

CANDIDATE
NAME

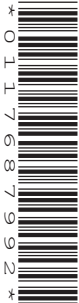
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CENTRE
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MARINE SCIENCE

9693/04

Paper 4 A2 Data-Handling and Free-Response

October/November 2014

1 hour 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Section A

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

Section B

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

Electronic calculators may be used.

You may lose marks if you do not show your working or if you do not use appropriate units.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

For Examiner's Use	
1	
2	
3	
4	
Total	

This document consists of **11** printed pages and **1** blank page.

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

- 1 Shrimp fishing generally requires the use of small mesh trawling nets. This results in an increased catch of non-target species, otherwise known as bycatch.

Research into the different species found in the bycatch of *Nephrops* (Dublin Bay prawn) fishing was carried out by the Belgian fisheries ministry. The findings are shown in Table 1.1.

Table 1.1

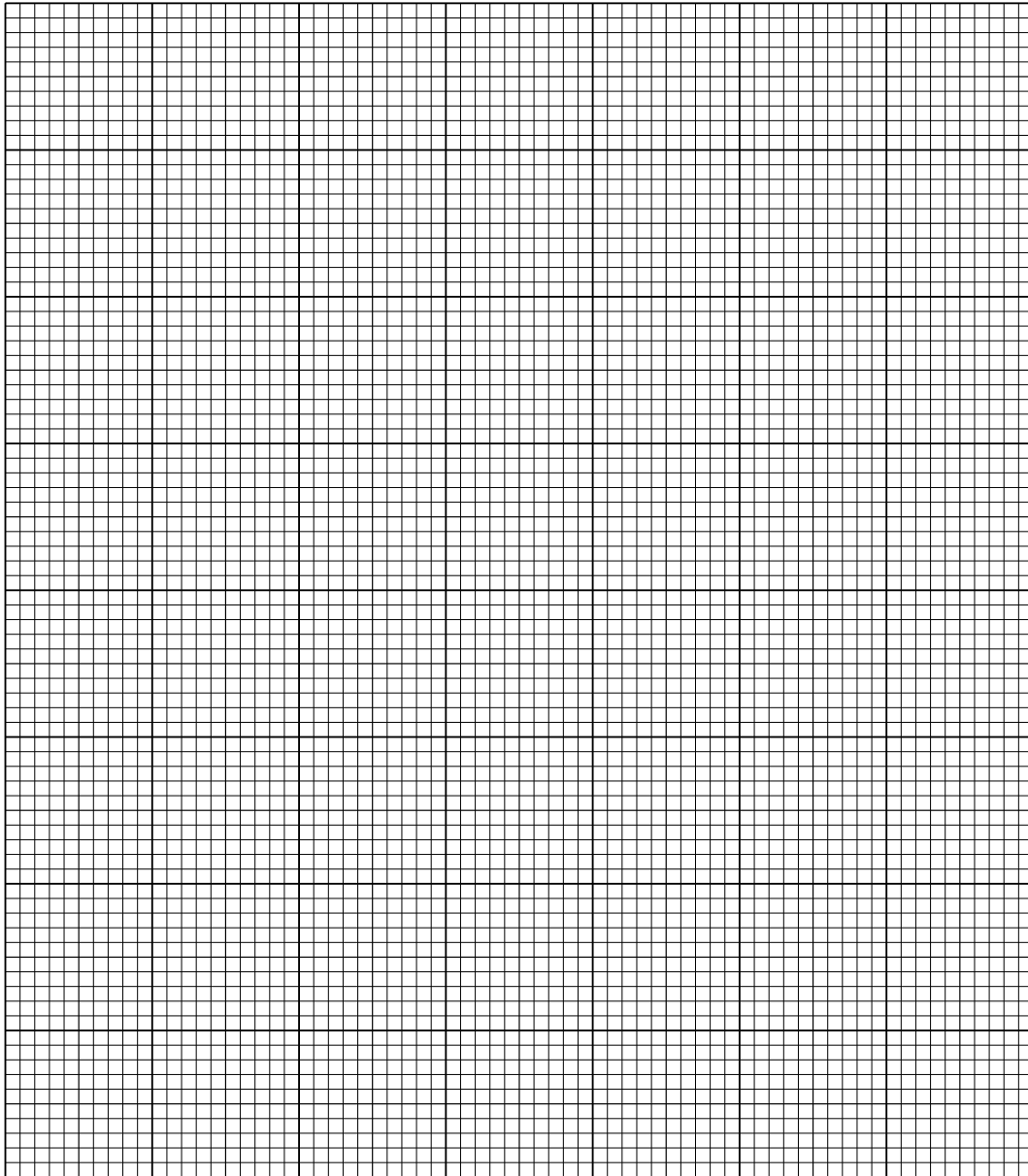
species	landings / tonnes	percentage of total landing
<i>Nephrops</i>	552	35.2
plaice	421	
whiting	153	9.8
sole	115	7.3
cod	80	5.1
rays	44	2.8
other	203	12.9
Total	1568	100.0

- (a) Calculate the percentage of the landing that was plaice.

Record it in Table 1.1.

[1]

(b) Plot a graph showing how percentage of total landing varies with different species.



[4]

(b) Describe the effect of increasing salinity on the change in concentration of oxygen in the saline solutions.

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..... [2]

(c) Suggest an explanation for the effect of increasing salinity on the change in concentration of oxygen in the saline solutions.

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..... [4]

[Total: 8]

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