



National Certificate of Educational Achievement  
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

## Internal Assessment

Subject Reference: **Science 1.2**

Internal assessment reference number: 90187  
**Sci/1/2 –version 3**

**“Paua please”**

Supports internal assessment for:

Achievement Standard  
90187 version 3 (Science)

Process information and describe a use of science knowledge with  
direction  
Credits: 2

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For use in internal assessment  
from 2005

## Internal Assessment Resource

Subject Reference: **Science 1.2**

### “Paua please”

Achievement Standard 90187 version 3

Process information and describe a use of science knowledge with direction

Credits: 2

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## Student Instructions Sheet

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**Aim:** In this task you are to process scientific knowledge and produce a report linking the science knowledge to the management practise of the **paua fishery**.

### Conditions:

The assessment activity has **TWO** parts:

Part One: involves processing information (**one period**).

Part Two: involves interpreting information and writing a research report. Your research report must follow the provided template (**one period**).

You are to use the resources provided for your research *however in your own time you may find more information from other resources*.

**OR**

**Aim:** To process scientific knowledge and produce a report linking the science knowledge to the management practise of a commercial fishery which you have negotiated with the teacher.

### Conditions:

The assessment activity has **THREE** parts:

Part One: involves collecting resources (**one period**).

Part Two: involves interpreting information (**one period**).

Part Three: involves writing a research report. Your research report must follow the provided template (**one period**).

**Your research report must indicate:**

**Part A            The biology (science) knowledge and fishery management knowledge that you processed.**

In order to show you have completed Part A you need to hand in your filled in Resource Summary Sheets and/or resource pages with the important areas highlighted.

**Part B            How the biology (science) knowledge is used to manage the fishery.**

In order to show Part B you need to hand in your Research Report with all sections filled in.

**Part C            A list of the resources used**

These must be written so as they could be found by another student.

**Task One: Processing information**

- a) **Collect** relevant information from the range of resources provided (or that you have found) to answer the research questions below. Collect information on
- the biology (science) of the paua (or your negotiated fishery species)
  - the management of the paua fishery (or your negotiated fishery)

**Research 'Questions' to be used:**

1. Describe the biology of the paua shellfish (or your negotiated fishery species).
2. Describe how fisheries scientists manage the paua fishery (or your negotiated fishery).
3. Discuss how knowing about the biology of the paua (or your negotiated fishery species) helps fishery scientists manage the paua fishery (or your negotiated fishery) (link ideas from question 1 to question 2).

- b) **Process** this information. Processing usually includes:

- **gathering** the information that relates to your research question(s)
- **selecting** relevant and useful information, illustrations, diagrams and graphs to help you discuss the links between the biology of the paua and the management of the fishery.

- c) **Think** about how you can link the biology of the paua (or your negotiated fishery species) to how they manage the paua fishery (or your negotiated fishery).

**Task Two: Interpreting information and producing the report**

Produce a report that clearly answers the research questions above by combining information from a range of different types of resources into a Research Report which is **written in your own words**. If you include direct quotes this must be clearly indicated "with quotation marks".

The Research Report should be written on the template provided and each section must be filled in. You are able to use relevant pictures, diagrams, tables and/or graphs in your report

Assessment Schedule: Sci/1/2

Evidence	Judgement for Achievement	Judgement for Achievement with Merit	Judgement for Achievement with Excellence
<p>The Research Report.</p>	<p><b><u>The student has:</u></b></p> <p><b>Described the biology of the species</b> eg. Orange Roughy live in deep water between 700 and 1500m where the temperature is around 5°C. They spawn in winter (June/July) for only 2 -3 wks. Orange Roughy spawn at a high maturity age of approximately 30yrs and have a low fecundity of 30 – 50, 000 eggs. The spawned eggs travel with the currents and move up to 200m where the water is warmer so development is faster. They develop and move back down. Orange Roughy aggregate around seamounts. They live over 100yrs.</p> <p><b>Described the fishery management</b> eg. The management of Orange Roughy has involved restricting the number of vessels, catch limits and stopping fishing in some areas. The scientists have also gathered data on biomass and numbers. The Exclusive Economic Zone (EEZ) also helps to make the Orange Roughy fishery <b>sustainable</b>. The EEZ is the area around New Zealand from the coast out to 200 nautical miles. It helps make this fishery sustainable because only New Zealand companies are allowed to fish within the EEZ, therefore no foreign vessels are allowed to fish within 200 nautical miles of NZ's coast. The Quota Management System (QMS) is another fishery management practise which helps ensure that the Orange Roughy fishery is sustainable. This works by simply restricting the catch limits of Orange Roughy for each vessel.</p>	<p><b><u>The student has:</u></b></p> <p><b>Described biology of the species</b> eg. (as for Achieved)</p> <p><b>Described the fishery management</b> eg. (as for Achieved)</p>	<p><b><u>The student has:</u></b></p> <p><b>Described biology of the species</b> eg. (as for Merit)</p> <p><b>Described the fishery management</b> eg. (as for Merit)</p>

