

Queensland shark management plan

2021 to 2025



**Queensland
Government**



If you need an interpreter to help you understand this document, call **13 25 23** or visit **daf.qld.gov.au** and search for 'interpreter'.

This publication has been compiled by Fisheries Queensland, Department of Agriculture and Fisheries.

© State of Queensland, 2021.



The Queensland Government supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence.

Under this licence you are free, without having to seek our permission, to use this publication in accordance with the licence terms.

You must keep intact the copyright notice and attribute the State of Queensland as the source of the publication.

For more information on this licence, visit **creativecommons.org/licenses/by/4.0**.

The information contained herein is subject to change without notice. The Queensland Government shall not be liable for technical or other errors or omissions contained herein. The reader/user accepts all risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using this information.

Contents

| | |
|---|-------|
| Introduction | 4 |
| Purpose | 4 |
| Scope | 4 |
| Our plan | 5–6 |
| Key initiatives | 7–8 |
| Monitoring and evaluation | 9 |
| References | 10 |
| Appendix: Implementation schedule as at 2021–22 | 11–13 |

Introduction

Queensland’s shark control program started in 1962 following a number of fatal shark bites across the state. The chief executive (Director-General of the Department of Agriculture and Fisheries) is responsible for establishing and managing the program in accordance with the *Fisheries Act 1994*.

The program has traditionally relied on nets or drumlines (baited hooks), or a combination of both, to reduce the risk of shark bites at popular beaches. It plays a vital role in providing a level of protection to water users at beaches year-round.

The Queensland Government is committed to reviewing and adapting the program in line with emerging science and community expectations. The government always puts the safety of people first and will not make changes until effective alternatives suitable for Queensland conditions are identified and proven.

Part of the program operates within the Great Barrier Reef Marine Park, and so the program must adapt and improve to comply with the Australian Government permit issued by the Great Barrier Reef Marine Park Authority to the Queensland Government. The program’s scientific working group was established in collaboration with the Great Barrier Reef Marine Park Authority to provide independent scientific advice to government on the program, research and trials of alternatives that may be suitable for Queensland. The working group will provide expert advice on implementation of the *Queensland shark management plan 2021 to 2025*.

Tourism supports one in ten Queensland jobs and is worth more than \$27 billion (pre-COVID-19) to the state’s economy (Department of Tourism, Innovation and Sport 2021). Queensland’s tourism industry is renowned for its coastal holidays, which are identified as one of the state’s key experience pillars and for which we have a competitive advantage. The program aims to provide trust in shark management measures in Queensland and supports tourists and Queenslanders to safely and confidently enjoy water-based activities and experiences.

The *Queensland shark management plan 2021 to 2025* sets out how the Queensland Government will continue work to reduce the risk of shark bites through the traditional program, while researching and trialling new shark mitigation technologies and boosting community education on SharkSmart behaviours.

Purpose

This plan aims to reduce the risk of shark bites in Queensland coastal waters by:

- maintaining nets and drumlines at beaches while continually improving operations to minimise the impact on the environment
- supporting research to understand how to reduce the risk of shark bites
- undertaking trials of alternative shark bite mitigation technologies to determine their suitability for Queensland conditions
- educating people to be SharkSmart every time they are on or in the water.

Scope



This plan is informed by insights and recommendations from the *Queensland shark control program: review of alternative approaches* (the Cardno report), commissioned by Fisheries Queensland in 2019.

This plan includes key initiatives under four focus areas:





The timing for delivering key initiatives is included in the implementation schedule (see appendix), which will be reviewed and updated annually.



