



## Annual Programme Report<sup>1</sup> for the Year 2022

**Programme Title: BSc Marine Science**

**Programme/Department/School/Division: Division of Sciences**

**Year of Introduction: 2022**

**Expected Graduating Year Review (GYR) Due Date: 2027**

**Note: When completing this template, please be sure to frame the report so that it addresses the programme as a whole. Relevant information regarding constituent papers may be included, but be sure to distinguish when information concerns a specific paper rather than the programme as a whole, keeping in mind that in many cases the constituent papers will include students from other programmes.**

### 1. Description

Provide a brief description of the programme structure, levels, and papers as approved by CUAP. Include paper titles, points, and NZQF Level. Describe succinctly, but in sufficient detail so that the programme structure may be understood without reference to the original proposal, the Calendar or websites, and write for a non-specialist audience. The description should be no more than around 200 words so that it can easily form part of the GYR, and it should generally not include a schedule or table.

The Bachelor of Marine Science (BSc MARI; NZQF level 7) was approved by CUAP in 2020 and offered for the first time in 2022. The degree follows a standard three-year (360 point) structure, providing the necessary skills and intellectual context for multidisciplinary marine science, while allowing the flexibility for students to follow their own interests. At 100 level, all students are required to complete EAOS 111 (Earth and Ocean Science) and MARI 112 (Marine Biology: The Living Ocean), in addition to one of six specified quantitative papers from COMO, MATH or STAT. At 200 level, students must take MARI 201 (Oceanography: The Physical Ocean) and MARI 202 (Ecology and Biology of Marine Invertebrates). Students must take at least 72 points at 300 level, including AQFI 301 (Field Methods in Applied Marine Science), and two or more other papers from AQFI or MARI. In addition to the nine papers required for the degree, students must take 198 further points, of which at least 72 must be at 200 level or above. Up to 90 points may be taken from outside Science.

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<sup>1</sup> The University of Otago uses Annual Programme Reporting to track the progress of a new (conditionally approved) programme in preparation for its Graduating Year Review (GYR). A GYR is normally completed within three years of the graduation of the first cohort of students from a programme. The successful completion of a GYR is required by the Committee on University Academic Programmes (CUAP) to confirm programme approval.

## 2. Changes Made to the Programme since Introduction

- (a) If any concerns were raised or changes requested by CUAP at the time of approval, indicate how they have been addressed. If the programme has had a delayed start, say so and explain why.

Not applicable.

- (b) Mention and explain any significant changes (from the original proposal) that have been made to the programme since its introduction, such as: deletion of papers; introduction of new papers; regulation changes; changes to the Graduate Profile; changes to the assessment regime.

Not applicable.

- (c) If any changes were reported in a previous Annual Programme Report, comment on their ongoing adequacy and appropriateness.

Not applicable.

## 3. Internationalisation

Refer to the Internationalisation section in the New Programme Proposal that introduced this programme. Did the programme meet the internationalisation objectives, targets, and goals identified in the proposal? If so, describe how these goals were met and how they will be maintained. If not, explain why. Describe any future plans for the programme regarding internationalisation.

The BSc Marine Science aligns well with Otago University's Internationalisation Framework Te Aka Whakaranea ā-Ao. We encourage our students to take the view of global citizens, while helping them to understand what makes Aotearoa New Zealand unique. Significantly, all the core papers in the BSc MARI teach about the impacts of climate change, and the creative solutions required for mitigation. We actively encourage MARI students to participate in the International Student Exchange Programme, while being mindful that some may not wish to spend time overseas, or choose not to, for example due to concerns about carbon emissions. We also teach about our collaborations with overseas universities and researchers, stressing our active and internationally connected research culture.

Marine Science courses have traditionally been popular with international students. Our first year of delivery coincided with a significant downturn in international enrolments, due to border closure issues associated with the COVID pandemic. Hence, we had only four certificate of proficiency students enrolled in MARI and AQFI courses in 2022. With the easing of border restrictions we are returning to more typical numbers; for example 88 COP students are enrolled as of 1<sup>st</sup> June 2023.

## 4. Te Tiriti o Waitangi

Refer to the Te Tiriti o Waitangi section in the New Programme Proposal that introduced this programme. Has the programme adhered to its statement on how it would be consistent with the University's commitment to the principles of Te Tiriti o Waitangi? If so, describe how this was achieved and how it will be maintained. If not, explain why. Describe any future plans for the programme regarding commitment to Te Tiriti. Refer to Vision 2040 for further information regarding the University's commitment to Te Tiriti.

The BSc Marine Science aligns well with the University of Otago's aspiration to be a Te Tiriti led university, as laid out in Vision 2040. We have demonstrated proactive partnership with Kai Tahu, in teaching and research, and aim to advance Māori development aspirations through relevant teaching, learning and student

experiences. In developing the proposal for the BSc MARI, we carefully considered the following principles: partnership (incorporating teaching on the Marae), Māori research (incorporating Mātauraka Māori and traditional knowledge in the management and conservation of marine resources), and teaching (incorporation of Mātauraka Māori and Te Ao Māori to course work). Through commitment to the principles of the Māori Strategic Framework we support and encourage strong participation and success of Māori students, leading through to the postgraduate programmes.

