

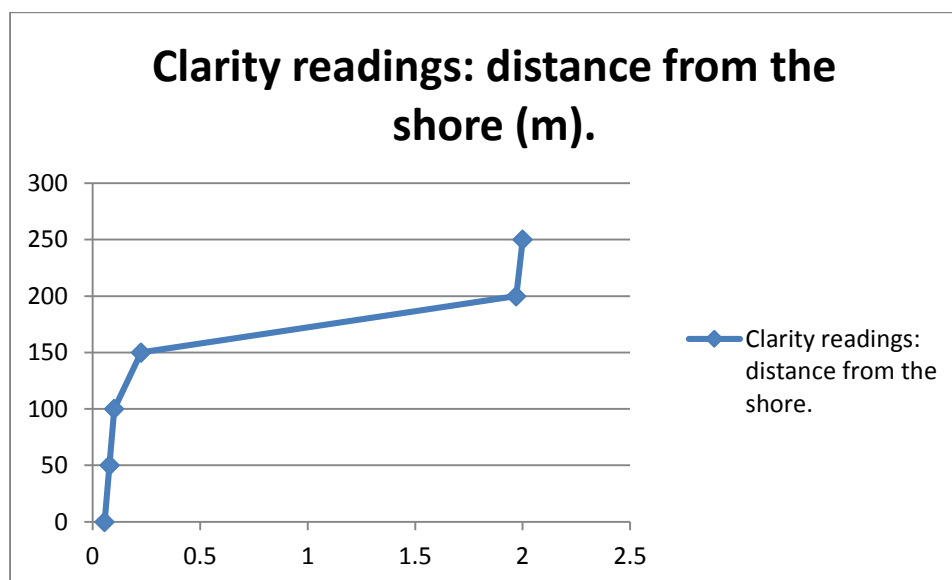
Note: This student also described a valid method, correctly identified key variables and processed raw data.

Purpose: To observe changes in the clarity of sea water off the mouth of the Aparima River for 200m from shore. (1)

Hypothesis: The further the river water travels into Foveaux Strait the clearer the water readings will be.

Results:

Straight line distance from the shore.	0m River mouth	50m	100m	150m	200m	250m
Secchi Reading	0.06m	0.075m	0.095m	0.20m	1.95m	>2.0m



Interpretation of the data:

The results show that where the river water met the sea water the water carried clay particles suspended in it. As the river water mixed with the sea water there was a drop off in clay and water clarity started to increase. There was a significant increase between 150m and 200m from shore and by 200m water was pure sea water. At 150m the water had clay and yet by 200m the water was quite clear. Something happened between these two points to remove the clay from the water. The key thing was different water densities and clay flocculation. (2)

Earth and Space science behind the investigation:

a/ Water Density:

When river water and sea water meet there is no mixing between the two water bodies because the river water and the sea water have different densities. The river water with the

low density sits on the sea water. They will eventually mix because of the tides but that takes time and the water can travel 150m before this happens.

b/ Flocculation:

When clay particles hit sea water they are flocculated. This means they form clumps and sink to the bottom of the sea bed. (3)

Conclusion:

The change in water clarity as a river in minor flood flowed out into Foveaux Strait showed a pattern of a sudden clearing between 100m and 150m off shore.

The change in water clarity was due to the river waters dropping their clay particles and the clean sea water being observed after 150m. (4)

The experiment was valid and showed an expected trend in the data. Dirty water exists in Foveaux Strait until it gets mixed with sea water