

Case Study “Environmental change and management of the coastal environment”

Activity Sheet 8 “The impacts of plastics in our waterways”

Introduction

This activity sheet looks at the impacts of plastic on the coastal/marine environment. Given that the previous activity sheets have touched on this topic and that there is a vast array of resources about this issue, this topic provides a good opportunity to allow students to undertake research and present their findings.

The content of this activity sheet relates to the following Geographical Concepts and Skills and Geographic Knowledge:

Geographic Concepts and Skills

Data and Information

- Collect and record relevant geographical data and information, using ethical protocols, from reliable and useful primary and secondary sources.
- Select, organise and represent data and information in different forms, including by constructing special purpose maps that conform to cartographic conventions, using digital and spatial technologies as appropriate.

Geographic Knowledge

- Environmental, economic and technological factors that influence environmental change and human responses to its management.
- Causes and consequences of an environmental change, comparing examples from Australia and at least one other country.

Introductory Activity

As an overview to this issue watch and discuss one of the following clips

- Blue Planet 2 Episode 7 (view the section of this episode regarding the impact of plastics on the marine environment).
- [A Plastic Ocean](#) – available on Netflix or can be purchased. (of movie length)
- [A Plastic Tide](#) – Sky News
- [Plastic Oceans](#) – ABC TV Catalyst
- Blue The Film- see website for details

Research Report

For the purpose of this report, the impacts of plastics in our waterways can be divided up into the following broad categories (you may wish to break down the category of marine life further).

- Marine life , including whales and dolphins, sea turtles, seals, fish and crustaceans
- Birdlife
- The condition of our oceans and beaches and the impact on reef systems
- Humans, via the food chain.

Select one of the following methods to undertake and present this research report.

Option 1.

- Decide whether students will complete the research task individually or in pairs
- Either allocate the topics from the above categories to class members or allow them to choose the area to research. If it is the latter ensure that all of the above categories are covered.

The key points that could be covered in this report are

- A statement, supported by images, outlining the problem
- The extent of the problem
- An explanation of how plastics are ingested by these species or for the reef systems and beaches/oceans how plastics found their way to this environment.
- The extent to which human activity has created this specific issue
- The impacts of the problem
- The worldviews of people re plastics in our waterways and the implications this has for management
- An outline of what has been done in a bid to reduce this problem
- An outline of what could be done to further reduce this problem.

Please note that the last two points regarding strategies to reduce the impact of plastics will be covered in more detail in Activity Sheet 9 and 10. Consequently, you may choose not to include these points or include them as an introduction to the next set of tasks.

- It is important that students are able to share this information with other class members and that their presentations can be embedded into their notes. Decide on the modes of presentation that best suits your class' needs. Some options include
 - Presentation to the class which allows other class members to take notes
 - An infographic
 - Story book

- A gallery walk through

Option 2. The impacts of plastics in Port Phillip Bay

- Break the class up into small groups and allocate one of the above impact categories for them to research. Each group will be required to provide a summary of the impacts of plastics. This could be done in a similar manner as described in Option 1.
- As a class review the factors that make Port Phillip Bay a significant environmental resource (this was a task in Activity Sheet 7)
- Using the above information make a list of the key impacts that plastics may have on the Port Phillip Bay environment.
- Using the knowledge obtained from the above research and from the content contained in Activity Sheet 7 students are to prepare a report that discusses the impacts of plastics to the Port Phillip Bay environment.
Decide if this report could focus on a specific issue, such as the categories listed above, or covers the broad issues. The structure of the report could be similar to that listed in Option 1.

Guest speakers from Baykeeper and Polperro are available to provide information about the environmental significance of Port Phillip Bay and the impact that plastics could have on this environment. Please visit their websites for contact details.

Option 3. Fieldwork Report

Depending on your research question and hypothesis the content in Option 2 could be manipulated and used to form part of your Fieldwork Report. For example, your research question could be “What is the amount and composition of plastics entering Port Phillip Bay and what impacts could this have on this environment?” Whilst your hypothesis could be “that unless the amount of plastic entering Port Phillip Bay is reduced the environment of Port Phillip Bay will be harmed”.

If you pursue this option it is highly recommended that you look at the fieldwork activities that Baykeeper and Polperro can offer. These are found in the Fieldwork Activities section of this site.