Our plan

| Focus area |  Operations |  Education and engagement | | |
|--------------------|--|---|--|---|
| Strategic approach | <p>Maintain an effective shark control program that reduces the risk of shark bites in coastal waters</p> | <p>Promote SharkSmart behaviours so that they become second nature for water users</p> | | <p>Work with partners to boost the safety of water users</p> <p>Continue to evolve a shark control program that is supported by Queenslanders</p> |
| Principles | <p>The program:</p> <ul style="list-style-type: none"> operates in way that puts the safety of water users first operates in a way that reduces the impact on the environment where possible continually improves and evolves to drive effectiveness and efficiency leverages operations to support research and trials uses science to inform changes to operations is underpinned by safe work practices for contractors and employees | <p>The SharkSmart education program:</p> <ul style="list-style-type: none"> calls on water users to take personal responsibility for their safety and the safety of others every time they undertake water-based activities drives water users to adopt SharkSmart behaviours every time they are on or in the water to reduce the risk of shark bite provides practical advice to help water users reduce their risk based on the activities they are undertaking and their location is guided by the latest scientific research into human and shark behaviour and human behaviour change measures levels of awareness and behaviour adoption among water users and uses these insights to continually improve | | <p>We pursue partnerships that:</p> <ul style="list-style-type: none"> enhance how the shark control program is delivered by harnessing each partner's expertise help us explore new ideas and technology for shark control provide opportunities to champion SharkSmart behaviours through partner networks, programs, education and engagement <p>The program:</p> <ul style="list-style-type: none"> communicates its focus areas, strategic approach, principles and key initiatives to Queenslanders in an accessible and transparent way to build understanding engages with stakeholders and the community to shape the planning, implementation and evaluation of key initiatives takes account of community expectations to inform ongoing improvement |

Our plan (continued)



| Focus area |  Research |  Trials |
|--------------------|--|--|
| Strategic approach | <p>Use research to inform operations, trials of alternatives and education</p> <p>Share results and findings of program research and trials with the scientific community</p> | <p>Conduct trials underpinned by science to identify shark bite mitigation alternatives suitable for Queensland conditions</p> |
| Principles | <p>Research:</p> <ul style="list-style-type: none">• informs the SharkSmart education program• informs the scientific basis for trials• improves our understanding of shark biology, behaviour, populations, movement and migration• informs how program operations are continually improved to minimise the impact on the environment and to be more effective and efficient• is shared with the scientific community to continually improve understanding of shark bite mitigation options• is leveraged by seeking opportunities to partner with other research organisations | <p>Trials:</p> <ul style="list-style-type: none">• are based on scientific methodology• are conducted in accordance with applicable regulations and legislation• are conducted with consideration for community and stakeholder expectations• are conducted to reduce the risk of shark bite by the top three target species in Queensland (bull, tiger and white sharks)• should not have a disproportionate impact on the environment compared to the expected outcomes• are planned, implemented and evaluated taking account of the prevailing local and environmental conditions• take account of the commercial availability and proven effectiveness of any equipment that may be required• are evaluated with outcomes reported and released to inform ongoing trials and research |

Key initiatives

| Focus area | Initiative | Description | Recommended regions* |
|--|--|--|---|
|  <p>Operations</p> | Monitor and continually improve the effectiveness of shark control equipment | Continually monitor the configuration of apparatus and make improvements to better target dangerous shark species, and by doing this increase safety of water users and reduce impacts on other marine life | All locations with nets and drumlines |
| | Reduce the impact of shark control equipment on non-target marine life | Maintain marine animal release teams to respond to equipment entanglements | Gold Coast, Sunshine Coast and Mackay locations with nets |
| | Adhere to marine park permit requirements | Conduct all program operations in accordance with permit requirements | All locations with nets and drumlines |
| | Support science and research | Support science and research through providing data, specimens or other in-kind support for research projects Tag white, bull and tiger sharks in the Great Barrier Reef Marine Park, where possible and safe to do so | All locations with nets and drumlines |
|  <p>Education and engagement</p> | Continue the SharkSmart education program | Expand education to emphasise SharkSmart messages and promote personal responsibility Explore tailored messaging for different water users based on risk | Statewide |
| | Investigate human behaviour change | Review research identifying the human behaviours that may increase the risk of shark bite Apply behaviour-change methodologies to encourage the adoption of SharkSmart behaviours that are relevant to local conditions | Statewide |
| | Upgrade signage | Review and improve information signage | Statewide |
| | Undertake website transformation | Review and improve website information | Statewide |