We are mindful of the need to align our teaching with the principles of Te Tiriti at all levels. The content is currently there at 100-level (MARI 112) and 300-level (AQFI 301), and we are endeavouring to develop the content at 200-level. Of the 301 students doing a major or minor in MARI or AQFI in 2022, 34 identified as having Māori ethnicity.

## **5. Mātauranga Māori**

Discuss the ways in which the programme has integrated or plans to integrate te ao Māori, tikanga Māori, te reo Māori and mātauranga Māori into its teaching and learning. How does the programme support – or plan to support – aspirations of Māori students and staff? Refer to Vision 2040 and the University's Māori Strategic Framework for further information.

Marine Science has a very strong record of incorporating Mātauraka Māori and partnership with local Iwi in its teaching, with principles of Tikanga Māori and Te Ao Māori integrated across our undergraduate papers. This approach is epitomised in AQFI 301 (Field Methods in Applied Marine Science), a required paper for the BSc MARI. The core of the paper is a six-day field course based at a local marae and including an introduction to tikanga (custom) and kawa (protocol) surrounding customary fisheries. There were 32 enrolments for AQFI 301 in 2022, the largest the class has ever been. In future we plan to make AQFI 301 even more accessible by offering the field course at four times of the year, and in different marae. There are already 77 enrolments for 2023.

## **6. Pacific Content**

Discuss the ways in which the programme integrates or plans to integrate Pacific content, perspectives, languages, and pedagogies. How does the programme support – or plan to support – aspirations of Pacific students and staff? Refer to Vision 2040 and the University's Pacific Strategic Framework for further information.

The integration of Pacific content was not explicitly addressed in the New Programme Proposal. Through the Department of Marine Science's Teaching and Learning Committee we intend to develop strategies for teaching Pacific content and supporting the aspirations of Pacific students. This will be done over the next year with reference to the Pacific Strategic Framework 2022-2030. Of the 301 students doing a major or minor in MARI or AQFI in 2022, 17 identified as having Pacific Island ethnicity.

## 7. Student Enrolment and Completion Trends

- (a) Provide information on student numbers enrolling and completing over the period the programme has been offered with respect to the following. *(Please refer to the datasets provided by the Strategy, Analytics and Reporting Office, which have been attached to the email initiating this report. You are welcome to simply copy and paste the enrolment data into this report, or you can provide your own data if you believe they offer more clarity. If you are providing your own data, explain why.)*

Table 1

Year	Predicted Numbers	Total Headcount	Full-time	Part-time	Withdrawn	Year 1	Year 2	Year 3	Year 4	Year 5+	Completions	EFTS
2022	20	174	166	6	2	174	0	0	0	0	14	168.6

- (b) Discuss the data and comment on any anomalies such as disparity between the predicted student numbers (in the original proposal) and actual numbers. *(Please take care to ensure that no student can be identified in the Report. All information should be anonymised so that individuals are not identifiable.)*

2022 was the first year that the BSc Marine Science was offered. The total headcount of 174 students far exceeded the 20 that was predicted. This number consists of new enrolments in 1<sup>st</sup> year, and students in 2<sup>nd</sup> and 3<sup>rd</sup> year who have switched from the deleted BSc Oceanography. The third year students who transferred from Oceanography explain the 14 completions despite 2022 being the first year of the BSc MARI. The high number of enrolments reinforces our assertion that there was strong desire in the student market for a multidisciplinary marine science degree. We are experiencing strong growth in numbers in all of our marine science papers. While growth is a good thing, we are mindful of the need to staff these papers accordingly in order to deliver an outstanding experience for students.

- (c) If the programme has not yet been offered, or has attracted no enrolments, explain why not and outline the intended future of the programme. *(Please note that when a programme has not been offered or has attracted no enrolments in the five years following its introduction, its approval lapses. The programme should either be resubmitted to CUAP for re-evaluation or formally deleted. This report should outline the intended course of action. If the decision is made to delete the programme, Deletion Proposal (formerly labelled Form 5) should be submitted.)*

## 8. Monitoring Programme Quality

- (a) What processes are in place to monitor programme quality? (These will have been identified in the original proposal.)

As outlined in the programme proposal, the quality of the BSc MARI will be monitored by the Department of Marine Science's Teaching and Learning Committee (TLC). The committee is chaired by [REDACTED], an academic with 30 years experience, who is also our chief course advisor and 4<sup>th</sup>-year coordinator. The TLC includes four academic staff members with diverse backgrounds and experiences, and a very experienced teaching fellow. The committee meets approximately six times a year, and reports to the Head of Department. The TLC is responsible for gathering information (enrolment, pass-rates, student evaluations), monitoring the programme, and compiling the Annual Programme Report and Graduating Year Review documents.

