

Hauraki Gulf

NOVEMBER 2021

Monitoring Project Report

ABOUT THE PROJECT

Foundation North has provided funding to the New Zealand Association for Environmental Education (NZAAE) since November 2017 to establish a facilitated citizen science project that engaged with local communities/schools to monitor the seashore in the Hauraki Gulf Marine Park. The Hauraki Gulf Monitoring Project (HGMP) builds upon the annual event 'Seaweek' in hope to encourage on-going engagement, appreciation and guardianship of the coastal environment.

The HGMP uses Marine Metre Squared (Mm²) as a tool to gather information on seashore ecology through the establishment of long-term monitoring programmes conducted by local communities (www.mm2.net.nz). Mm² 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 Mm² 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 from the NZMSC has taken over leading the HGMP with support from Sally Carson (NZMSC Director). Additional support has been provided by Shanthie Walker (EFS Initiatives) and the Sir Peter Blake Marine Education and Recreation Centre (MERC).

Now in its fifth 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. Many



Students from Te Atatū Intermediate School didn't worry about getting web and muddy when surveying the mudflat at Orangihina Reserve.

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. The goal was to have two field sessions per group but due to COVID-19 restrictions in Auckland, the second field session and summary sessions were unable to go ahead. Instead we focused on supporting learning at home and in the classroom through the development of education resources and provision of online learning.



PROJECT FOCUS

This year, the project continued the focus on identifying and locating invasive species from 2020, as well as looking at the wider health of the catchment. The concepts of awareness and kaitiakitanga (guardianship) were also a strong focus, with students encouraged to take up the mantle of guardian and spread their knowledge of the Hauraki Gulf with the wider school community and their families. Plans to dive into the impact of microplastics on marine species, linking with Teresa's PhD topic, were cut short due to COVID-19.



PROJECT PLAN

The plan for the HGMP in 2021 involved six structured sessions with each group. The project was planned around low tide periods and school schedules during term 2 and 3 to allow for seasonal sampling. The first classroom session, delivered via Zoom in March, provided background information and supported students to plan the field study. The first field trip to do shore surveys, followed by a classroom session to upload the data to the Mm² web site and analyse the findings, was completed in April. The second field trip and data analysis sessions were planned for August/September, then rescheduled for October and then cancelled due to the extend COVID-19 lockdown. The summary sessions, planned for November, to compare the data over time and between sites, were also affected by the lockdown.

As a result of the lockdown restrictions in Auckland, an alternate programme was developed to help students and teachers continue learning about the Hauraki Gulf. Resources were developed to support family activity at the seashore, and on-line alternatives were developed to support at home learning. Learning sessions via Zoom, around data analysis were offered during the COVID lockdown, but few took up this offer due to conflicting demands on time and varying access levels to technology.



During the shore surveys the students found a diversity of marine plants and animals, including three species of sea star: orange ambush sea star, spiny sea star (top) and cushion sea star (above). Some of the more unusual species included; burrowing anemone (below) and the hairy trumpet snail (left).



SCHOOL PARTICIPATION

Seven schools participated in the HGMP in 2021, consisting of three secondary schools, one intermediate school and three primary schools. Schools were distributed around the Gulf and three had been involved in previous years. A range of community and teacher groups also took part. Considerable interest has been received for the 2022 programme including the schools and community groups on Great Barrier Island.



Wentworth College

Year 8 and 9 science students at Wentworth College collected data (with assistance from some year 13 marine studies students) at Manly Beach. The students did a thorough data collection for this site and discovered an uncommon species, the hairy trumpet snail. This school used the Mm^2 survey method later in year with another group of students and discovered the Mediterranean fan worm at this site. This prompted the students to try and find out what they should do having found it, and how the species movements can be restricted.

Westlake Girls College

A group of 45 year 9 students from Westlake Girls surveyed the shore within the Wenderholm Regional Park. Here the students found snails that had been tagged by students attending the University of Auckland as well as large rockpools which sheltered triplefin fish! Discussions in the classroom after sampling were focussed on environmental health and how human activities impact the ocean and how all water on Earth is connected. The summary session involved 28 very engaged students all logged from their own homes. In addition to viewing and interacting with the data, comparing it over time and between locations, they looked at their local catchment and discussed the role of ecosystem services.

