



**MICROPLASTICS AND
AUSTRALIAN SEAFOOD**

What makes Australian seafood so safe (and delicious to eat?)

WORKSHEET

YEAR 7-8

This resource has been developed by:



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Contents

Worksheet	Page 3
Answers	Page 7
References	Page 7

Microplastics in Australian Seafood

Microplastics are small plastic particles less than five millimetres in size. These particles can form when larger plastic objects break down. While microplastics can be found in marine ecosystems worldwide, Australian seafood has some of the lowest levels of microplastic contamination in the world. This is a testament to the relatively clean waters around Australia.

Understanding Microplastics in Australian Seafood

Research has shown that the average Australian fish has fewer microplastics compared to fish from other parts of the world. For example, a study found that the average number of microplastic pieces in fish from Australian markets is less than one piece per fish. This highlights the high quality and safety of Australian seafood.

Reducing Microplastic Pollution

Despite the low levels of microplastics in Australian seafood, it is still important to reduce the amount of plastic entering our waterways. By reducing plastic pollution, we can ensure that our marine environments remain healthy and that our seafood continues to be safe and of high quality.



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Scan the QR codes or click on the link to learn about the effects of microplastics on the seafood industry.

Record your answers to the questions in the spaces below.



▶ **What Are The Effects Of Microplastics On Our Seafood?**

(1:41)

<https://www.youtube.com/watch?v=q7kix9yC-x8>

Image credit: FRDC



a) What is the suggested course of action mentioned in the video regarding microplastics and seafood?

1. Continue plastic usage as usual
2. Monitor the effects on a broader scale
3. Act now to reduce plastic use and protect seafood
4. Conduct more laboratory studies

b) What are the effects of microplastics on marine life observed in laboratory settings?

c) Why is it challenging to determine the extent of these effects on the broader population of marine life?

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Read the descriptions of feeding relationships in a healthy marine ecosystem and underline the relationships showing energy transfer between organisms.

Phytoplankton: These microscopic, photosynthetic organisms form the foundation of the food web. They are producers, meaning they harness energy from the sun and are consumed by herbivorous organisms.



Small Fish: Small fish, including anchovies and sardines, feed on phytoplankton. They are primary consumers in the food web.



Oysters: Oysters are filter feeders and consume phytoplankton. They filter water through their gills, extracting food particles and nutrients.



Crustaceans: Prawns and crabs are omnivorous and may feed on phytoplankton and small fish such as anchovies or sardines.



Larger Fish: Predatory fish species like snapper and flathead feed on smaller fish, crustaceans, and occasionally oysters when available.



Apex Predators: Apex predators like sharks sit at the top of the food web and feed on various marine species, including smaller and larger fish.



Decomposers: Decomposers, such as bacteria, play a crucial role in breaking down organic matter, such as dead organisms and sea grasses and recycling nutrients in the ecosystem.



Humans: Humans are predators in marine ecosystems, harvesting different aquatic species such as mussels and prawns, as well as small fish (sardines, anchovies, etc.) and large fish (snapper, flathead, etc.) for distribution to consumers.



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Image credit: FRDC

Use arrows to show the transfer of energy between the organisms in a marine food web diagram.



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Marine ecosystems are made up of complex food webs in which every living thing has an important role. If one part is removed or impacted, it can lead to unwanted changes in the health and dynamics of these ecosystems. Microplastics can significantly impact marine food webs, disrupting their delicate balance and functioning.

Interpret the marine food web to respond to the scenario cards below. Record your answers in a workbook.



Scenario One: Food Webs and Microplastics

Marine animals can be harmed by microplastics, which can disrupt their ability to reproduce and grow. When microplastics are ingested, they can cause internal damage and change hormone levels, leading to changes in reproductive patterns.

Imagine if the reproductive patterns of crustaceans changed due to microplastics, leading to reduced numbers of crabs and prawns in the ecosystem.

- Explain how this would affect the ecosystem and a specific food chain within this food web.



Scenario Two: Microplastics and Aussie Seafood

Microplastics have the potential to affect the abundance and distribution of marine species in a food chain. If microplastics impact key species in the seafood industry, it can change catch rates and availability of commercially valuable species. This could cause disruptions in fisheries and require changes in fishing practices.

Imagine that the low levels of microplastics in Australian seafood become widely recognised globally. This unique quality positions Australian seafood as a premium product in international markets.

- Explain how the low levels of microplastics in Australian seafood could benefit its competitive position in the global market.

