

AQA – Genetics, populations, evolutions and ecosystems – A2 Biology

1. No.5

0 5 . 1

The scientists used the following formula to calculate the index of diversity (d) of fish.

$$d = \frac{N(N-1)}{\sum n(n-1)}$$

where N = total number of fish of all species
and n = total number of fish of each species

In some years, the values were $N = 624$ and $\sum n(n-1) = 64\,792$

Which years had these values?

Use **Figure 8** and the formula above to work out your answer.

[1 mark]

Answer _____

0 5 . 2

In 1997, the scientists recorded the highest species richness, but the lowest value of d over the 29 years.

Describe and explain how these results for 1997 were possible.

[2 marks]

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A journalist studied **Figure 7** and **Figure 8** (on page 16) and concluded that releasing heated water from a power station has no effect on local fish communities.

Use all the information to suggest reasons why the journalist's conclusion might **not** be valid.

[4 marks]

[illegible]