Tipaka Moana

Hauraki Gulf Monitoring Project Report

NOVEMBER 2022

ABOUT THE PROJECT

Foundation North has provided funding to the New Zealand Association for Environmental Education (NZAEE) since November 2017 to involve local communities and schools in monitoring the seashore community of Tipaka Moana / Hauraki Gulf. The Hauraki Gulf Monitoring Project (HGMP) builds upon the annual event 'Seaweek' to support on-going engagement, appreciation, and guardianship of the coastal environment.

The HGMP uses Marine Metre Squared (Mm^2) a citizen science tool to gather information on seashore ecology through the establishment of long-term monitoring programmes conducted by local schools and communities (www.Mm2.net.nz). Mm^2 is an easy way to conduct surveys to observe changes over time and build links between schools, communities and scientists. Supported by the University of Otago's New Zealand Marine Studies Centre (NZMSC - www.marine.ac.nz), the Mm^2 project supports access to resources, expert knowledge and educational opportunities.

The overarching purpose of the HGMP is to encourage Aucklanders to better understand their connection with the marine environment and how they can contribute to the kaitiakitanga / guardianship of the Hauraki Gulf. Through personal involvement with the HGMP, participants have opportunity to develop practical science skills and gather data about the diversity, abundance and distribution of marine species that is useful for understanding the health of the coastal ecosystem.

Teresa Morrell led the project again this year with support from Sally Carson (NZMSC Director). Additional support has been provided by staff from Auckland Sustainable Schools, Sir Peter Blake Marine Education and Recreation Centre (MERC) and Auckland Branch of NZAEE.

AGE students surveying the rocky shore at Takapuna Beach.

Now in its sixth year of monitoring, the HGMP has a baseline of information to be used in future for assessing the state of environment and changes over time. Some schools have been involved in the project for multiple years. By consistently surveying the marine community in the same locations year after year, this can provide a better understanding of how local shorelines are changing over time. This year, due to disruptions due to COVID-19 illness, school involvement consisted of an introductory session, one shore session , a combine data, and summary session and online resources.

nzaee Seaweek
NZ ASSOCIATION FOR ENVIRONMENTAL EDUCATION

Mm2.net.nz
Marine Metre Squared

PROJECT FOCUS

This year the project focussed on marine biodiversity, adaptations of marine species, human impact and presence of invasive species, as it was in 2020 and 2021. The concepts of kaitiakitanga (guardianship) and connectivity between environments were also topics discussed to encourage and empower students to learn about the local environment and to act as kaitiaki for it.

A kina (sea urchin) wearing seashells as a hat to protect itself from the sun. Found at Okura/Long Bay Marine Reserve.

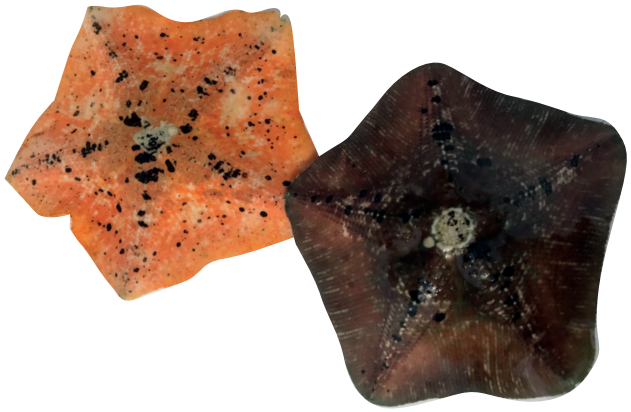
2020 PROJECT PLAN

NZMSC educator helping a student identify a sea creature on Rotoroa Island.

Due to constraints around teacher and student availably caused by Covid-19, this year's project offered participating schools three structured sessions instead of the six completed in previous years. Introductory classroom session delivered by Zoom in the week prior to the field session provided background information to help students design their field study. Each group then completed one field trip, followed by a classroom session to enter the data, discuss their findings and to facilitate kōrero around environmental health.

We collaborated with Rotoroa Island Trust's education team to include Mm² and marine education activities in their programme which introduced students to the Hauraki Gulf through the ferry trip, discovering the mahi that goes into maintaining a predator free sanctuary and exploring the coastal environment of the island. Mm² was also included as part of the Young Ocean Explorers 21 day Challenge.

Community and teacher workshops were also a focus this year. In collaboration with the Sir Peter Blake Marine Education and Recreation Centre (MERC) we held a community HGMP event at Long Bay. This had phenomenal interest, with 99 of 100 tickets claimed. Despite poor weather, we were very pleased to have 39 participants take part and do Mm² surveys. An additional six workshops for teachers and environmental educators were delivered at the seashore, in the classroom and on-line.