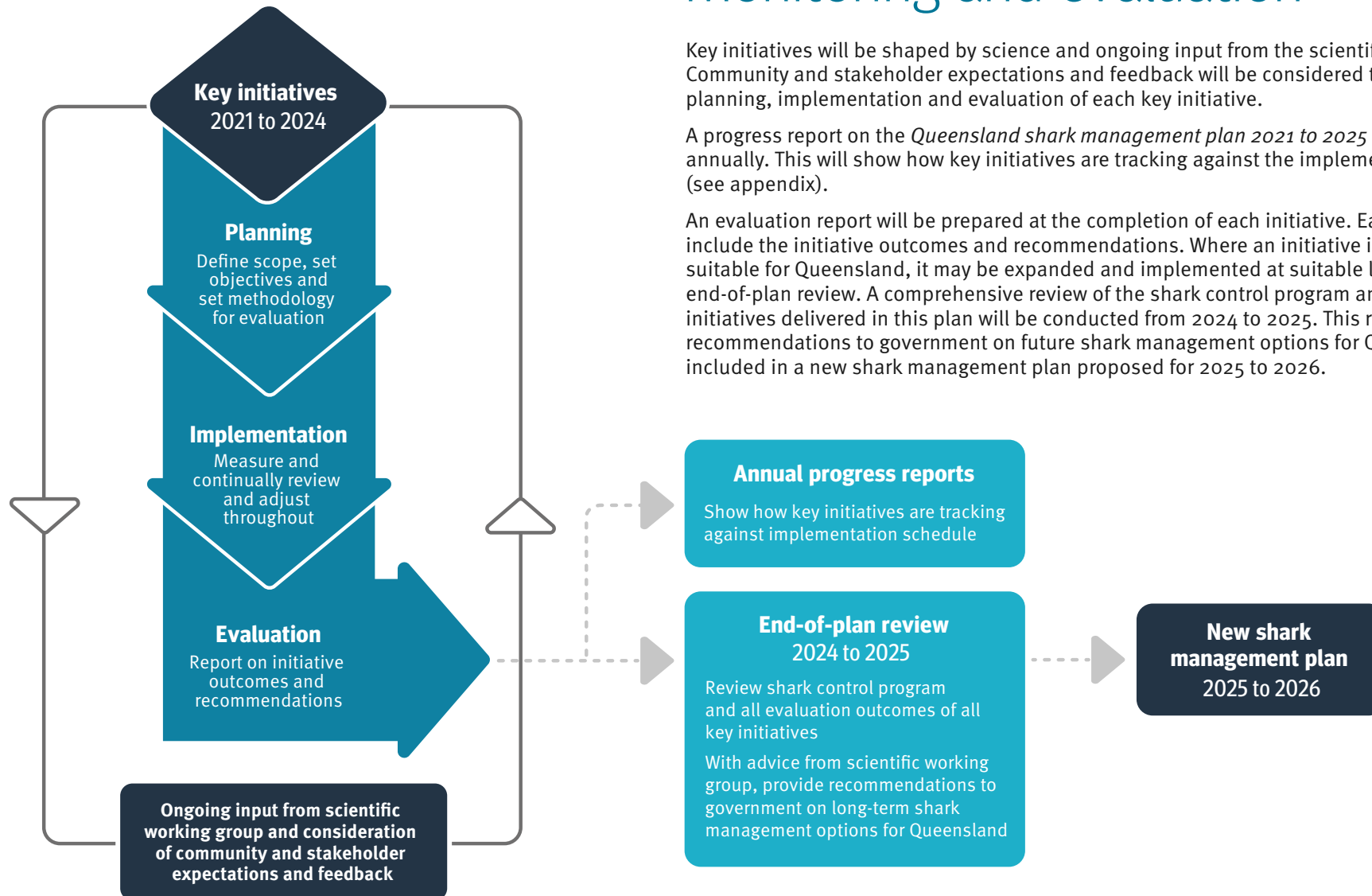
* Based on the recommendations from Cardno 2019.

