

# Programme Outline

**BOOKINGS:** Email: richard.dehamel@otago.ac.nz  
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## Diversity in Form and Function

<b>LOCATION:</b>	In School or at camp venue
<b>PROGRAMME DESCRIPTION:</b>	<p><b>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</b></p> <p>An introduction to the marine and intertidal environment sets the scene for exploring the connection between adaptations and niche.</p> <p>Students are guided through a series of dissections that deconstruct form in relation to function with reference to the organisms' environments and niches.</p> <p>A range of live marine animals are interpreted for students with particular reference to a particular life process (gas exchange and circulation, feeding and nutrition or reproduction) determined by the teacher.</p> <p>A review places the specific experiences into the introductory framework</p> <p><b>Extensions:</b> 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.</p> <p>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.</p>
<b>LEARNING OUTCOMES:</b>	<p>Students will</p> <ul style="list-style-type: none"> <li>▪ Increase understanding of the relationship between niche and adaptation.</li> <li>▪ Gain first hand experience of exemplar animal forms and their morphology.</li> <li>▪ Develop understanding of the relationship between morphology and functionality in the context of survival in a particular niche.</li> </ul> <p><b>Extras:</b></p> <ul style="list-style-type: none"> <li>• Gain a new or renewed appreciation of marine life and the marine environment.</li> <li>• Gain a new appreciation of marine science as a possible field of study or a future career.</li> </ul>
<b>YEAR/LEVEL:</b>	Year 12, Biology level 7
<b>CURRICULUM LINKS:</b>	<p><b>Nature of Science (NoS):</b> level 7 understanding, investigating, participating and contributing.</p> <p><b>Science:</b> 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.</p>
<b>KEY COMPETENCIES:</b>	Thinking, using language, symbols and text, managing self, relating to others.
<b>PRE TRIP PREPARATION:</b>	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).
<b>RESOURCES AVAILABLE TO SUPPORT PROGRAMME</b>	Class sets of Shore identification guides are available.
<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.

The NZ Marine Studies Centre is part of the Marine Science Department, University of Otago.  
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**See [WWW.MARINE.AC.NZ](http://WWW.MARINE.AC.NZ) for more programmes and resources.**

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<b>PROGRAMME COSTS:</b>	Koha if travel is needed
<b>PROGRAMME LENGTH:</b>	To fit with school, one hour is very tight so a two period slot is preferable.
<b>GROUP INFORMATION:</b>	Can form part of rocky shore, ecological distribution survey. Dissections are best when everyone can see, ie a class at a time
<b>SAFETY ACTION PLAN:</b>	To fit with school
<b>NZMSC CONTACT:</b>	Richard de Hamel, phone: 021 4 OCEAN (021 4 62326) email: <a href="mailto:richard.dehamel@otago.ac.nz">richard.dehamel@otago.ac.nz</a>