Above: Ambush sea stars, Stegnaster inflatus, *found at Campbells Bay.*

Left: HGMP survey sites, 2022.

SCHOOL PARTICIPATION

Nine school groups took part in the full HGMP this year. These schools included four secondary schools and five primary schools distributed around the Gulf. Four of the schools that had participated in previous years took part in the full MGMP this year. Survey sites ranged throughout the Gulf and the area covered was expanded to include Great Barrier Island and Rotoroa Island.

ROTOROA ISLAND EDUCATION TRUST

This year, to increase the reach of the HGMP we collaborated with other environmental education providers. Mm² played a part in the Rotoroa Island Education Trust's new education programme on Rotoroa Island. Their themes of restoration and on-going monitoring of the land, sat well with the kōrero around the need for long term monitoring, kaitiakitanga and restoration of the moana. In addition to training the education team in Mm² methods, a range of other activities were trialled on the island involving 275 students from four schools across five days.

PAKURANGA COLLEGE

Gifted and Talented students from years 10-13 collected Mm² data at Eastern Beach. They saw clear zonation patterns, and asked questions about the clear line between seaweed covered and bare rock habitats. Students were keen to learn more about crabs and their adaptations back in the classroom.

FARM COVE SCHOOL

Year 8 students from Farm Cove Schoolwere keen to get out on the Tamaki Estuary at Bramley Drive Reserve and discover what was living on and in the mud. Back in the classroom they diligently entered their data and were keen to learn more about the animals observed on their shore, their lifecycles and connections to one another.

MARAETAI BEACH SCHOOL

Year 7 and 8 students surveyed the intertidal community at Te Pene Point, a site they survey regularly. They found evidence of human influence at this site as rubbish was found by almost every group of students. Back in the classroom, they reflected on their findings and discussed what could be done to prevent rubbish ending up on their local beaches.

WAIHEKE PRIMARY SCHOOL

Having participated for four of the six years of the HGMP, Waiheke Primary School is experienced at completing Mm² surveys. Year 6 students were keen to share stories about their unique and close connections to Tīkapa Moana / Hauraki Gulf. The day of the field trip was a very busy day for the Whakanewha Reserve as whilst our group was at one end of the beach completing their shore survey's, Project Jonah volunteers were at the other end aiding a group of stranded common dolphins. Our proximity to the stranding led to further discussions around food webs, the amount of manaakitanga or care people have for the inhabitants of the Gulf, and the many actions that can be taken to show this care.

AGE SCHOOL

Another regular HGMP participant, AGE School years 5 to 8 students discovered what's living in the Takapuna rock pools this year. They observed a variety of species and discussed the adaptations animals of the rocky shore need to survive in this dynamic and harsh environment. Also, as this is a very popular beach for locals, students discussed the impacts of human activities on beach-dwelling organisms.

TE ATATU INTERMEDIATE

Involved since 2018, Te Atatu Intermediate science students are committed to caring for and learning about the seashore at Orangihina. This school does shorebird surveys and stream studies throughout the year, and are very interested in the wider ecosystems connections and the role of the seashore community in ecosystem health. Having already indicated their interest in participating in the 2023 programme, we are excited to be able help them learn about and care for their local shore.

MULBERRY GROVE SCHOOL

Students from Mulberry Grove School discovered a lot of rubbish at their survey site on the shores of Aotea (Great Barrier Island). The year 6 students also took note of all the boat traffic and other activities in the area. Discussions in the classroom centred around human activity in the Hauraki Gulf and around Aotea that might impact marine life. In addition, students discovered fish skeletons on the shore and an abundance of scavenging crab species, leading to kōrero about feeding strategies and trophic levels in the marine environment.

WENTWORTH COLLEGE

Having been involved for three years, Wentworth year 7 and 8 science students surveyed the rocky headlands at Tindall's Beach. After detecting the invasive Mediterranean fan worm, they discussed the importance of long term monitoring of this site to track how the abundance of this species changes over time.

ALBANY COLLEGE

Having had great discussions during the introductory session about the Hauraki Gulf that generated excellent questions to investigate using the Mm² data, the students were all geared up to head to Waiake Beach to carry out their Mm² surveys. Unfortunately, as a result of staff shortages due COVID-19 and the public holiday due to the death of the Queen, the scheduled field days were cancelled and were not able to be rescheduled this year.

IMPACT

This year, 770 students and 134 parents/teachers took part in the HGMP school programme. In addition one community event (27 children, 12 adults) and seven workshops for teachers and educators (218 adults) were run.