	<p><b>Described at least <i>one link</i> between the biology and the management practise.</b></p> <p>eg. Orange roughy are long lived – around 150 yrs. They also have a high maturity age which means that they do not start reproducing until they are around 30yrs old! This means it would take a long time for the species to produce a new generation. In order to make the Orange Roughy fishery sustainable the fishery scientists have “severely restricted catch limits”.</p> <p>Orange roughy aggregate around seamounts so management has stopped fishing in some areas.</p> <ul style="list-style-type: none"> <li>• <b>Written parts of the report in their own words.</b></li> <li>• <b>Report includes processed resources.</b></li> <li>• <b>Included a list of 2 resources.</b></li> </ul>	<p><b>Explained at least <i>two links</i> between the biology and the management practise.</b></p> <p>eg. Orange roughy are long lived – around 150 yrs. They also have a high maturity age which means that they do not start reproducing until they are around 30yrs old! This means it would take a long time for the species to produce a new generation. In order to make the Orange Roughy fishery sustainable the fishery scientists have “severely restricted catch limits”. This allows the mature fish to reproduce and make another generation which can then also reproduce.</p> <p>Orange roughy aggregate around seamounts so management has stopped fishing in some areas. This gives the Orange Roughy time to produce more young.</p> <ul style="list-style-type: none"> <li>• <b>Most of the report is in their own words.</b></li> <li>• <b>Report includes processed resources.</b></li> <li>• <b>Included a list of at least 2 resources, given in a way that would enable another person to find the information.</b></li> </ul>	<p><b>Discussed at least <i>two links</i> between the biology and the management practise.</b></p> <p>eg. Orange roughy are long lived – around 150 yrs. They also have a high maturity age which means that they do not start reproducing until they are around 30yrs old! This means it would take a long time for the species to produce a new generation. In order to make the Orange Roughy fishery sustainable the fishery scientists have “severely restricted catch limits”. This allows the mature fish to reproduce and make another generation which can then also reproduce. By leaving enough Orange Roughy to reproduce and make the next generation makes the fishery sustainable.</p> <p>Orange roughy aggregate around seamounts so management has stopped fishing in some areas. This gives the Orange Roughy time to produce more young and replace the ones that have been taken out by fishing. This makes the fishery sustainable.</p> <ul style="list-style-type: none"> <li>• <b>Written all of the report is in their own words unless quotation marks have been used.</b></li> <li>• <b>Report includes processed resources.</b></li> <li>• <b>Included a list of at least 3 resources, given in a way that would enable another person to find the information.</b></li> </ul>
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Assessment Schedule: Sci/1/2

Evidence	Judgement for Achievement	Judgement for Achievement with Merit	Judgement for Achievement with Excellence
<p>The Research Report.</p>	<p><b><u>The student has:</u></b></p> <p><b>Described the biology of the species</b></p> <p>TEACHERS</p> <p>Email me for the examples which go here</p> <p>kiwitide@yahoo.co.nz</p> <p><b>Described the fishery management</b></p> <p>TEACHERS</p> <p>Email me for the examples which go here</p> <p>kiwitide@yahoo.co.nz</p> <p><b>Described at least <i>one link</i> between the biology and the management practise.</b></p> <p>TEACHERS</p> <p>Email me for the examples which go here</p> <p>kiwitide@yahoo.co.nz</p>	<p><b><u>The student has:</u></b></p> <p><b>Described biology of the species</b></p> <p>eg.</p> <p>(as for Achieved)</p> <p><b>Described the fishery management</b></p> <p>eg.</p> <p>(as for Achieved)</p>	<p><b><u>The student has:</u></b></p> <p><b>Described biology of the species</b></p> <p>eg.</p> <p>(as for Merit)</p> <p><b>Described the fishery management</b></p> <p>eg.</p> <p>(as for Merit)</p>

	<ul style="list-style-type: none"><li>• <b>Written parts of the report in their own words.</b></li><li>• <b>Report includes processed resources.</b></li><li>• <b>Included a list of 2 resources.</b></li></ul>	<p><b>Explained at least <i>two links</i> between the biology and the management practise.</b></p> <p>TEACHERS Email me for the examples which go here kiwitide@yahoo.co.nz</p> <ul style="list-style-type: none"><li>• <b>Most of the report is in their own words.</b></li><li>• <b>Report includes processed resources.</b></li><li>• <b>Included a list of at least 2 resources, given in a way that would enable another person to find the information.</b></li></ul>	<p><b>Discussed at least <i>two links</i> between the biology and the management practise.</b></p> <p>TEACHERS Email me for the examples which go here kiwitide@yahoo.co.nz</p> <ul style="list-style-type: none"><li>• <b>Written all of the report is in their own words unless quotation marks have been used.</b></li><li>• <b>Report includes processed resources.</b></li><li>• <b>Included a list of at least 3 resources, given in a way that would enable another person to find the information.</b></li></ul>
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