

New Zealand Marine Studies Centre - Aquavan



NZ Marine Studies Centre (NZMSC, www.marine.ac.nz) is based in Portobello, Dunedin and offers around 30 different programmes for ākonga from ECE to year 13. Programme content focuses on marine biology, scientific experiments and exploring the relationship and connection ākonga have with their local environment. NZMSC holds relationships with Kāti Huirapa Rūnaka ki Puketeraki and Ōtākou Rūnaka, who provide input into some of the programmes as well as resources developed to support the delivery.

Aquavan

The Aquavan travels to inland communities, removing the transport costs which can be a barrier to access for rural schools in the south of Aotearoa New Zealand. Teaching about *the interconnectedness of our water systems*, the Aquavan programme builds awareness and understanding of the connectivity between river health and the coastal environment. It uses live marine species, a 3-D catchment-model, science equipment, hands-on investigation through the ‘touch tank’ and field studies.

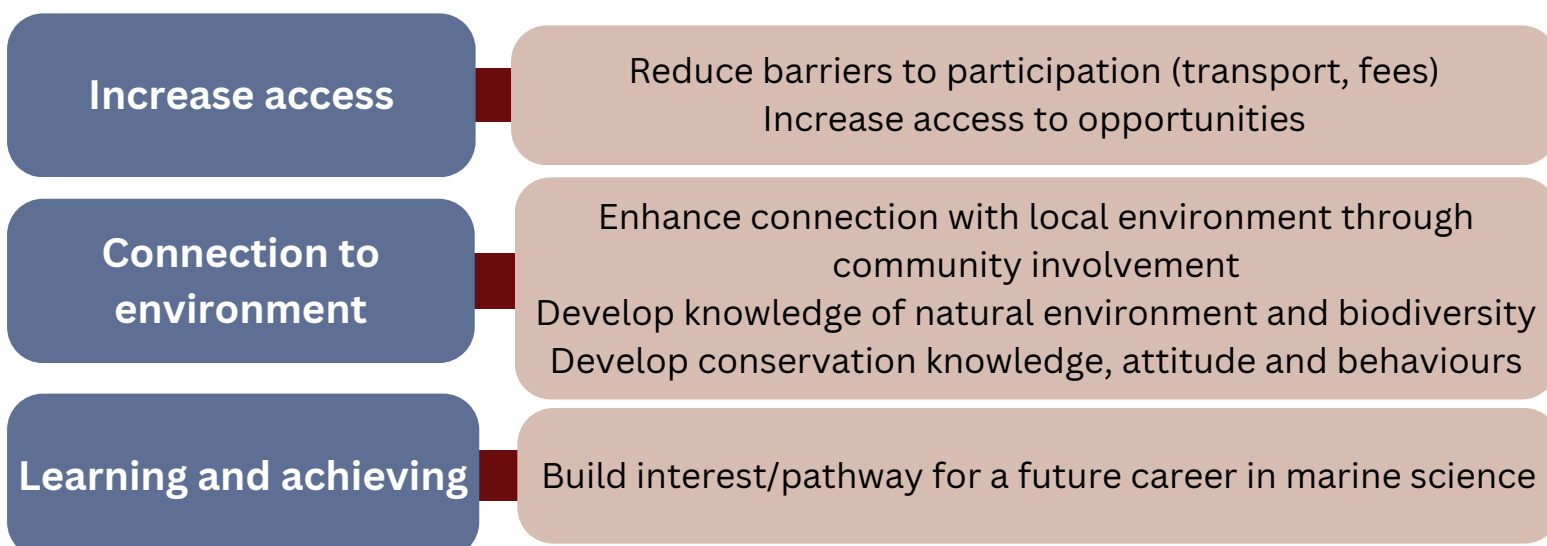
Running for one to two hours, the programme immerses students in science. Through hands-on activities, they learn how scientists monitor the health of our coastal communities, discover what happens when the river meets the sea and how sediment in the water affects the animals and plants that live there. Students learn what a catchment is and how waterways are interconnected. They encounter live marine animals and investigate how they move, breathe, feed and reproduce. Using a catchment model, they simulate how pollutants get into our coastal waters and how we can minimise human impact on the coastal environment.

Challenges to delivery over the past six months include:

- Access to co-funding, requiring schools to contribute through programme fees
- Staff turnover due to lack of security with contract funding
- Difficulty attracting specialised teaching staff fluent in te reo Māori.

