

Queensland Shark Control Program

Research Strategy

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1. Introduction

The Queensland Shark Control Program (the Program) aims to reduce the chance of people being killed or seriously injured by sharks in Queensland. This is achieved by removing large, dangerous sharks from 85 popular beaches along the Queensland coastline through the use of nets and baited drumlines. The Queensland Government also promotes safe swimming practices as part of its shark safety message. The public can significantly reduce their risk of shark bite through avoiding swimming at certain times or in particular areas or conditions.

The responsibility for managing the Program on behalf of the Queensland Government lies with the Department of Agriculture and Fisheries (DAF). Provisions of the *Fisheries Act 1994* allow for the Program's operation and reducing the possibility of shark attacks on humans in coastal waters of the State adjacent to coastal beaches used for bathing is a key objective of the Act. The Queensland Government maintains a strong commitment to the safety of beach users in Queensland.

The Program has a long history of involvement in scientific research with the major focus being reduction of non-target catch and improving the effectiveness of the Program (Department of Primary Industries and Fisheries, 2006). The outcomes for non-target species have been significantly improved over time as a result of advances in technology, establishment of Marine Animal Release Teams and modification of fishing apparatus configurations.

The government is committed to continually improving the Shark Control Program over time to ensure it continues to deliver its objectives while minimising impacts on non-target species.

The research program is designed to support a continuous improvement approach. It has been informed by the best available advice from the Scientific Working Group (SWG).

Program research activities to date have included:

- Analysis of the Program's catch data to inform program management and policy decisions;
- Trialling of alternative apparatus and apparatus configurations to inform program management and policy decisions;
- Provision of funding to external research groups for a range of projects e.g. large shark tagging, hammerhead shark research;
- Provision of samples and/or in kind support to researchers for a range of projects; and
- Provision of data to researchers.

This research strategy outlines priorities for the future to inform government investment and opportunities for other partners to contribute to answering key research questions. These research priorities apply across the State, noting that there may be some priorities designed to address more regionally-specific issues (e.g. within the Great Barrier Reef Marine Park (GBRMP) or in South East Queensland).

This research strategy will be reviewed on an annual basis in consultation with the SWG.

2. Objectives

The objectives of this strategy are to define the research priorities for the Program and to promote opportunities for collaborative research. The strategy will be used to inform internal funding allocation decisions and may be used by researchers to support funding applications to external funding bodies.

3. Research Priorities

Research priorities for the Program are provided in Table 1. The priorities were developed by the SWG with further internal DAF consultation. In determining the priorities, the SWG considered research that informs Program management and policy to be the highest priority. Potential application of research topics to fisheries management and marine park management was also considered in determining the priorities.

Table 1: Research Priorities

Research Topic	Justification	Priority
1. Non-lethal alternatives	Monitoring the development of non-lethal alternatives and trialling technologies considered suitable. The applicability of alternative measures in varying environmental conditions needs to be considered e.g. low energy versus high energy beaches. <i>Examples:</i> <ul style="list-style-type: none"> • Detection technologies - drones, multispectral cameras, sonar. • Deterrent technologies - electronic devices. 	High
2. Reducing the impact on non-target species	Investigating ways of reducing the impact of the Program on non-target species. <i>Examples:</i> <ul style="list-style-type: none"> • Alternative baits, hook types etc. 	High
3. Apparatus configurations	Monitoring and assessing the effectiveness of apparatus configurations. <i>Examples:</i> <ul style="list-style-type: none"> • monitoring the impact of removal of nets and replacement with drumlines within the GBRMP. • Determine the efficacy of replacing nets with drumlines as and where required. 	High
4. Genetics - species identification	Verification of species identification of sharks caught in the Program. <i>Examples:</i> <ul style="list-style-type: none"> • Genetic sampling of sharks. 	Medium
5. Habitat usage	Site fidelity, migration and movement patterns of target and non-target species. <i>Examples:</i> <ul style="list-style-type: none"> • Population studies of target species (e.g. tiger sharks). 	Medium
6. Population studies	Population size and structure. <i>Examples:</i> <ul style="list-style-type: none"> • Better understanding tiger shark populations and harvest across its distribution and risks from the Program. 	Medium
7. Social Science	Information regarding public knowledge and perceptions of sharks, safety and the Program. <i>Examples:</i> <ul style="list-style-type: none"> • Behavioural science around activities of boat users in attracting sharks. 	Medium
8. Genetics - other	Other genetic applications such as genetic population size, taxonomy and stock structure.	Low
9. General biological research	General biological information about species caught in the Program e.g. age and growth, diet, reproductive biology of target and non-target species.	Low

4. Research Funding

Where Queensland Government funding is available for research in association with the Program, this strategy will be used to determine how funding is allocated. Low and medium priority projects may still be supported if the associated costs are low.

DAF has capacity for conducting research under this strategy through collaboration between Fisheries Queensland, Agri-Science Queensland and/or external researchers.

Researchers may reference this strategy when applying for funding from other sources.

In-kind support, such as provision of samples or data, may be provided for some projects. Where application is made for in kind support only, every effort will be made to provide the requested support to the extent that this does not impact on the effective delivery of the Program or result in significant additional imposition on contractors or Program staff.

5. Other Considerations

It is the responsibility of the Project Leader to ensure all required permits are held e.g. Marine Parks Permits, General Fisheries Permits, Animal Ethics and any other relevant permits. Some research may be able to be conducted under permits held by the Department for the Program. Enquiries should be directed to the Manager, Shark Control Program.

External researchers may be required to enter into formal agreements with DAF relating to:

- Roles and responsibilities of all parties;
- Project Plans;
- Intellectual property;
- Reporting;
- Publications;
- Insurance; and
- Confidentiality.

Timely collection of samples/specimens by researchers will be a key consideration as there is limited capacity for storing large samples for extended periods of time.

6. Monitoring

DAF will monitor the outcomes of research conducted by other jurisdictions involved in public shark safety and other relevant scientific publications/reports in general. Researchers are encouraged to advise the Manager, Shark Control Program of any new publications of relevance to the Program.

7. How can I get involved?

Complete an application form and email it to the Manager, Shark Control Program. Note: applications will only be accepted from recognised Australian research institutions/companies. This is not a work experience/volunteer program.

8. Abbreviations and acronyms

the Act	<i>Fisheries Act 1994</i>
DAF	Queensland Government Department of Agriculture and Fisheries
GBRMP	Great Barrier Reef Marine Park
the Program	the Queensland Shark Control Program

9. References

Department of Primary Industries and Fisheries (2006). *A Report on the Queensland Shark Safety Program*. The State of Queensland, Department of Primary Industries and Fisheries, 30pp.