Key initiatives (continued)

| Focus area | Initiative | Description | Recommended regions* |
|--|--|--|---|
|  <p>Research</p> | Research the prevalence and behaviour of sharks in the Whitsundays | Tag and track sharks in the Whitsundays to inform insights on the prevalence and behaviour of sharks | Whitsundays |
| | Support the Integrated Marine Observing System Queensland Acoustic Telemetry Array | Provide support for the deployment of acoustic receivers to detect tagged sharks and other marine life | Statewide |
| | Investigate fishing depredation | Identify the key species driving depredation, and assess the extent of depredation and factors influencing depredation Understand the relationship between depredation and shark bite risk for water users near boats | Whitsundays and statewide |
| | Undertake shark population studies | Estimate the population size and distribution of key shark species through reviewing shark catch data, tagging and tracking information, genetics and other available science | Statewide |
| | Assess personal deterrents | Test the effectiveness of commercially available electronic personal deterrent devices on tiger sharks | Statewide—testing outcomes to be applicable to Queensland conditions |
|  <p>Trials</p> | Trial SharkSmart drones | Trial drones as shark-spotting tools at Queensland beaches | Statewide—but some locations in northern Queensland may not be suitable due to poor water clarity |
| | Assess physical barriers | Trial physical barriers to provide a level of protection from sharks at Queensland beaches | Potentially suitable for regions with low wave energy within the Great Barrier Reef Marine Park—Cairns, Townsville, Mackay and the Capricorn Coast |
| | Trial catch alert drumlines | Trial satellite-linked GPS communication units attached to baited drumlines—when an animal is captured, the drumline operator is alerted to tag and/or release the animal as required | Potentially suitable for multiple locations within the Great Barrier Reef Marine Park, but requires consideration of logistical and operational factors |

* Based on the recommendations from Cardno 2019.

Monitoring and evaluation



Key initiatives will be shaped by science and ongoing input from the scientific working group. Community and stakeholder expectations and feedback will be considered throughout the planning, implementation and evaluation of each key initiative.

A progress report on the *Queensland shark management plan 2021 to 2025* will be released annually. This will show how key initiatives are tracking against the implementation schedule (see appendix).

An evaluation report will be prepared at the completion of each initiative. Each report will include the initiative outcomes and recommendations. Where an initiative is considered suitable for Queensland, it may be expanded and implemented at suitable locations before the end-of-plan review. A comprehensive review of the shark control program and outcomes of all initiatives delivered in this plan will be conducted from 2024 to 2025. This review will inform recommendations to government on future shark management options for Queensland, to be included in a new shark management plan proposed for 2025 to 2026.

References

Cardno 2019, *Queensland shark control program: review of alternative approaches*, prepared for Queensland Department of Agriculture and Fisheries, viewed 21 April 2021, <<https://www.publications.qld.gov.au/dataset/queensland-shark-control-program/resource/76358bc5-a2fa-46ce-a8cb-0891c75e971a>>.

Department of Tourism, Innovation and Sport 2021, 'Industry development', Queensland Government, Brisbane, viewed 21 April 2021, <<https://www.dtis.qld.gov.au/tourism/industry-development>>.

