

"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has."

Whakapono We believe
Mahi Tahī We work together as one
Whanaungatanga We belong
Kaha Tahī We are stronger together
Whakaroto We serve



Kaitiaki - Guardians Of Tomorrow

Waka Tuāone



Overview

Wellington Harbour with its coastlines, islands, rivers, hills, and history offer many unique experiences for young people, this is particularly the case in Worser Bay.

The aim of these projects is to create a unique, community based and sustainable corner of the world through creating areas where inter-generations of people work with and learn from nature. The project includes raising awareness of issues impacting the environment upon which we all depend, as well as actions we can take to improve and sustain it.

These projects offer a unique journey, through exploration, discovery and connections with the community and environment local students will experience how to make decisions, take action to improve the physical and social environment of our places, our community and our world.

By doing so we will develop a blueprint to inspire other schools and communities to create their own projects throughout New Zealand. We want to show the youth of today how small changes can make a big difference.





Penguin Habitat

- Wellington's Korora is in a decline as a result of predation, habitat loss and human disturbance.
- They are the smallest penguin in the world
- They are classified as "at risk"
- The average lifespan of a Korora is 6 years but some can live up to 20 years
- They can travel up to 100km per day when foraging for food to feed hungry chicks

The penguin habit will be located at the northern end of the Worser Bay Sailing Club. We would like to install between 6-8 penguin hotels that will act as nesting areas. These will be built into the new retaining wall along the car park area.



Creating a project like this offers plenty of research options. We would like to connect with the University of Wellington Te Papa and Niwa to investigate research projects such as

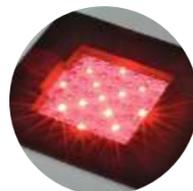
- Micro chipping to identify penguins
- Weighing chicks to monitor growth
- Keep records on breeding success rates
- Effects of severe storms
- Attaching miniature satellite loggers to study at sea behavior
- Impact of predator-free Miramar trapping
- Natural nest vs nest boxes



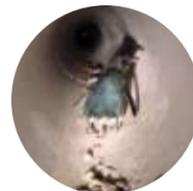
The idea behind this project is to reverse the population decline of little blue penguins in Wellington. The project promotes conservation and improves, restores and conserves coastal habits for penguins around the Worser Bay area.



In one of these nesting boxes, we will install a webcam so that you can observe the little blue penguin through 24/7 live streaming. In another nest, we are looking at ways to develop a telescope viewing option so members of the public can see the Korora nesting without disturbance. Currently, we are looking at the use off grid power solutions to run a webcam for 24/7 live streaming/sensors and infra-red light.



We have been exploring ideas about designs for the nest boxes and entrances, focusing on protection, what they could be made of so that they last and we can access the nest in case we need encounter technically difficulties.



At the start of next year, we will experiment with wind power by installing a small wind generator at the northern end of the sailing club. We are exploring ideas around solar paneling, If we obtain permission, we will set a water generator in the front of the sailing club see if there is enough current to generate enough power to run the technical equipment.



We are currently working with Places for Penguins, Niwa and Forest and Bird who are mentoring us through project. They have been proving expert advice on our ideas and have connected us with other experts around the country.



Through our research we discovered that the population of little penguin has been declining in areas not protected from predators. Where predator control is in place, populations have been stable or increasing. Our first priority to make this project a success is to help make the area predator free. We have been working with Predator Free Miramar learning about tracking predators, Trapping, trap lines and 1080. We are currently making traps to put out in Worser bay and surrounding areas and will have 30 tracking tunnels that we brought as an enterprise project by WHS papa toio group

