Marine Science Extension

Enrichment programmes for gifted ākonga

Join scientists and wildlife at the NZ Marine Studies Centre

Get hands-on with live species, work in university laboratories and access local marine coastlines.
In 2024 and 2025, NZMSC offers science extension programmes to primary and secondary students.

For further details phone 03 479 5826,
email marine-studies@otago.ac.nz
or see our website: www.marine.ac.nz

NEW ZEALAND
MARINE STUDIES CENTRE
University of Otago

Science Extension and Enrichment Programmes 2024/2025

The Science Extension and Enrichment Programmes at the New Zealand Marine Studies Centre have gained a strong reputation for delivering authentic, real-world learning experiences for over 20 years.

"My son did this programme two years ago and it is still the thing he talks most about when he talks about science at school. Being able to get out of a textbook and see real-life pathways and connections for science in a meaningful context that is engaging for them is critical in allowing them to see that Science is for all students not just the 'top kids'."
- Parent, 2022

Why marine science?

There are a number of clear reasons why everyone in Aotearoa needs to have an in-depth experience and understanding of the marine world. The moana is a vital part of our identity and culture, and provides us with over half of the oxygen we breathe. We have one of the longest coastlines and largest exclusive economic zones in the world, with many marine taonga right at our doorstep. The ocean also provides for our economy through aquaculture, fisheries and tourism. The challenges we face through climate change and pollution mean it is vital that we gain knowledge and understanding, so we are able to act as kaitiaki for our marine environment and for the future well-being of our planet.

"It helps with your interaction skills and brings you out of your bubble because of the team building and group activities that truly bring you closer to your teammates and other students. The programme also introduces you to more in-depth information about your specific branch of interest in science, the relation of the programme to our cultural values also opens the student's eyes to how the environment helped nourish our ancestors back then. It was a memorable experience because of the mentors and other students with me. I'd definitely recommend it to others."
- Secondary student, 2022

Programme plans 2024 and 2025

This year we are offering multiple science extension programmes for students & schools with a number of customised options. Supervised and directed by our educators, these programmes involve in-depth and wide-ranging field and laboratory experiences, as well as mentoring by scientists in a supportive and friendly environment. Like-minds working together to develop an enriching, knowledge-building community.

Costs

This programme is supported by the Ministry of Education's Supports for Gifted Students - Events and Opportunities. A nominal fee for student participation will be charged to the school / organisation to offset the programme costs and confirm student intention to participate. The fee may be waived on a case by case basis. Schools / organisations who have students participating will be invoiced, and it will be up to them to determine the allocation of those costs.

Selection process

Due to limited capacity, the allocation of places on these programmes will involve a selection process. The multiday programmes at NZMSC will be advertised to schools in southern NZ with an effort to connect with small rural schools. Schools will be asked to select 4-5 suitable students from their school to participate. A teacher, senior management or parent will be required to accompany the students each day, provide transportation, supervision, evaluation of the programme and have the option to play a role in delivery.

For information on identifying giftedness please visit gifted.tki.org.nz .

Year 6, 7 and 8 Programmes

Ecosystems: Plankton, Predators and Everything in between

Proposed dates: 7 - 8 August, 16 - 17 October, 28 - 29 November 2024, TBC 2025

Explore the ocean through research projects mentored by marine scientists and postgraduate students. Discover the amazing world of plankton and investigate how it connects to sharks. From the bottom of the foodweb to the top, we will go on a research journey throughout the ocean ecosystem. Work together in teams to create unique ways of presenting your new knowledge.

Open to Year 6, 7 and 8 students in the Dunedin and Otago Area. Teachers are asked to select four or five students who are enthusiastic about science, and/or gifted – not necessarily in the sciences (e.g. have strong leadership and social skills, cultural specific abilities, sporting and/or creative skills). The schools will have to provide transport and a teacher, senior staff member or parent to accompany the students on the programme.

2 days onsite. ~ 25 students (up to five students per school). Programme cost: $10/student/day

Year 6, 7 and 8 Customised Programmes

We are also accepting bookings for customised science enrichments programmes, perfect for Accelerated or GATE classes from individual schools or groups. Programmes are developed with the teacher and can cater to a wide range of topics.

Examples of programmes include, but are not limited to:

Seasons in the Sea

Explore the unseen world of perhaps the most important creatures in the ocean! Alongside marine scientists, investigate the impacts of a changing climate on plankton communities in Southern Aotearoa. Identify different species, calculate abundance, identify patterns, and look for parasites.

Crabs Galore or Mighty Molluscs

Explore the evolutionary development of crustaceans, investigate their anatomy through dissections and learn about their behaviour through small experiments. Look at the wider ecology through a shore survey of coastal crab species.

Sharks: Inside and Out

This programme will explore what makes a shark a shark. Find out what species of shark are found in the local areas of the Otago Harbour and off the coast and how they are different from each other. Discover how scientists gather data about sharks and what this information tells us. Explore the external and internal anatomy of a shark and examine the unique features and adaptations it has to survive.

