TASMANIAN SEAFOOD
WE ARE INNOVATORS

Innovation and Technology
in the seafood industry

WORKSHEET

YEAR 9-10

Contents

Technology and innovation allow Australia's seafood industry to increase profitability and productivity, make production more sustainable, workplaces safer, and meet the challenges and problems that arise within the industry.

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Scan the QR code or click on the link to learn about the impacts of innovation in Tasmania's seafood industry.

Record your answers to the questions in the spaces below.

> **Tasmanian Seafood We Are Innovators**
> (4:49)
> **https://www.youtube.com/watch?v=OhirKQqQwmI**
>
> *Image credit: FRDC*

a) Circle the correct answer to show the innovative technology that was used to track abalone fishing patterns.

    1. Mobile phones with tracking apps.

    2. Depth sensors attached to abalones.

    3. Dive loggers and GPS trackers.

    4. Satellite imagery.

b) Describe how this technology improves the sustainability of abalone fishing.

c) Explain some of the considerations that needed to be addressed when designing the Dive Logger and GPS Tracker (e.g., what conditions would the technology be used in? What organism was it aiming to track? etc.)

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Social sustainability in Australia's seafood industry ensures fair treatment of workers and communities. Environmental sustainability protects marine ecosystems and biodiversity. Economic sustainability ensures long-term profitability and growth. People working in Australia's seafood industry work hard to ensure all three tiers of sustainability are addressed to ensure the health and future of the industry.

Read the seafood sustainability scenario challenge below and consider how technology or innovation could be used to address this concern.
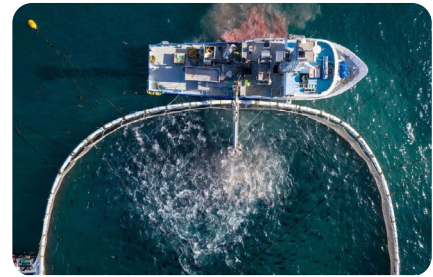

Image credit: FRDC

Southern Rock Lobsters are a highly sought-after and economically significant species in Australia's seafood industry, particularly in regions such as South Australia, Victoria, and Tasmania. They are a culinary delicacy and an essential part of the marine ecosystem food web, where they influence the populations of other marine organisms.

Sustainable fishing practices are essential to ensure the long-term health of these lobsters and maintain the balance of the marine ecosystem. However, existing methods for tracking and monitoring populations are limited and may not always provide accurate data.

The Challenge

Design a technology that could be used to track and monitor Southern Rock Lobster populations to meet the needs of the seafood industry and the environment. Read the information below to learn about the current challenges faced when monitoring and tracking Southern Rock Lobsters. Include features in your design that address each of these considerations.

- Unlike many fish species that have specific migratory patterns or territories, Southern Rock Lobsters often roam freely across the ocean floor. They do not stay in one area, making it difficult to predict their movements.

- Southern Rock Lobsters inhabit rocky crevices, coral reefs, and other complex underwater habitats. This makes it challenging for traditional tracking methods to monitor their populations effectively.

- The technology used in marine environments needs to be able to withstand high pressure due to water depth, exposure to salt, and resistance to rust to be effective over long periods of time.

- Southern Rock Lobsters are primarily nocturnal, coming out of their hiding places at night to forage. This behaviour can make them challenging to observe.

- Gathering accurate and consistent data on Southern Rock Lobster populations is challenging due to their behaviour and habitat preferences. This lack of data makes it difficult to estimate population sizes and develop sustainable fishing practices.

d) Draw and label your design in the space below.
Highlight the features of the design that address the current challenges identified above.

Name of technology: _____

Explain how your design meets the needs of the seafood industry and the environment.

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Answers

a)   3

b)   Suggested answers include: this technology improves the sustainability of abalone fishing by providing accurate tracking data, monitoring fishing pressure, assessing habitat health, and supporting adaptive management strategies. These technological advancements help ensure that abalone fisheries are managed in a way that maintains healthy populations while minimising environmental impacts.

c)   Suggested answers include: consideration of environmental conditions, tracking range, battery life, size and weight, attachment method, and data storage and retrieval capabilities.

d)   Student answers will vary.

AUSTRALIAN CURRICULUM CONTENT

Design and Technologies Year 9-10

Analyse how people in design and technologies occupations consider ethical, security and sustainability factors to innovate and improve products, services and environment **(AC9TDE10K01)**

Analyse the impact of innovation, enterprise and emerging technologies on designed solutions for global preferred futures **(AC9TDE10K02)**

Analyse and make judgements on the ethical, secure and sustainable production and marketing of food and fibre enterprises **(AC9TDE10K04)**

References

> Tasmanian Seafood Industry Council. (2022). Tasmanian Seafood We Are Innovators.
> In www.youtube.com **https://www.youtube.com/watch?v=OhirKQqQwmI**

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