Te Atatū Intermediate School

Te Atatū Intermediate has been participating in the HGMP project since 2018 with support from Community Waitakere. The students involved are part of their gifted and talented programme. They completed their data collection in Term 1 at Orangihina Reserve. The HGMP ties in well to their school focus of protecting their own big backyard, especially as this area is a well-known stopover for species of migratory birds!

Papatoetoe North School

New to the HGMP, year 3 to 6 students from Papatoetoe North School were keen to use the Mm^2 methods to learn more about their local environment and contribute to the HGMP. They completed one data collection session on the rocky shores of Buckland's Beach. At this site, students found the invasive Mediterranean fan worm, this was then reported to MPI.

Waiheke Primary School

Waiheke Primary has been involved in the HGMP since 2018. This year students from year 5-6 surveyed the sandy shore at Whakanewha and discovered plenty of cockles as well as a few less common species.

Mahurangi College

Twenty-four year 10 and 11 students from Mahurangi College went to Omaha beach for their sampling, a site which is valued by the local community. Both students and teachers pointed out community posted signs designed to discourage the harvest of shellfish and crab species from the beach.

Maraetai Beach School

Year 5 and 6 students surveyed Maraetai beach but found little life on or under the sand at this shore so they completed a rocky shore survey also. Student wondered why few species were living on this sandy shore, so a second survey was conducted at a more sheltered habitat: Kelly's Beach, Beachlands. Here there was a thriving population of shellfish. Students will continue to survey here in future.

Community groups

- The Whau River Catchment Trust are incorporating the HGMP as part of their regular monitoring.
- Kelly Tarlton's Ocean Youth, a group of teens involved in environmental action, spent a day engaging with the participated in the HGMP in May (photo below).
- Marine Education and Recreation Centre (MERC) ran a community day on Mm^2 in May giving HGMP participants an opportunity to compare their school site with another shoreline.



EDUCATIONAL RESOURCES

A variety of on-line opportunities were made available to the schools involved and the wider education community. Zoom sessions were available for schools to investigate the data that they had collected in April and compare with other locations. Students were invited to explore the seashore in Dunedin via two Facebook live events, and make comparison with the Hauraki Gulf seashores. The recording of these sessions was saved and many teachers posted it on their Google classrooms for the students to watch at a later date.

A range of worksheets and teaching notes were put together to encourage the learning at home and in the classroom. These include ideas for taking your family to the shore to do an Mm² survey, using iNaturalist to identify species found, hunting for invasive species and beachcombing for shells and evidence of life. If students

had no access to the shoreline, a Mm² survey was filmed in Dunedin and Auckland, to allow students to work through the process of doing a survey and collecting data from the comfort of their home. These videos allow the students to identify and count the different species remotely, and compare their findings. Further in-class activities supported interpretation of the data collected on the shore previously and guidance for use of the data analysis tools on the web site to investigate further. Kahootz quizzes were created to reinforce learning and species identification. All of these resources are available online - <https://www.mm2.net.nz/get-involved/hauraki-gulf-monitoring-project>, and we hope they will support teachers to dive into the HGMP more fully in future years. Two Mm² kits have been sent to Great Barrier Island to support their participation in 2022.

TEACHER WORKSHOPS

Professional learning and development for teachers was also part of the HGMP programme this year. A half day workshop at the Marine Education and Recreation Centre at Long Bay, although aimed at the wider community, attracted a number of teachers. A full day workshop for 34 primary teachers was delivered in July as part of the BLAKE Inspire for Teachers course on environmental education. A second workshop in October was cancelled due to COVID-19. The HGMP was featured in a webinar for teachers organised by NZAEE (New Zealand

Association for Environmental Education) in November that focused on projects that connect schools with their local environment and engage with local issues. The NZ Association of Primary Educators conference, planned to take place at the University of Auckland in early October 2021 but rescheduled to April 2022 due to COVID, will highlight Mm² and the HGMP project in a keynote address and related hands-on workshop.