There are now more than 800 individuals and groups registered for the Mm² project in the Auckland Region (a 135% increase on the 340 in 2016) and more than 230 in Northland (a 132% increase on the 99 registered in 2016) indicating the high level of interest in the project and the success of using both Seaweek and the HGMP to actively promote it.

The HGMP database grows each year with constant monitoring occurring at a few sites around the Gulf. For example, Te Atatu Intermediate has been involved from 2018 and now has a solid understanding of the species living on their shore at Orangihina Reserve.

TEACHER WORKSHOPS

Professional learning and development for teachers was a big focus in 2022 through collaboration with other organisations. In April, Mm² was the focus of a keynote presentation and workshop at the Primary Science Teachers Conference at the University of Auckland. In conjunction with the Blake NZ Inspire for Teachers, almost 100 teachers engaged with Mm² over the course of three full day workshops. Classroom preparation to surveys of the rocky shore at Campbells Bay, followed by data analysis and interpretation, these teachers were immersed in intertidal ecology and along with a stream study, gained understanding of ways to investigate environmental health. In conjunction with the Auckland regional delivery day of NZAEE's 2022 biennial conference, another 30 environmental educators and teachers gained first-hand experience with intertidal surveys near Westmere Park.

The Auckland Council Sustainable Schools team were provided with two complete Mm² kits to support schools to join the citizen science project. Their educators and over 20 teachers joined an online training session to learn more about the methods and how they can get involved in HGMP in 2023 and take action for the moana. Tools to map their local stream, understand how it connects to the Hauraki Gulf and investigate the wider catchment health were also discussed. The HGMP community event at Long Bay also attracted a few teachers and educators and inspired them to incorporate the project into their local curriculum.

Teachers carry out the Mm² surveys as part of the Blake NZ Inspire course at Campbell's Bay.

Dunedin rocky shore interactive guide.

EDUCATIONAL RESOURCES

In addition to the range of educational resources developed for the HGMP, an interactive tool was developed to allow Mm² methods to be practiced in the classroom (https://www.Mm2.net.nz/resources/interactive-resources) . Through interaction with a series of visual images and short videos students are given the opportunity to identify different plants and animals using the seashore guides. They are encouraged to fill out the survey data sheets by estimating the % coverage of seaweed and numbers of each species of animal observed on a northern or southern NZ shoreline. By doing multiple surveys, the students can compare the differences and similarities between sites in Auckland and Dunedin, and between rocky and muddy habitats? Questions, prompts and short video explanations help students stay on track.

Support has also been provided to Education Perfect to incorporate Mm² into an intertidal ecology unit in their Science Alive Mātauranga resource for Year 5-8 students. And we have worked with Northland Regional Council to incorporate Mm² into a school resource on marine biosecurity.

VALUE TO SCHOOLS

"The students always enjoy and love getting out in the field. We love linking the project to our learning in the classroom about the seabirds at and the health of our shore."

Science Teacher, Te Atatu Intermediate.

"This project builds on what we have already been doing in the classroom. We are excited to build a long-term dataset for our shore. Being on Great Barrier Island the Gulf is our front yard, this project empowers the students to feel responsible and grow their passion for the Gulf."

Principal, Mulberry Grove School

"The students and I enjoyed the outing as well as the classroom activities"

Science Teacher, Farm Cove School

NEXT STEPS

In future, the HGMP aims to increase its collaboration and include other types of data collection in the project to help us and students gain a clearer picture of what is happening in Tīkapa Moana. As a part of this collaboration, we are aiming to support schools to dive deeper into understanding their wider catchment and through repeat surveys gain further understanding of human impacts on the coastal ecosystem. For example, HGMP can be used to help detect invasive species and understand their impact on native biodiversity.

A short summary report of the findings of the multiple years of the HGMP is available on https://www.Mm² .net.nz/get-involved/hauraki-gulf-monitoring-project. In 2023 we hope to increase the number of monitored sites in Auckland and Northland.

With longer term funding, collaboration, and partnerships, we hope the HGMP will enable community groups and schools to engage in the wider environmental issues affecting the coastal environment and contribute to better management. As stated in the 2020 'State of the Gulf' report ...

"Every one of us has a role to play in this, but we'll also need to work as one."

Thanks to Foundation North, New Zealand Association of Environmental Education and New Zealand Marine Studies Centre, Otago University for supporting this monitoring programme.

FOUNDATION NORTH
Te Kaitiaki Pūtea ō Tāmaki ō Tai Tokerau

nzaee

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