1-3 days onsite. Up to 35 students/programme. Programme cost: dependent on programme plan.

Year 9 and 10 Programmes

Midden Mysteries

Proposed dates: 4, 5 & 6 November 2024

Many coastal heritage places, including archaeological midden sites, are under threat from climate change processes. These middens contain discarded components of food preparation, cooking and everyday activities. They represent important cultural and ecological relationships, including adaptation and environmental changes through time. This project will support students with learning about their local histories and environment through the lens of archaeology to understand historical interactions between people and the coastal environment.

Through hands-on, place-based learning, students will apply scientific techniques to the analysis of archaeological materials to build an understanding of earlier ways of life and people's interactions with the environment, how these have changed over time, and how archaeological science reveals this information from the study of midden sites. Students will also engage with questions about how coastal heritage places and the stories and information they contain may be safeguarded for the future. Our place-based approach acknowledges that for Māori, heritage places are a critical component of identity and are embedded in the ancestral landscape.

Open to all Year 9 and 10 students who are able and enthusiastic about science, and/or are gifted. The schools will have to provide transport and a teacher, senior staff member or parent to accompany the students on the programme.
3 days onsite. ~ 25 students (up to five students per school). Programme cost: $15/student/day

Year 11 and 12 Programmes

Deep Thought Expedition

Proposed dates: 21 - 23 August, 27 - 29 August 2024, TBC 2025

Explore the ocean through research projects mentored by marine scientists and postgraduate students onboard a research vessel. Investigate the complexity of our marine ecosystems and contribute data to ongoing participatory science projects about Plankton and Sharks. Get hands-on experience and a taste of what it is like to be a marine scientist! This programme has direct links to the NZ curriculum and NCEA standards, while also providing real life experience and skills that will aid in future studies in the sciences.

Open to all Year 11 and 12 students who are able and enthusiastic about science, and/or are gifted. The schools will have to provide transport and a teacher, senior staff member or parent to accompany the students on the programme.
3 days onsite. ~ 20 students (up to five students per school) Programme cost: $15/student/day

Year 9 - 13 Customised Programmes

We are also accepting bookings for customised science enrichments programmes, perfect for Accelerated or GATE classes from individual schools or groups. Programmes are developed with the teacher and can cater to Mathematics, Statistics, Technology, and Science (Nature of Science, Biology, Biochemistry, Earth and Space Science).

Sampling the Sea

Dive into the life of a marine scientist mapping out the ocean floor. This programme is a full day of science experiences with the guidance of marine biologists. Ranging from the physical properties of the ocean to the complexity of all the life it sustains you'll use a variety of sampling methods to build a picture of the Otago Harbour's marine biodiversity, what factors impact it, and how the future might look. This programme includes a preparation session via ZOOM to get the maximum out of your expedition.
1- 3 days onsite. Maximum 25 students per expedition. Dates depend on vessel availability, contact us for booking or more information on price.

Regional Programmes

Nelson, Tasman and Marlborough - Year 8 - 10 Programmes

Aquanauts: Spying on the Depths

Proposed dates: 9 - 13 September 2024

Engaging Year 8, 9 and 10 ākonga using STEAMS learning as the foundation during a four-day immersive marine science programme. Getting to the moon is hard. Getting to the bottom of the moana can be harder! Finding out what's happening under the waves requires scientists to overcome some big hurdles. Depth, visibility, salt and electronics, and many other challenges present themselves.

NZMSC works with the Ministry of Inspiration, The Nelson Marlborough Institute for Technology Aquaculture Department, and local industry and research experts across Te Tauihu to run this programme. Students are taught by experts in their fields of oceanography, e-DNA, marine ecology and engineering, learning skills such as plankton identification, how to build an NZAquabot and how remote sensing equipment is being used in Aotearoa New Zealand's aquaculture industries.

Ākonga work together to building their own NZAquabot with sampling equipment to explore the local waterways and ocean, learn how to use this technology to collect data and contribute to citizen science projects. Teams are expected to enter the regional 2024 NZAquabot competition.

4 days ~ 25 students (up to five students per school). Programme cost: $10/student/day

Otago and Southland - Year 7 and 8, Year 9 and 10 Programmes

Future Oceans with the Aquavan

Proposed dates: 15 - 17 October, 29 - 31 October 2024, TBC 2025

Specially designed to transport marine species, the Aquavan is equipped with chilled re-circulating seawater tanks. During visits a mobile touch tank will support investigations with a diversity of live marine animals, to highlight the impact of climate change on the marine environment.

This two-day programme will have students experiencing marine science with the guidance of oceanographers and biologists. Ranging from the physical properties of the ocean to the complexity of all the life it sustains, students will use a variety of investigative methods to explore marine biodiversity, what factors impact it, and how the future might look. The programme aims to develop knowledge and skills within the science of ocean warming, plastic pollution, and ocean acidification.

2 days in region ~ 25 students (up to five students per school). Programme cost: $10/student/day

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ŌTĀKOU WHAKAIHU WAKA

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