommendation 15**

**8.69 The committee recommends that the Australian Government, working with relevant state governments, develop a program to provide grants for specialised trauma kits at venues near beaches associated with the risk of human–shark encounters.**

#### **Recommendation 16**

**8.70 The committee recommends that relevant state governments review the water safety education programs and education about sharks generally that is provided in schools (particularly schools in coastal areas), with a view to enhancing the education provided on reducing the risk of shark interactions and improving knowledge about shark behaviour and the ecological value of sharks.**

**8.71 As part of these reviews, the committee recommends that state governments consider the role that relevant community and scientific organisations with expertise in human–shark encounters could have in supporting the delivery of such programs.**

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### **Recommendation 17**

**8.72 The committee recommends that the National Shark Stakeholder Working Group review the various social media accounts and apps that distribute real-time information about shark sightings and warnings about the risk of shark activity to consider whether an integrated national database and app should be established.**

8.73 As this report has established, lethal measures present a significant threat to non-target marine life, including endangered species. During the committee's public hearing at Byron Bay, the committee received evidence indicating that animal welfare could be improved if communication between the New South Wales Department of Primary Industries (DPI) and animal rescue groups was strengthened. While lethal measures remain in place, the committee urges the DPI to review its engagement with animal rescue groups to improve rescue and rehabilitation outcomes for non-target animals.

### **Recommendation 18**

**8.74 The committee recommends that the New South Wales Department of Primary Industries improve its consultation and communication with animal rescue groups regarding marine wildlife caught in or injured by lethal shark control measures.**

### **Application of the EPBC Act**

8.75 Another issue of concern to the committee is that state governments have been permitted to conduct trials of lethal shark control measures targeting protected species without the trials requiring assessment and approval under the EPBC Act. Under section 158 of the EPBC Act, an exemption to undergo assessment and approval under the EPBC Act may be granted by the Minister for the Environment and Energy if the Minister is satisfied that to do so is in the national interest.

8.76 Section 158 of the EPBC Act is rarely used, but exemptions have been granted more frequently in recent years, including in relation to shark control programs. The relevant Minister has granted an exemption on both occasions when the introduction of a new lethal shark control program has been proposed (for the Western Australian program in 2014 and for the New South Wales north coast trial in 2016). These decisions have attracted controversy. The use of section 158 on 'national interest' grounds in relation to sharks is contrary to good environmental management: it is particularly telling that despite the exemption granted for the Western Australian program in 2014, the Western Australian Environmental Protection Authority ultimately determined that the proposal should not be implemented.

8.77 Moreover, as a general principle the committee is concerned about the increased use of a discretionary power based on the Minister's interpretation of the 'national interest' where the matters the Minister may consider in determining the national interest are not prescribed or limited in any way. The committee does not consider that the desire to trial lethal shark control measures can be justified on national interest grounds. These measures should be subject to the regular EPBC Act assessment and approval process.

8.78 The October 2017 decision by the Minister to exempt the New South Wales north coast trial for an additional two years is also of concern to the committee. The effect of this second exemption is that the north coast trial of nets will operate for three years without assessment and approval under the EPBC Act being required. This is despite data collected by the DPI demonstrating clearly that the SMART drum lines used in the trial area target the species of sharks known to present a risk to humans far more effectively, and do so with minimal impacts on threatened species and the marine environment generally.<sup>2</sup> The committee is of the strong view that use of the section 158 exemption power to exempt the same, or similar, activity repeatedly is a significant flaw in the EPBC Act that needs to be addressed.

8.79 Given the use of section 158 to exempt new shark control measures from assessment, the committee considers there are clear grounds for this provision to be reviewed and for the provision to not be used for shark control measures until such a review has taken place. As the committee has considered section 158 in the context of shark-related matters only, the committee is not recommending amendments to section 158; for sound policymaking there is a need for section 158 to be reviewed as part of a process that enables broad consultation and considers how the provision applies across a wider range of activities. The committee is of the view that the next independent review of the EPBC Act would provide such an opportunity.

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2 As noted in Chapter 4, during the first trial the nets caught nine target sharks, representing just three per cent of the total catch. On the other hand, SMART drum lines caught more target sharks and had significantly lower levels of bycatch (36 target sharks were caught, which represented 92 per cent of the total catch of SMART drum lines). In addition, only 47 per cent of the animals caught by the nets survived, whereas the survival rate associated with SMART drum lines is 97 per cent. See Minister for the Environment and Energy, *North Coast Shark Meshing Trial, New South Wales: Statement of reasons for granting an exemption under section 158 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth)*, 26 October 2017, <http://epbcnotices.environment.gov.au/exemptionnotices/exemptionnotice/?id=a99fcc21-38c0-e711-b175-005056ba00a8> (accessed 9 November 2017).

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## **Recommendation 19**

**8.80** In light of the repeated use of section 158 exemptions for lethal shark control programs, the committee recommends that the next independent review of the *Environment Protection and Biodiversity Conservation Act 1999* carefully consider whether section 158 is operating as intended. In particular, the committee recommends that the independent review consider:

- whether the matters the Minister may consider in determining the national interest should be limited; and
- whether section 158 should be amended to prohibit the repeated granting of exemptions for the same controlled action or any other controlled action of a similar nature.

## **Recommendation 20**

**8.81** The committee recommends that the Minister for the Environment and Energy refrain from granting exemptions under section 158 of the *Environment Protection and Biodiversity Conservation Act 1999* for matters relating to shark control programs until after the operation of section 158 has been reviewed in accordance with Recommendation 19.

## **Role of the media**

**8.82** Finally, some of the media coverage given to shark bite incidents over recent years is of great concern to the committee. The attention shark bite incidents receive from the Australian media greatly exceeds the coverage given to most other events causing death or injury. To some extent this is understandable: shark bites occur in an environment where humans are vulnerable and have a limited ability to respond. As predators known to cause human fatalities, sharks also trigger a primal fear.

**8.83** Reporting of shark bite incidents is important for keeping the public informed about incidents in their community and sharks generally. In the committee's view, however, shark incidents in Australia have in recent years received disproportionate and sensationalised levels of press coverage. Shark bites are not unique to Australia, yet how they are reported here appears to differ dramatically from how shark bites are reported in other countries, such as the United States. Fatalities and serious injuries require coverage; however, at present even close encounters are front-page news. Although the committee understands the fear such encounters cause to the individuals involved, sensationalised media reporting is problematic for supporting responsible and respectful public debate on shark issues and for the public perception of beach safety generally.

**8.84** Media reporting has consequences—emotive reporting without scientific evidence encourages 'solutions' that are not backed by science and have questionable efficacy. Intense media interest also has consequences for the victims; for example, during this inquiry the committee received evidence about methods used in preparing these reports, such as one instance where a photographer climbed a tree outside of a hospital to photograph a shark bite victim. Criticism of headline-grabbing,

sensationalised media reporting on shark bite incidents was widespread, including from shark bite victims and their families, shark scientists, social science researchers, local governments, environmental groups and the tourism industry. Importantly, when asked about the role of the media in educating the public, a journalist who writes about sharks acknowledged that whether the media would take up this role depends on whether it is commercially viable to do so. This reinforces the need for governments to ensure the public can obtain reliable information and the preceding recommendations in this report are directed toward this aim.

8.85 It is not the role of this committee to dictate to the media what they can report and how they should report it—the committee strongly supports and defends a free press. However, as the media can have a powerful influence on how people's attitudes to matters of public interest are shaped, the committee urges media organisations to consider how they report shark-related events to ensure these matters are, all things considered, covered responsibly.

**Senator Peter Whish-Wilson**  
**Chair**