Appendix: Implementation schedule as at 2021–22

| Focus area | | Operations | | | | |
|-----------------------------|--|--|------------------------------|--|---|---|
| Initiative | Monitor and continually improve the effectiveness of shark control equipment | Reduce the impact of shark control equipment on non-target marine life | Support science and research | Tag and release tiger, white and bull sharks in the Great Barrier Reef Marine Park | Adopt non-lethal shark control measures in the Great Barrier Reef Marine Park | |
| Statewide | | | | | | |
| Northern Queensland regions | Cairns | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Townsville | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Mackay | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Whitsundays | | | | | |
| | Capricorn Coast | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Tannum Sands | ✓ | ✓ | ✓ | | |
| Southern Queensland regions | Bundaberg | ✓ | ✓ | ✓ | | |
| | Rainbow Beach | ✓ | ✓ | ✓ | | |
| | Sunshine Coast | ✓ | ✓ | ✓ | | |
| | North Stradbroke Island | ✓ | ✓ | ✓ | | |
| | Gold Coast | ✓ | ✓ | ✓ | | |
| 2021–22 | ↓ | ↓ | ↓ | ↓ | ↓ | |
| 2022–23 | | | | | | |
| 2023–24 | | | | | | |

✓ Initiative is confirmed for the location.

Appendix: Implementation schedule as at 2021–22 (continued)

| Focus area | | Education and engagement | | | | Trials | | |
|-----------------------------|-------------------------|---|------------------------------------|-----------------|----------------------------------|-------------------------|--------------------------|-----------------------------|
| Initiative | | Continue the SharkSmart education program | Investigate human behaviour change | Upgrade signage | Undertake website transformation | Trial SharkSmart drones | Assess physical barriers | Trial catch alert drumlines |
| Statewide | | ✓ | ✓ | ✓ | ✓ | | | |
| Northern Queensland regions | Cairns | | | | | ✓ | Q | Q |
| | Townsville | | | | | ✓ | Q | Q |
| | Mackay | | | | | Q | Q | Q |
| | Whitsundays | | | | | | | |
| | Capricorn Coast | | | | | Q | Q | ✓ |
| | Tannum Sands | | | | | Q | | |
| Southern Queensland regions | Bundaberg | | | | | Q | | |
| | Rainbow Beach | | | | | Q | | |
| | Sunshine Coast | | | | | ✓ | | |
| | North Stradbroke Island | | | | | ✓ | | |
| | Gold Coast | | | | | ✓ | | |
| 2021–22 | | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 2022–23 | | | | ↓ | ↓ | | ↓ | |
| 2023–24 | | ↓ | ↓ | | | ↓ | ↓ | ↓ |

✓ ✓ Initiative is confirmed for the location.
 Q Initiative is being considered for the location but is yet to be confirmed.

Appendix: Implementation schedule as at 2021–22 (continued)

| Focus area | | Research | | | | |
|-----------------------------|-------------------------|--|--|---------------------------------|------------------------------------|----------------------------|
| Initiative | | Research the prevalence and behaviour of sharks in the Whitsundays | Support the Integrated Marine Observing System Queensland Acoustic Telemetry Array | Investigate fishing depredation | Undertake shark population studies | Assess personal deterrents |
| Statewide | | | ✓ | 🔍 | ✓ | ✓ |
| Northern Queensland regions | Cairns | | | | | |
| | Townsville | | | | | |
| | Mackay | | | | | |
| | Whitsundays | ✓ | | ✓ | | |
| | Capricorn Coast | | | | | |
| | Tannum Sands | | | | | |
| Southern Queensland regions | Bundaberg | | | | | |
| | Rainbow Beach | | | | | |
| | Sunshine Coast | | | | | |
| | North Stradbroke Island | | | | | |
| | Gold Coast | | | | | |
| 2021–22 | | ↓ | ↓ | ↓ | ↓ | ↓ |
| 2022–23 | | | | ↓ | ↓ | ↓ |
| 2023–24 | | | ↓ | | ↓ | |

✓ Initiative is confirmed for the location.
 🔍 Initiative is being considered for the location but is yet to be confirmed.