UNIVERSITY of OTAGO
Te Whare Wānanga o Otāgo
NEW ZEALAND

Marine Science

Take the plunge

"Doing a Marine Science degree prepared me with solid practical and theoretical foundations essential for good science.
It also opened up exciting new possibilities in further studies, potential jobs in conservation, and piqued my own interest in an environment we really know very little about."

David Johnston
Master of Science (Marine Science) student

Stretching over 30° of latitude, New Zealand's coastline is more than 15,000km long, and its exclusive economic zone (EEZ) is one of the largest in the world. And yet our understanding of our own big blue backyard, and our impact on it, is extremely limited.

The physical and biological processes that power the Earth system unite in the ocean, determining Earth's climate, supporting life and sparking our curiosity. Whether it's finding new species, protecting sensitive habitats or solving our climate change problems, the University of Otago is uniquely placed to study these interlinked processes, and their effects on our lives.

Understanding our ocean planet is essential for meeting the challenges of our collective future.

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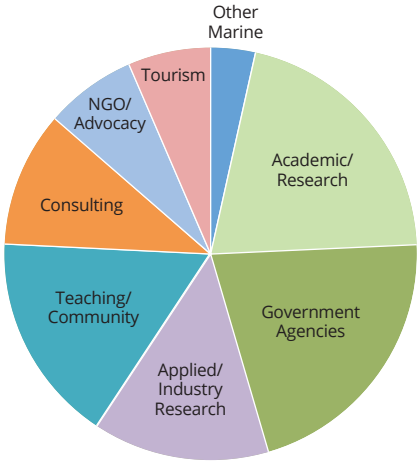
Why study Marine Science?

The world is waking up to just how important the marine environment is to the survival of our planet. And when your office extends to the seashore and beyond, every day is a new challenge! A qualification in Marine Science from the University of Otago is internationally recognised, and its multidisciplinary nature opens up an ocean of opportunities.

Career possibilities

Marine scientists are valued, not only in learning institutions, but also by governments and large corporations. Many organisations need people with analytical minds on their team. Over 90 per cent of Marine Science postgraduates from Otago go on to find marine-related jobs.

Graduates with a Marine Science qualification find employment in a wide variety of areas. Careers of Marine Science alumni are shown below:



Marine research can take you from the poles to the tropics, Antarctica to Fiji and from regional councils to government agencies, such as the Department of Conservation, NIWA and the Ministry for Primary Industries.

Careers have also been launched in private consultancy firms, within the IT industry, the media (e.g. Dunedin's Natural History New Zealand Ltd) and government science policy groups. Other graduates continue their marine science careers within the educational system, through teaching, community engagement, or research.

Background required

Students from a wide range of backgrounds are welcome to study Marine Science. You will need an interest in the marine environment and a solid foundation in science to Year 13 level. We particularly recommend Biology, Chemistry, Physics, and Statistics or Calculus.

What will I learn?

Marine Science (MARI) is a highly flexible study option with a group of core papers that provide a solid background in the marine sciences, allowing students to add other science papers according to their interests (from subjects such as Biology, Chemistry, Physics, Ecology and Geology).

You start by enrolling in:

- EAOS 111 (Earth and Ocean Science)
- MARI 112 (The Living Ocean)

Health Science students may enrol in MARI 112 as their optional eighth paper, allowing them to continue in Marine Science if they wish to do so.

Common pathways

Marine Biology

Study of marine animals and plants, conservation, and management strategies.
BSc in Marine Science, minor in Zoology, Botany, or Ecology.

Aquaculture and Fisheries

Study of marine farming and fishing, learning both how to conserve, manage and improve sustainable production and practices.
BAppSc in Aquaculture and Fisheries. A minor or second major is essential from an approved list.

Marine Physics and Modelling

Study the sea and how it moves: waves and tides, energy, climate, and global physical processes.
BSc in Marine Science, minor in Maths, Physics or Computational Modelling.

Marine Geology and/or Geography

Study the whole planet! Understanding the past helps us to plan for the future. This is where climate research really hits the road.
BSc in Marine Science, minor in Geology or Geography.

Marine Chemistry

Study the complex chemical soup of elements, nutrients, and compounds that is the sea.
BSc in Marine Science, minor in Chemistry.

How will I study?

Marine Science is very much a hands-on discipline. Apart from attending lectures and tutorials, you will also have practical laboratories and field trips at sea. The Department of Marine Science has research and teaching facilities on the main campus in Dunedin, a major research laboratory at Portobello on the Otago Peninsula and field stations on Stewart Island and in Doubtful Sound. A fleet of research vessels, including the expedition vessel *RV Polaris II*, provides access to all the local marine habitats.

Can I combine my Marine Science study with other subjects?

Students majoring in Marine Science can include a minor from a different subject. It is most easily combined with other sciences (e.g Ecology, Botany, Zoology, Chemistry and Geology) but adding it to other disciplines (e.g Education, Law, Geography or Tourism) would lead to interesting job opportunities.

Marine Science is also available as a minor in any undergraduate degree from Business, Humanities or Sciences.

What about further study?

The Department of Marine Science offers research opportunities in diverse fields, including: behavioural ecology, ocean physics, Antarctic science, coastal processes, ocean acidification, climate change, remote sensing, marine geology, and marine mammal biology and conservation.

PROFILE

Namrata Chand

Bachelor of Applied Science (Aquaculture and Fisheries)
PhD candidate

"I studied many Marine Science papers as part of my undergraduate degree and really enjoyed that, right from year one, I got first-hand experience out in the field and in the lab.

"We had multiple lab session trips on the research vessel RV Polaris II, sampling the seafloor, looking at water plankton communities, and doing seabird and fish surveys. The captain shouting, 'Look, dolphins in the harbour!' was a highlight!

"My interest in postgraduate study was sparked while studying MARI 301 (Marine Ecology). In this paper, we learnt how to design and execute research projects in the field like scientists usually do, and also about science communication. I still keep the science communication aspect in mind today as a tool to relay my own research to people.

"After finishing my degree, I returned to Fiji and worked as a fisheries intern, a marine biologist, and a research and teaching assistant. I also completed my master's at the University of the South Pacific, working on using remote sensing for mapping seagrass beds.

My experience at Otago, both the learning and the people I engaged with, left such a positive impact on me that I decided to come back for a PhD, studying red seaweed communities in the Otago Harbour.

One of the key highlights in my Otago journey has been the chance to SCUBA dive in Otago Harbour, Stewart Island and Fiordland. Being from the warm tropics, I was terrified to leap into cold waters. However, my experience in the Marine Science department showed me that everything is a learning opportunity: you might feel scared at first, but once you dive in, you will just keep swimming."

For questions about
Marine Science
otago.ac.nz/marinescience

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