Commentary on candidate 5 evidence

Sewage

The evidence for this candidate has achieved the following marks for each section of this course assessment component.

Section	Mark available	Mark awarded		Comments
1. Aim	1	1		The aim clearly describes the purpose of the investigation.
2. Underlying environmental science	3	3		Holistically, a good understanding of environmental science is demonstrated. This includes the impact of sewage and eutrophication on an aquatic ecosystem, and methods used to assess impacts on water quality.
3. Data collection and handling	5	a	1	The summary is sufficient for the procedures to be visualised. The incorrect spelling of meter is ignored since the meaning is clear.
		b	0	The raw data from the investigations are not sufficient. No raw data is provided for investigation 1; the table includes only calculated average values. Raw data has been provided for investigation 2, but there is no indication of repetition, which would be normal practice in such an investigation and is inferred in the evaluation.
		c	1	The table for investigation 1 is disregarded as it contains errors: conductivity should be expressed in µS/cm (µS cm^{-1}), and the third parameter should be 'average dissolved oxygen concentration'. The mark is awarded for presentation of data from investigation 2 (freshwater invertebrates), which are correctly presented in a table with appropriate column headings; no units are required as the data relate to counts.
		d	1	Relevant data has been obtained from two separate investigations.

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		e	0	Sources used to support the underlying environmental science are in the required format in the reference section (full URL and date accessed), but none of the sources has been cited within the body of the report.
4. Graphical presentation	4	a	1	A bar graph is used for investigation 2, which is an appropriate format for the data.
		b	1	The x-axis has categories in place of a scale, while the y-axis has an appropriate scale.
		c	1	Both axes have suitable labels and units.
		d	1	Data is accurately plotted, with clear bar tops.
5. Analysis	2	a	1	A good analysis for investigation 1 of the impact of suspended solids on photosynthesis and on (dissolved) oxygen concentration is provided. Analysis of investigation 2 is also appropriate, including mention that there is a potential problem with the mayfly data. The mark would be awarded for either one of these analyses.
		b	0	% change for each parameter in investigation 1 is calculated, but the value for average conductivity should be 63.64% (not 63.63%).
6. Conclusion	1	1		The aim was to investigate the effects of animal waste on freshwater ecosystems. A valid conclusion is made and is supported by all the data in the report.
7. Evaluation	3	2		Three evaluative statements are provided. While the second statement, relating to mayfly data, highlights that there is an issue; revisiting the raw data should suffice rather than

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			repeating the investigation (which could potentially generate conflicting data if there has been a change in sewage/livestock management in the interim).
8. Structure	1	0	The structure is clear and concise but no title has been included.
Total	**20**	**15**	