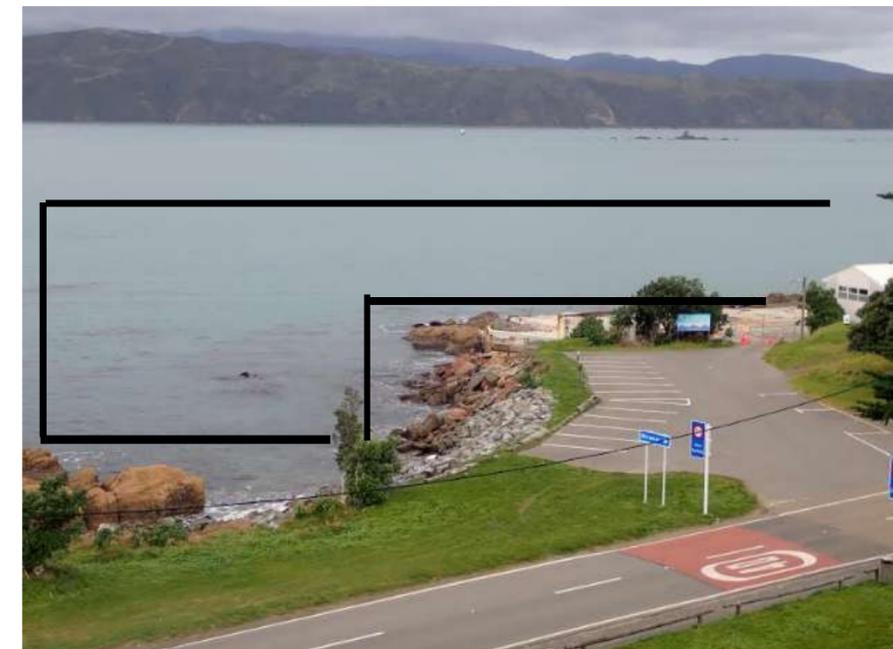




Interactive Snorkel Trail

There are over 180 fish species in Wellington Harbour.
Wellington Harbour is rich in invertebrates such as octopus, rock lobsters, crabs and starfish.
There are over 400 seaweed species in Wellington Harbour.
We have explored less than 5% of the ocean.

We want to experience the wonders beneath the water. Our plan is to create an interactive snorkel trail around the rocks and ocean floors surrounding the new Worser Bay Sailing club we are planning to develop an interactive snorkel trail, using modern technology to create an amazing underwater experience. Snorkelers will be lead using underwater devices through a variety of seabed habits. There will be games, challenges, and educational opportunities as you are looking at different marine creatures, seaweeds, and sculptures. We have met with dive wellington and Niwa who will provide expert advice on the best snorkel route to ensure the is no chance of accidental damage to the ecosystem we are trying to protect.



Using the underwater tablet there are many applications we will be developing

- Staff will be able to track and communicate with students while in the water creating a safer environment
- Underwater photography
- Movie making
- Using 360 degree cameras to create a virtual reality that allows us to view the underwater world in any direction
- Using the Aurasma app you will be able to take a photo of a star fish, in one second information can pop up on the screen and tell information about its name, what they eat, how long they live for and what predators they have.
- Underwater navigation and mapping. One of the projects we are working on is creating an underwater sculpture garden. This technology will help us map the rocks and seaweed and help make the best decisions about where to place statues and underwater signs
- Habitat mapping In the rocks sand and seaweed there are paua, crabs, crayfish, octopus sea horses and many more marine creatures.



Partners
We have met with staff from Samsung who are interested in helping make this project happen. We are receiving some trail tablets that we can experiment with this year. We have been invited to present our idea to the Samsung in Auckland. We hope to partner with them looking at how the tablets can be used for educational purposes. There has been talk of a case study done on the whole project that they would use in their worldwide marketing program.

We are working with Steves Fishing to help with this project. Steve is a local with a huge experience in fish and local currents in the Worser Bay and surrounding areas. Steve is working with students to create feeding berley bait dispensers. These bait dispensers will be placed up current, they will slowly release fish food that will float down through the snorkel and sculpture trail. This will enhance the snorkeling experience as it will attract more fish and marine life to the area. It is also hoped that with more fish it will attract the little blue penguin increasing the chance they will discover the penguin habitat nesting boxes.