- (b) Summarise the evidence that has been generated by those monitoring mechanisms during the year under review by answering as many of the following questions as possible, using some examples. If you can't answer a question, explain how you will gather evidence to answer it next year. Depending on the length of the programme, some of these questions

may be more challenging to answer in the first year or two.

- i. To what degree are the goals of the programme as stated in the original proposal being achieved?

The BSc Marine Science was introduced in 2022 so it is difficult to answer this question conclusively. However, we can confidently say that the BSc MARI has been designed to meet its goals. Students are taught across a range of disciplines (marine biology, marine chemistry, marine geology, physical oceanography, fisheries science) by research active staff. They learn technical, practical and communication skills, and experience hands-on activities and field trips, including Marae visits.

- ii. How well are the Graduate Attributes being met?

This will be assessed comprehensively in later years by gathering data from the graduate opinion survey and following up with individual graduates and their employers. However, seven of the 14 students who completed the BSc MARI in 2022 have gone on to postgraduate study at Otago University (six in Marine Science, one in Geography). This demonstrates the achievement of several of the attributes we intend for our graduates, including critical thinking, research, life-long learning, self-motivation and scholarship.

- iii. How strongly does the evidence indicate appropriate content, delivery and assessment in the component papers?

The University of Otago's Student Opinion Survey for 2022 gathered data from 44 students taking the BSc Marine Science. All of the summary statistics relating to course experience were higher than the means for all undergraduates in 2022. This was also the case when compared to the means for all courses in the Division of Sciences, except for the "Appropriate Assessment" category. In response to this, we should aim to design assessments that rely more on understanding and synthesis, as opposed to memorizing facts, and seek to provide constructive feedback.

- iv. How confident are you that students are satisfied with the programme?

In the University of Otago's Student Opinion Survey of BSc Marine Science students for 2022, 98% of respondents said they were satisfied with the quality of the course. The survey suggested that students valued the commitment of the teaching staff; two of the responses to the individual questions had significantly higher means than the university-wide score – "the teaching staff on this course motivate students to do their best work" and "teaching staff work hard to make their subjects interesting". No responses had significantly lower means than the university-wide scores.

- v. What evidence do you have of industry acceptance, particularly in graduate employability?

The relevant data will be gathered in subsequent years by following up with individual graduates and their employers.

- vi. If there is external moderation, what does this reveal about the quality and consistency of the assessment procedures?

Not applicable.

## 9. Highlights and Issues

- (a) Comment on what is going well and identify any examples of good practice – such as learning and assessment activities, employer involvement or special projects.

With a total headcount of 174 students in its first year, we are delighted with the uptake of the BSc Marine Science. This reaction clearly demonstrates the need and desire for a multidisciplinary marine science programme. All of the courses have significant hands-on lab and field activities, with most offering at-sea fieldwork on university vessels. The six-day Marae based field course in AQFI 301 was a great success, and gave students an appreciation of different world-views, while also strengthening links with the local community

The Department is working as a teaching unit to develop a cross-degree numeracy plan, in which we track both statistical and mathematical skills across all our papers and levels. We intend to use this plan to ensure there are no gaps and only necessary repetition, and to inform any changes to the degree in terms of required mathematical/statistical background. Specifically, we are gathering information from each paper to understand which skills are taught when. We then intend to assess how the current curriculum meets our understanding of what students require in the BSc MARI, and whether the current content needs to be altered. This will be done in consultation with the Departments of Mathematics and Statistics.

In MARI 322, a new field and lab component focused on marine plankton and seawater nutrients was developed in conjunction with [REDACTED], whose primary employer is NIWA -- one of the main employers in the marine space -- interacts with these 30-40 students who are in their final semester of third-year, offering a chance to discuss careers and employment.

We hosted a “Marine Science Careers and Postgrad Expo” as part of the Sciences Careers Expo in May 2022. Graduates of the department returned to give their own perspective on employment and careers, while outlining what they do at their workplace. Current postgrads and staff in the Department attended to provide information on postgraduate opportunities. The two-hour session was popular, with over 60 students attending. We agreed this was successful and offered it again in May 2023.

- (b) Comment on any particular issues that have arisen and what is being done to respond to and improve upon them.

No issues of concern have arisen so far. We are mindful of the need to appropriately staff the papers for which enrolments have grown immensely and suddenly.

## 10. Response to Previous Annual Programme Report (if applicable)

State how you have responded to any Divisional Board or other feedback arising from the previous year’s Annual Programme Report.

Not applicable.

### Consent to Use this Report as an Example

Please place a mark in this box if you do **not** consent to this report being posted on the University website as an [example of a recently accepted Annual Programme Report](#).

Name of Staff Member Responsible for the Programme: [REDACTED]

Name of Head of Department or equivalent: [REDACTED]