



PROGRAMME TITLE	Monster Fish
SCHOOL LEVEL	Junior Secondary Senior Secondary

EDUCATION DESCRIPTION

The giant eel is reputedly a massive, flesh-eating, wall-climbing, air-absorbing, snakelike fish that can attack like a crocodile and live up to 100 years. Zeb Hogan travels the world to study and protect the planet's largest freshwater fish. Hogan is searching for two of the world's largest eel species in a bid to separate fact from fiction. First, Zeb travels to New Zealand, meeting biologists and fishermen as he hunts for the New Zealand long-fin eel. He fishes with indigenous Maori, who use a traditional technique to lure the legendary monster. Along the way he learns some fascinating facts and discovers disturbing news about these freshwater leviathans. Then, in the Solomon Islands, he travels to remote villages to look for the elusive giant mottled eel.

TEACHER BACKGROUND INFORMATION

According to Maori mythology, the long fin eel is an important symbol and spiritual guardian of rivers. Zeb Hogan wants to find out if mythological giant eels really exist, and in so doing discovers the remarkable facts about these mysterious creatures.

The New Zealand long fin eel is a large freshwater predator. Starting life thousands of kilometres away, young elvers swim across the Pacific Ocean to New Zealand's rivers before dispersing throughout the country where they've been found in almost every type of waterway.

Eels are nocturnal, emerging at night to prowl the waters in search of food. Using two tube-shaped nostrils as eyes, they probe the darkness, sniffing prey more than 100 metres away. Their bodies are a long series of muscles, covered with tiny scales that help detect movement. Long fins grab prey with their teeth and tear flesh from the carcass by yanking their heads, or rapidly rolling their body like a crocodile.

Incredibly, the long fin eel can slither across the land like a snake to find other sources of food or water. Secreting a layer of slime to cover the skin helps protect eels on land, where they can survive for 48 hours, as long as the skin is moist.

Through his New Zealand travels, Zeb learns that dam construction, overfishing and habitat destruction have seriously impacted New Zealand long fins and prevented most of them from growing to their legendary giant size.

Pursuing his goal to find a giant eel, Zeb heads to the remote village of Mbiche in the Solomon Islands. Here he finds a community of 100 people who share a deep relationship with their natural environment. In their culture, eels are a totem, protecting them and the streams. Zeb finally finds a “monster” eel and discovers that, in order to survive, it's the eels themselves that need protection.

CURRICULUM POINTERS

Junior Secondary Curriculum

Science provides an empirical way of answering interesting questions about the biological, physical and technological world. The knowledge it produces has proved to be a reliable basis for action in our personal, social and economic lives. Science is a dynamic, collaborative and creative human endeavour arising from our curiosity and interest in making sense of our world through exploring the unknown, investigating universal mysteries, making predictions and solving problems.

Australian Science K-10 Curriculum 2010: Rationale

Senior Secondary Curriculum

The senior secondary Biology curriculum examines the development and latest applications of biological knowledge in ways which are relevant to students' everyday lives, and which enable them to solve problems and make evidence-based decisions related to present and future challenges. Biology encompasses many specialisations and interdisciplinary fields to explore how life exists, evolves and survives. It spans many organisational levels, from the functioning of whole organisms and their interrelationships, to the nature of cells and macromolecular systems.

Australian Biology Curriculum 2010: Rationale

CURRICULUM OUTCOMES

Junior Secondary

In undertaking these tasks, students of Science will:

- *Develop an interest in science and a curiosity and willingness to explore, ask questions and speculate about the changing world in which they live*
- *Develop an ability to communicate their scientific understandings and findings to a range of audiences, to justify their own ideas on the basis of evidence, and to evaluate and debate scientific arguments and claims whilst respecting alternative viewpoints and beliefs*
- *Develop an ability to solve problems and make informed, evidence-based decisions about current and future applications of science while taking into account moral, ethical and social implications*

Australian Science K-10 Curriculum 2010: Aims

Senior Secondary

In undertaking these tasks, students of Biology will:

- *Draw on their curiosity and willingness to speculate about and explore the world to expand their interest in biology*
- *Engage in communication of and about biology, value evidence and scepticism, and evaluate critically the scientific claims made by others*
- *Solve problems, and make informed, responsible and ethical decisions when considering local and global issues and applications of biological concepts, techniques and technologies in daily life*
- *Develop in-depth knowledge, understanding, skills and scientific values relating to biology*

Australian Biology Curriculum 2010: Aims

STUDENT LEARNING TASKS

Junior Secondary

Task 1

Download a map of New Zealand from

[http:// travel.nationalgeographic.com/travel/countries/new-zealand-map/](http://travel.nationalgeographic.com/travel/countries/new-zealand-map/)

Save the map to your files, or print it and paste it into your workbook.

Go back to the website and use the zoom toggle so you can find the following long fin eel habitats and highlight them on your downloaded map:

- Whanganui River (North Island)
- Nga Manu nature reserve (Slightly NW of Waikanae, North Island)
- Waikato River
- Lake Rotoiti, a glacier-fed lake near Blenheim on the South Island

Task 2

Draw a diagram to show the life cycle of a female New Zealand long fin eel. In your diagram include the following information:

- Geographical location at each stage of life
- How much time is spent in or near this location
- The age of the eel at each stage of life
- The size of the eel at each stage of life
- Three things that might happen during the eel's life to prevent it from reaching maturity

Task 3

Choose five of the New Zealand long fin eel's survival adaptations. Write a paragraph about each one, explaining what the adaptation is and how it helps the eel survive.

Task 4

It has become very difficult to find New Zealand long fin eels at their maximum size and weight. What are three reasons for this, and what can be done to alleviate each of these problems?

Task 5

Write 500 words to describe how the mottled eel is able to survive so well in Mbiche village in the Solomon Islands.

Senior Secondary

Task 1

Write 200 words to describe how eels catch their prey.

Task 2

The New Zealand long fin eel population has declined dramatically in the past few decades. Choose four reasons for this decline and write a paragraph about each to explain the part it has played in reducing eel numbers.

Task 3

New Zealand long fin eels begin their lives as larvae in the Pacific Ocean. Draw a diagram that shows where and how the eels get to New Zealand waterways, and write a sentence each about six survival challenges they face along the way.

Task 4

Write 300 words to explain how New Zealand's hydroelectric industry has impacted the long fin eels and what steps have been taken to try to address the impact.

Task 5

In 500 words, compare and contrast the state of the long fin eel in the Whanganui River area of New Zealand with the mottled eel in Mbiche village in the Solomon Islands. In your answer refer to historical, political, geographical, economic and cultural factors that have contributed to the different locations.