

# Programme Outline

**BOOKINGS:** Email: [marine.studies@otago.ac.nz](mailto:marine.studies@otago.ac.nz)  
Phone: 03 479 5826



## Diversity in Form and Function

**LOCATION:**

New Zealand Marine Studies Centre, Portobello, Dunedin

**PROGRAMME DESCRIPTION:**

**This programme provides practical hands-on experiences in support of achievement standard 91155. Understanding animal (and plant) adaptations in relation to their way of life**

An introduction to the marine and intertidal environment sets the scene for exploring the connection between adaptations and niche.

Students are guided through a series of dissections that deconstruct form in relation to function with reference to the organisms' environments and niches.

A range of live marine animals are interpreted for students with particular reference to a particular life process focus determined by the teacher (one of: gas exchange and circulation, feeding and nutrition or reproduction)

A review places the specific experiences into the introductory framework

**Extensions:** Most commonly this programme is done in conjunction with the 12 shore survey programme connected to AS 91158 Investigate a pattern in an ecological community, with supervision.

Besides variations depending on the life process focus desired, teachers can also request a customized programme that relates to the particular marine environment they use for AS 91158.

**LEARNING OUTCOMES:**

Students will

- Increase understanding of the relationship between niche and adaptation.
- Gain first hand experience of exemplar animal forms and their morphology.
- Develop understanding of the relationship between morphology and functionality in the context of survival in a particular niche.

**Extras:**

- Gain a new or renewed appreciation of marine life and the marine environment.
- Gain a new appreciation of marine science as a possible field of study or a future career.

**YEAR/LEVEL:**

Year 12, Biology level 7

**CURRICULUM LINKS:**

**Nature of Science (NoS):** level 7 understanding, investigating, participating and contributing.

**Science:** Living World: level 7, Life Processes-explore the diverse ways which animals and plants carry out the life processes. AS 91155 Understanding animal (and plant) adaptations in relation to their way of life.

**KEY COMPETENCIES:**

Thinking, using language, symbols and text, managing self, relating to others.

**PRE TRIP PREPARATION:** Some general understanding of niche and adaptation would be helpful as would some background to the life process under scrutiny (one of: gas exchange and circulation, feeding and nutrition or reproduction).

**RESOURCES AVAILABLE TO SUPPORT PROGRAMME:**

A student booklet with supporting worksheets is supplied with booking confirmation.

Class sets of Rocky shore and Sandy and Muddy Shore identification guides are available on application to the NZMSC.

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<b>RELATED TOPICS:</b>	Level 7. Life Processes – Ecology - Explore ecological distribution patterns and explain possible causes of these patterns. AS 91158 Investigate a pattern in an ecological community, with supervision.
<b>PROGRAMME COSTS:</b>	\$8.50 per student (GST excl.) for 2.5 hrs if programme is combined with shore survey/patterns in the environment for a full day Cost is between \$14.50 and \$16 per student depending on time.
<b>PROGRAMME LENGTH:</b>	2.5 hours If combined with shore survey/patterns in the environment then total time is 4.5 - 5 hrs.
<b>GROUP INFORMATION:</b>	Groups of 15 or more are preferred up to a maximum of 60 students. With 20 or more we divide the group up and rotate through activities.
<b>SAFETY ACTION PLAN:</b> On beach: as per field operations In Laboratory: as per Lab safety	
<b>NZMSC CONTACT:</b>	Hanna Ravn Email: <a href="mailto:hanna.ravn@otago.ac.nz">hanna.ravn@otago.ac.nz</a> Phone: 03 479 5843 Mobile: +64 27 614 1799