

Freshwater Indicator Species: Sample Answers

Sample Answers

Results/Observations

Sample	Sample A		
Appearance of Sample	Cloudy, brown colour, strong sewage smell		
Organism	Abundance	Signal Number	Comments
Planaria (flat worm)	7	2	Freshwater, tolerates pollution and low oxygen
Backswimmer	1	1	Found in slow moving environment, common
Damselfly Nymph	4	8	Dull brown colouration
Duckweed	1	N/A	Only small amount size of 10 cent piece
Signal Score	$2 + 1 + 8$ (don't count N/A) = 11 $11/3 = 3.67$ (Severe pollution)		

Discussion Questions

Question 1: What makes a good indicator species?

- *Easily identified*
- *Only found in certain conditions, thus highly specific*
- *Easily captured for identification*

Question 2: What would an abundance of a certain species suggest?

- *Ideal environment for that species*
- *Lack of predators*
- *High rate of reproduction*

Question 3: What could contribute to poor waterway health?

- *Fertiliser from nearby farms*
- *Pollutants from factories*
- *Runoff from roads, carrying dirt (increased turbidity), chemicals and rubbish*

Question 4: Why is it important to monitor waterway health?

- *Effects nearby environment and thus humans*
- *Poor waterway health may indicate a larger problem, e.g. a company illegally dumping waste.*

Question 5: Are there indicator species that are not aquatic?

- *Yes, for example, Lichen and Frogs*

Conclusion

Sample A

The SIGNAL score of 4 indicates the water from Sample A is severely polluted. The presence of Planaria and Backswimmers also suggests the water is slow moving and has low oxygen levels. This is because Planaria can tolerate low oxygen environments while Backswimmers are found in slow moving waterways. Moreover, slow moving waterways tend to have lower oxygen levels.

However, the presence of Damselfly Nymphs, which has a SIGNAL score of 8 is not consistent with the finding that the water sample is severely polluted. Damselfly Nymphs are generally found in healthy waterways.

This may indicate that the water is not polluted as Planaria and Backswimmers can live in healthy water, whereas Damselfly Nymphs cannot live in polluted water. It may suggest that the waterway was not adequately sampled and that species that were present were not collected.

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