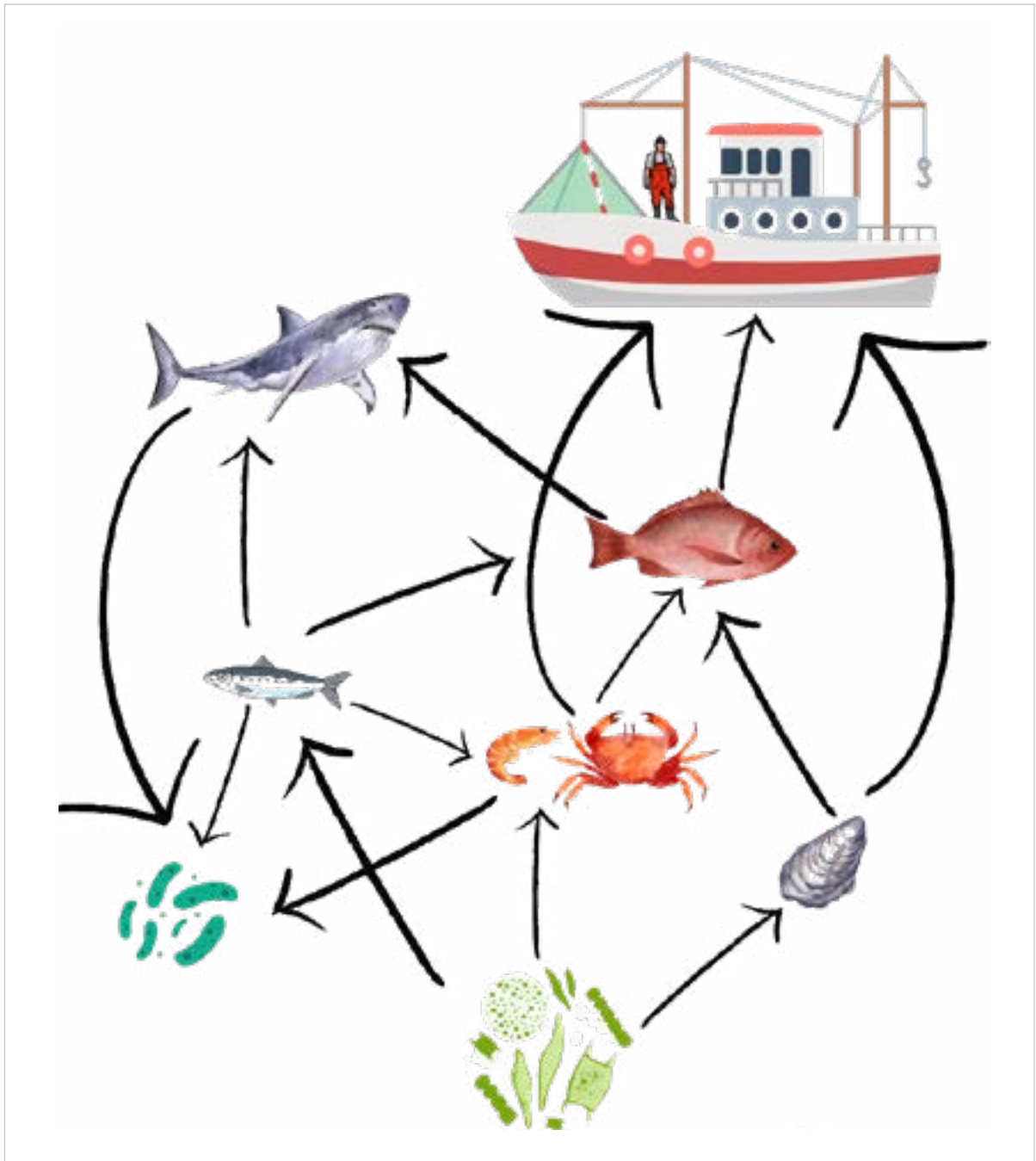


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Answers

- a) 3
- b) Suggested answers include: microplastics caused changes in hormone levels, reproduction, behaviour, growth, and sometimes even death.
- c) Suggested answers include: A: Most laboratory studies tested levels of microplastics much higher than what is currently found in our marine environment.

d)



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AUSTRALIAN CURRICULUM CONTENT

Year 5-6

Analyse how people in design and technologies occupations consider ethical and sustainability factors to design and produce products, services and environments (**AC9TDE8K01**)

Analyse the impact of innovation and the development of technologies on designed solutions for global preferred futures (**AC9TDE8K02**)

Use models, including food webs, to represent matter and energy flow in ecosystems and predict the impact of changing abiotic and biotic factors on populations (**AC9S7U02**)

References

- Fisheries Research and Development Corporation. (2023). What are the effects of microplastics on our seafood? In [www.youtube.com https://www.youtube.com/watch?v=q7kix9yC-x8](https://www.youtube.com/watch?v=q7kix9yC-x8)

ATTRIBUTION, CREDIT & SHARING



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