There are also multi uses for the tablets out of the water. We can create an amazing race around the Worser Bay, Seatoun and Breaker Bay area when students can learn about the history of the area in a fun ,innovative and creative way.

Digital technology and hardware are improving at a rapid pace and cost is reducing accordingly. We aim to constantly monitor these developments and to best utilise the improvements.





Underwater Sculpture Garden

The underwater sculpture garden will consist of a number of different sculptures placed at carefully selected areas surrounding the northern end of the Sailing club. These sculptures are essentially artificial reefs, eventually becoming an integral part of the local ecosystem. Each sculpture will have its own message educating the community about current environmental issues related to the ocean.



How amazing would it be if Weta Workshop made a Taniwha. As you snorkel pass the seaweed bed the current moves the seaweed to the side you look down and see the Taniwha i looking at you. This instantly connects you with the local Maori history and how the harbour was formed



Each artwork is brought alive with the biological marine life that attaches to it. The various forms of ocean life complete the sculptures, transforming them from concrete to textured, living organisms.

The sculptures are individually designed to create homes, breeding areas and protective spaces. These permanent structures are fixed to the seabed to avoid being displaced by storms and adverse weather conditions.



Artificial reefs can attract a host of marine species including s, sponges, hydroids and algae, increasing overall reef biomass and aggregating fish species, which in turn can support an entire marine ecosystem.

Each individual sculpture contains its own personal message, they draw attention to the daily actions of humanity, living above the waves, often oblivious to the impact each of their actions can have on the environment below.



We have met with Dive Wellington, they think the area surrounding the sailing club is a perfect location. It is sheltered from the northerly winds, its deep so there are no waves and snorkelers and divers will not be in the way of other water users. Dive Wellington have offered to put some of our students through their scuba diving qualification and help us map out the area and decide on the best placement of the artworks.





Paua Nursery



This project is one that we have just started working on. The idea behind this is to see if we can create a paua nursery. The work involves scuba diving and snorkelling around the Worser bay rocks to conduct detailed habitat assessment, counting and measuring the paua population. At the start of next year, we will be studying factors that are important when creating paua habitats, from whether the area is rocky or sandy, to the abundance of seaweed (an important nutrition source) and environmental factors, such as exposure to wind and waves.

We are currently contacting organisations to seek advice from. This project will create many research opportunities for a number of wellington organisations. Wellington University School of Biological Sciences, Niwa and New Zealand fisheries.



Papa Taiao has expressed an interest in being involved in this project. They have the resources can deliver unit standards to senior high school students in the Wellington region.



It should be pointed out here that most of the world's abalone fisheries have completely collapsed.

The holes in the shell are for breathing and reproduction. Starfish are the paua's most formidable predator as they have learnt to suffocate the paua by putting their tentacles over the breathing holes thus forcing the paua to let go of the rock.

Maori used to compare their most determined warriors to paua upon the rocks, able to overcome their opponents with stub born strength. This will be a great addition to the snorkel trail.



Environmental Awareness Artwork

Environmental awareness is important for several reasons; it fosters a sense of connection to the natural world, promotes sustainable development and encourages conservation of irreplaceable natural resources and vulnerable plant and animal species.



To bring about community awareness to the eight projects and environmental issues we are planning to create a variety of art sculptures they will be on display on Worser Bay Beach and surrounding area. These sculptures will be made by Wellington High School students working with Worser Bay and Seatoun School environmental groups.

The idea behind the sculptures is that they will get people thinking about environmental issues in the ocean. Beside each sculpture will be a number of signs with messages about the devastating effects of plastics in the ocean and what you can do to help.

The sculptures will be up for about a week they will be checked daily for safety and damage. They will all be designed to set up and take down easily. The materials used will be re used on the other sculptures.

Our marine life has been replaced by trash

