**ACTIVITY: Saving taonga**

**Activity idea**

In this activity, students explore the worlds of eels and/or whitebait. They learn about their patterns of behaviour and how human activity has impacted on their lives. Students learn about the obstacles these taonga have and about possible solutions (mitigation) for these problems.

By the end of this activity, students should be able to:

* describe the life cycle and some behaviour patterns of eels and/or whitebait
* describe how human activity has impacted the life of eels/whitebait
* present some practical solutions that might help to re-establish populations of eels/whitebait.

[Introduction/background notes](#Introduction)

[What you need](#need)

[What to do](#Do)

Student handout: [Uira River](#handout)

**Introduction/background**

Both eels and whitebait are considered taonga by tangata whenua. Taonga are treasures. River taonga are treasured kai species. In the Huntly area (known as Rāhui Pōkeka), tuna (eels) were considered a food for royalty because it was food the king and dignitaries would eat. The iwi in Rāhui Pōkeka had a lot of mana (prestige and power) because they were the suppliers of this kai. Whitebait was also a special food – plentiful in the lower Waikato River and a staple part of iwi diet.

In the lower parts of the Waikato River today, there has been a significant decline in both eels and whitebait.

In this activity, students explore the world of eels and/or whitebait. They learn about their patterns of behaviour and how human activity has impacted on their lives. Students learn about the obstacles these taonga have and about possible solutions (mitigation) for these problems.

Students identify some problems eels and whitebait might encounter in the picture – [Uira River](#handout) (Sparkle River). Students then suggest some changes that could be made to improve survival rates for eels and whitebait.

Problems students may identify on Uira River:

* Overfishing of eels – encouraged by commercial fishing (factory).
* Overfishing of whitebait – many stands on the river.
* Culvert – hinders whitebait from getting to areas to lay eggs and eels from migrating into tributaries.
* Dam – hinders eel migration.
* Floodgates – hinders whitebait from getting to places to lay eggs and eels from their migration inland.
* Wetland drainage – cuts off habitat areas for whitebait and eels.
* Reduced habitat (clearance due to factory, stands, baches and so on).
* Livestock trampling (from unfenced farming area) and lack of riparian shade kills whitebait eggs.
* Waste/effluent from factory, mine and whitebait baches contributing to water pollution – reduces oxygen in water so eels and whitebait can’t live there.
* Toxins in the water from tailings – reduces oxygen.
* Excessive nutrients from farming may enter the river – reduces oxygen and may cause eutrophication in backwater areas, killing off eels and whitebait or causing them to leave the area.
* Introduced species – koi carp – compete for resources and eat juvenile eels and whitebait.
* Introduced sweet reed grass may damage (cut) whitebait trying to lay eggs.
* Exotic willow (replacing native trees and usurping resources) has become eel habitat, making it difficult to remove.

**What you need**

* Access to articles/clips on eels:
* [Tuna – working with glass eels](https://www.sciencelearn.org.nz/resources/423-tuna-working-with-glass-eels)
* [Longfin eels](https://www.sciencelearn.org.nz/resources/441-longfin-eels)
* [Human impact on rivers](https://www.sciencelearn.org.nz/resources/440-human-impact-on-rivers)
* [Huntly Power Station](https://www.sciencelearn.org.nz/resources/422-huntly-power-station)
* [Waikato River ecology and biodiversity](https://www.sciencelearn.org.nz/resources/445-waikato-river-ecology-and-biodiversity)
* [The life cycle of eels](https://www.sciencelearn.org.nz/videos/211-the-life-cycle-of-eels)
* [Glass eel research](https://www.sciencelearn.org.nz/videos/210-glass-eel-research)
* Access to articles/clips on whitebait:
* [Whitebait](https://www.sciencelearn.org.nz/resources/442-whitebait)
* [Whitebaiting](https://www.sciencelearn.org.nz/resources/425-whitebaiting)
* [Human impact on rivers](https://www.sciencelearn.org.nz/resources/440-human-impact-on-rivers)
* [Waikato River ecology and biodiversity](https://www.sciencelearn.org.nz/resources/445-waikato-river-ecology-and-biodiversity)
* [Īnanga and other whitebait](https://www.sciencelearn.org.nz/videos/215-inanga-and-other-whitebait)
* [Culverts, ramps and baffles](https://www.sciencelearn.org.nz/videos/216-culverts-ramps-and-baffles)
* Copies of the student handout: [Uira River](#handout)

**What to do**

1. Choose whether the students will focus on eels or whitebait. Discuss as a class/group what you know about eel/whitebait life and migration. The discussion could focus on what eels/whitebait need to survive, life cycles, migration patterns and what dangers they might face along the way. Use the articles/clips listed in [What you need](#need) for research.
2. As a class, brainstorm and make a list of important needs for eels/whitebait to survive and then the possible dangers that may hinder this.
3. Hand out copies of the student handout [Uira River](#handout) and have students work in pairs to identify all the dangers and obstacles for eels/whitebait and circle the danger spots.
4. In pairs, have students discuss and suggest ideas that could be implemented on or around the river to help restore the eel/whitebait population. Draw them in the picture.
5. Have students explain their restoration plans to another pair or to the class.
6. These ideas could be used as a basis for a role-play:
* In groups, students make a list of 5–10 possible river problems and list ideas for solutions to these problems.
* Students could role-play from the perspective of the eel/whitebait having to negotiate the river (students use their imagination to replicate a river and the obstacles – with some solutions) or they could be environmental scientists and iwi discussing the problems and suggesting solutions in a hui.
* Role-play activities could be presented to the class or other classes.