Key Outcome areas

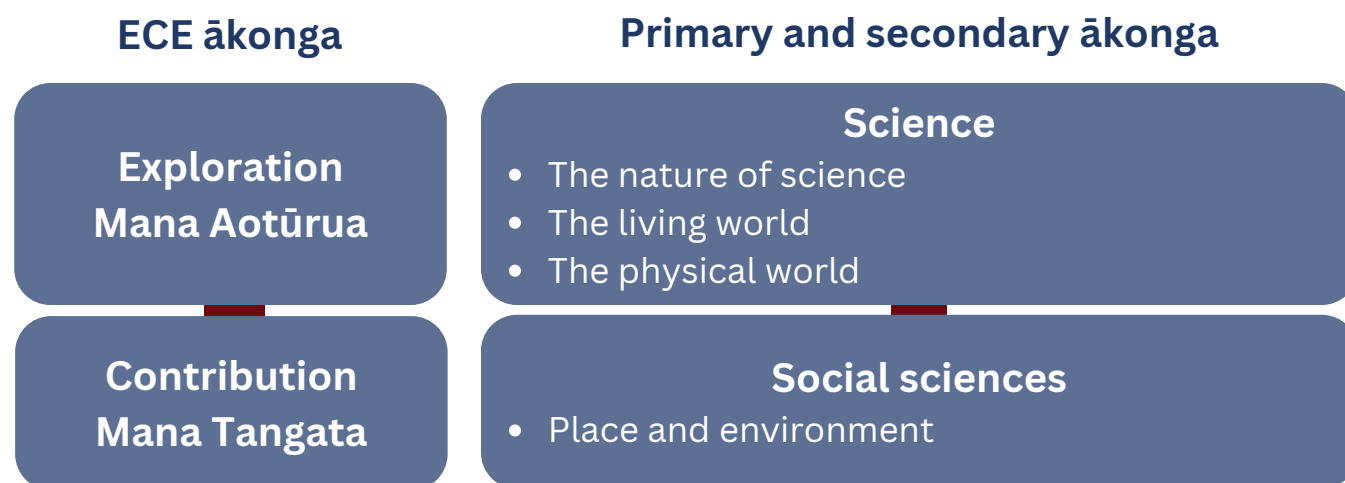
The Ministry of Education outline several outcome areas for ELC. Below is a snapshot of how the Aquavan contributes to some of the key outcomes.



Curriculum learning areas

NZMSC staff includes qualified ECE/Primary and secondary educators. Staff review the learning areas in the New Zealand Curriculum to adjust the programme to each age group. For younger groups, they deliver with simplified language and more play aspects.

In their reporting, ELC providers indicate which curriculum learning areas are covered by their programmes.



Cost barriers - Working with catchment groups

Identified challenge

The Aquavan is a bespoke vehicle capable of ethically transporting marine creatures in recirculatory seawater tanks. The costs associated with the vehicle running and maintenance, staff time and travel are significant, and require a day of setting up and a day of packing down the van for each trip.

Identified solution

NZMSC work in partnership with community-based organisations like catchment groups to support the delivery of the Aquavan programme to multiple schools and the wider community in the same region over a week to reduce costs associated with staffing and travel. If schools cannot afford the remaining cost, the catchment group applies to other funding sources to minimise or fully cover the cost.

If we partner with groups, like catchment groups or other groups working in that area or farmer-led groups, we can draw on their expertise, but also directly to things that are happening on the farm or in the communities to help their waterways and we talked about how it links to the ocean, to the community.
(Educator)

Delivering the programme

Increase access

The distance to the sea and the cost of field trips often limit the opportunities for inland schools to visit the coast. Similarly, many schools are unable to travel to NZMSC, located 30-minutes from Dunedin city centre, due to the rising cost of bus transport. Beyond cost, field trips pose additional logistical challenges including Risk Assessment and Management System forms, parental permission, bus reservations, and meeting adult to student ratios. NZMSC minimises the barriers to access by bringing the marine environment to ākonga. More schools can be reached and more ākonga can take part as numbers aren't limited by bus seats.

Catchment groups work with schools and apply for additional funding if the Aquavan cost is out of reach. This takes pressure off schools to source extra funding. Depending on the need of the school, the programme will be partially or fully subsidised by additional funding.

Connection to environment

A key focus for the Aquavan programme is helping ākonga understand that water travels from mountains to sea and recognising that what they see is only part of their local catchment. The Aquavan facilitates engagement with coastal marine species, which is especially important for ākonga from inland schools who may not have had as many opportunities to experience the coastline. The programme inspires ākonga to take part in real life environmental action. By working alongside catchment groups, the programme incorporates local knowledge of environmental issues to make the content more relevant to ākonga and provide opportunity for them to get involved in local restoration projects.

Learning and achieving

The Aquavan programme *demystifies science* and empowers ākonga to complete their own scientific experiments. For older students, one part of the Aquavan programme mirrors government decision making by discussing investment in the health of waterways. The NZ Marine Studies Centre monitors their influence on student pathways through a survey of first-year university students asking if they had ever participated in their programmes.

Supporting ongoing learning

NZMSC provides workbooks and resources in English and te reo Māori. Developed alongside kā Rūnaka and with support from other funding, the resource books include the Kāi Tahu kupu for each marine species, from pāua to pāpaka. Ākonga could access these to further support their learning after the programme.

Catchment groups provide an ongoing learning opportunity for ākonga to participate in their local community through environmental action.

Ākonga

Many ākonga spoke about the touch tank being a highlight because of the hands-on learning. At the question session, ākonga began to ask questions about other aspects of marine studies, suggesting the Aquavan had sparked their interest.

Tēnā koe mō tēnei experience mō ngā sea creatures. He pai te āhua. He pai ki te kite ngā mea hou kāore kua kite au. (Ākonga)

Teachers

One kaiako felt the seeing, touching and feeling aspects supported the learning ākonga were doing in the classroom about hauora '*mēna kāore he pai te wai, kāore he pai te ahua, te ao ngā kararehe e noho ana ki te rāua*'.

Another kaiako felt whānau were engaged with their students learning and noted that parents were coming out of their cars after school to discover what their ākonga had learnt, which typically wouldn't occur.

Future development

NZ Marine Studies Centre has connected with University of Otago students to further develop their programmes. One student will be examining the appropriateness of their programmes from a Pacific perspective, while the other will be helping to develop an Aquavan programme for secondary students. Future development of resources will include the te reo Māori and English names for marine species in the same resource, increasing the exposure of all ākonga to te reo Māori kupu.