

A guide to supporting students completing the workbook:

## The technology of the NSW Shark Management Strategy

This workbook focusses on the work of the NSW Shark Management Strategy (SMS). The work, trials and research of the strategy are good examples of how science informs our world, the role of government and of testing and evaluating designed solutions to a problem. This guide contains sample answers to questions excluding those that ask students to state opinion or suggest alternatives.

The workbook can be completed using:

- The SharkSmart website (<https://www.sharksmart.nsw.gov.au/>) and embedded videos
- The NSW DPI Fisheries YouTube channel (<https://www.youtube.com/user/NSWFisheries/playlists>)
- The NSW DPI Fisheries Facebook page (<https://www.facebook.com/NSWDPIFisheries/>)
- The NSW Department of Primary Industries website (<https://www.dpi.nsw.gov.au/>)

Many of the answers to the activities will also be available on other websites as there is a lot of information published about sharks and the marine environment. This is a good exercise in online research for students, but always ensure that reputable websites are used. Check the publisher is a person or organisation with the qualifications or experience to have made the claim and, whether they have validated their claims. The ability to critically evaluate research material found online is an essential skill that students need to develop for their personal and academic development.

This workbook is a stand-alone resource and can also be used in conjunction with the **Science of the NSW Shark Management Strategy** workbook. If you choose to complete both workbooks the following sections need only be completed once as they are in both workbooks:

- Meet the Team pages 6 -8 and
- Recommendations pages 22 – 25.

## Page 4 Identifying and defining the problem

The first 25 minutes of the video **Shark Week - Shark Research Projects, Technologies and Careers in Marine Science** covers the need for and implementation of the NSW Shark management Strategy (the Strategy) and will help students complete the first question about the need for the Strategy. Link: <https://youtu.be/0Jl6HirDvrE>.

The next question asks them to think about past attempts at reducing conflict to compare this with the trials and research in the Strategy.

Answers will vary.

## Page 5 Factors to be considered in planning

Here students are asked to consider the constraints and circumstances the trials and research need to work with. The SharkSmart website and videos provides a background to the implementation and need for the Strategy, this also provides ideas about who the Strategy trials and research are designed for. Include all of the different types of water users, those involved in implementation and the financial aspects of a large-scale project like this.

For example, lets imagine that we decided the best way to protect water users from harm is to have a drone that follows every individual in the water. The drone could warn them of potential threats or assess their ability to handle different situations. But what is the cost of a program like that? How is it staffed? What about underwater users like SCUBA divers? Does every individual have a drone? Or do you have to hire one when you get to the beach? Who is going to make sure there is enough available? And we haven't even started on how that program would affect the natural environment, wildlife or the effect on people who are at the beach to enjoy the peace and quiet! Obviously, this is not a realistic option but the example gives you an idea of the sort of factors that need to be considered.

## Page 6 – 8 Meet the team

Information and videos about the SMS team is available on the Our Scientists page of the SharkSmart website. Link: <https://www.sharksmart.nsw.gov.au/our-scientists>.

The questions are to encourage student's deeper consideration of the work of the SMS.

## Page 9 - 11 Research programs and Page 12 – 19 Trials

These pages include links to the page on the SharkSmart website that will help students complete these questions. In a classroom situation this would be completed as part of a class discussion. If you are working in an online forum, a discussion thread about each of the pages would help students discuss and share ideas. If this is not possible, discuss your ideas with those around you.

Link: <https://www.sharksmart.nsw.gov.au/technology-trials-and-research>.

## Page 22 to 25 How has the research informed the SharkSmart recommendations

This content is on the SharkSmart website and also in the video Sharks: myths and facts. Link: <https://youtu.be/2LxM6mesguU>

The SharkSmart recommendations are backed by the results of the trials and research. This section asks students to comment on the evidence for each recommendation. Some examples are listed below.

- Do not rely on sightings of dolphins to indicate the absence of sharks. *Sharks and dolphins often feed together on the same food.*
- Do not swim/surf near or interfere with shark nets. *Nets are designed to entangle sharks so it's best to keep clear.*
- Avoid murky water, waters with known effluents or sewage. *The nutrient in murky water and water containing effluent may attract small fish.*

## Page 26 The future

The aim of this section is to encourage students to see how the Strategy fits in with management of the marine estate. Programs like the Shark Management Strategy need to consider others working in the same space and other projects. Again, an online discussion will help students share their thoughts and ideas. If this is not available to you discuss your ideas with those around you. Link: <https://www.marine.nsw.gov.au/marine-estate-programs/marine-estate-management-strategy>

Answers will vary.