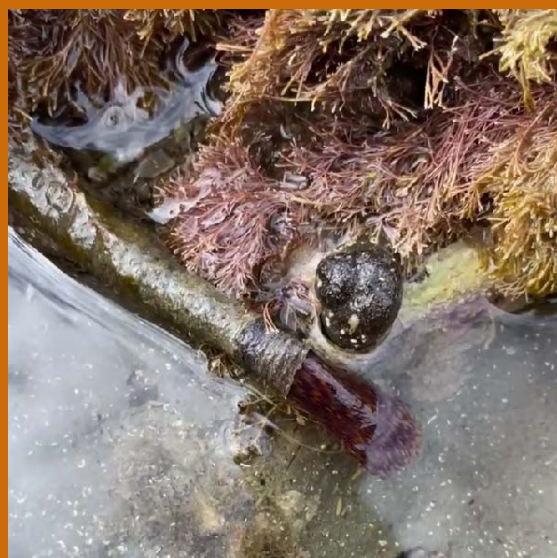
IMPACT

This year, 204 students ranging from years 3 to 11 and 15 adults/teachers from seven schools participated in the Hauraki Gulf Monitoring Project. Since the project began in 2017, approximately 900 students and 80 adults / teachers from 22 different schools/ community groups have participated in the HGMP, some schools over multiple years.

There are now 773 individuals and groups registered for the Mm² project in the Auckland Region (a 127% increase on the 340 in 2016) and 229 in Northland (a 131% increase on the 99 registered in 2016) indicating the level of interest in the project and the success of using both Seaweek and the HGMP to actively promote it.

In Auckland the number of groups uploading their data increased 189% from 38 in 2016 to 110 in 2021). The percentage of those registered who also upload data is 14%. However the number of Mm² surveys has increased to 653 (an increase of 478% from 113 surveys in 2016). In Northland however, only nine groups have uploaded data. This is below the national average and shows additional support is needed to effectively engage these groups and individuals in seashore monitoring.

This year 100 surveys were undertaken across rocky and sandy shore environments from five locations around the Hauraki Gulf. 120 different species were identified from these surveys and the invasive species, *Sabella spallanzanii* (Mediterranean fanworm) was found at two locations.



VALUE TO SCHOOLS

All the schools and students raved about the experience and the value of getting to know their local environment. The teachers all commented that the students loved the seashore field trips and were very disappointed with the COVID-19 disruptions.

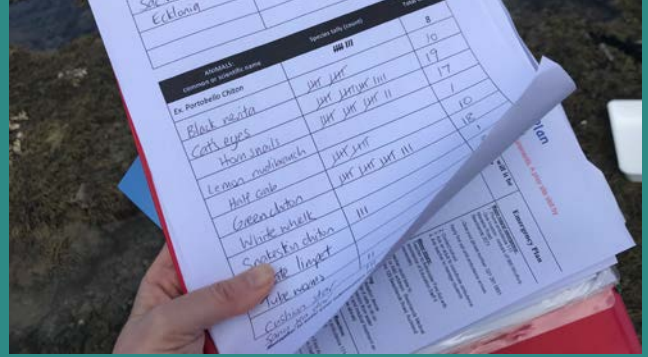
Teacher's feedback:

"Every year the HGMP gets better and better."

Science Teacher, Te Atatu Intermediate School.

"In addition to helping students develop skills in science and math, this project has been valuable in developing skills in English as for many students English is their second language."

Year 3/4 Teacher, Papatoetoe North School



"We are completing the Marine Meter Square project with senior students; however it was great to have specialist knowledge and in addition to give professional development to another member of staff."

Science Teacher, Wentworth College

"The HGMP supplements the other environmental learning and work our school does. The students love and gain a lot from doing real-world science and making connections between the animals in the environment."

Science Teacher, Te Atatu Intermediate School

NEXT STEPS

Participating schools share their experience and findings with the wider community through newsletters and blogs and engage in a range of further projects and investigations at school around environmental issues that affect the Hauraki Gulf. 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 2022 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 and the New Zealand Marine Studies Centre, Otago University for supporting this monitoring programme.

