Purpose: To investigate the distribution of *Potamopyrgus antipodarum* in the Waihopai River.

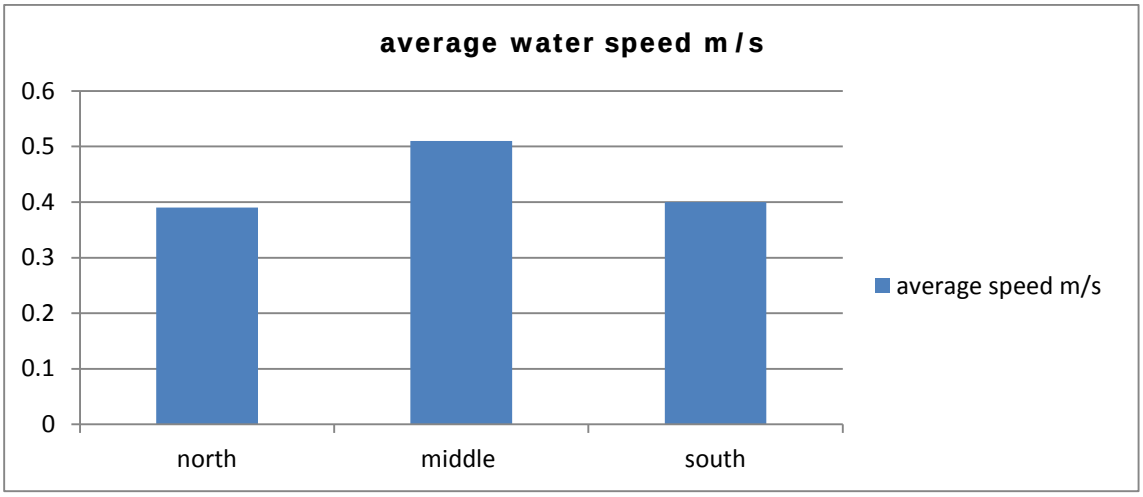
Student 5: Low Achieved
NZQA Intended for teacher use only

Aim:
To find out if the speed of the water affects the number of fresh water snails (Potamopyrgus antipodarum) present in a stream bed of the Waihopai River between Queen's drive and the Waihopai Dam.

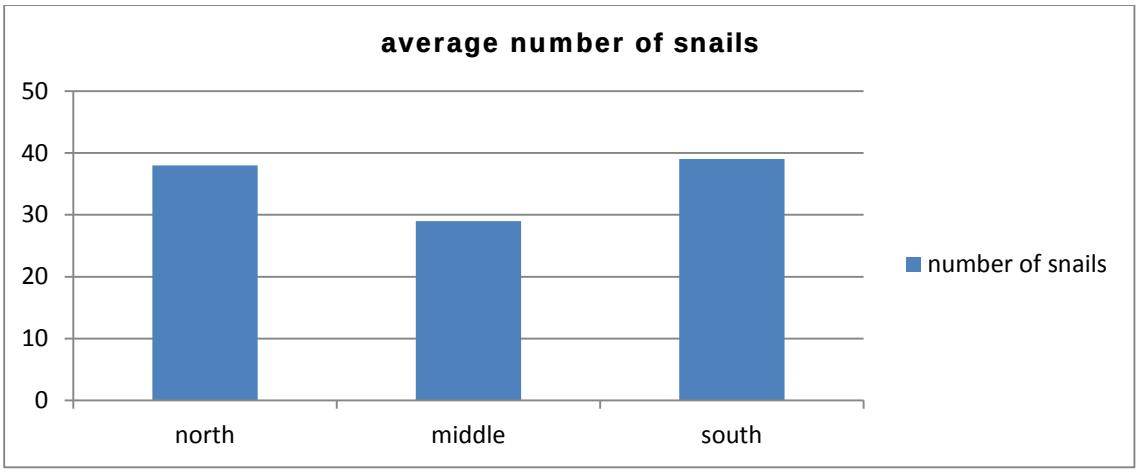
Hypothesis:
The river edges will have more fresh water snails (Potamopyrgus antipodarum) present than the middle of the river where the speed of the river is faster, because the speed of the current affects the habitat of the snail's algae food source. (1)

Position in river	Average speed (m/s)	Average number of snails
North side	0.39	38
Middle	0.51	29
South side	0.40	39

(2)



(2)



(2)

Conclusion:

The results of my investigation show a clear trend that the speed of the water is fastest in the middle of the stream and the slowest on the edges. There is also a clear trend that there are more snails (Potamopyrgus antipodarum) on the edges of the stream. 3

So my results show that as the speed of the water increases the number of snail's present decrease. This trend is the same as what my hypothesis said would happen. 4

Discussion:

The location of my three sites is on the Waihopai River is between the Queen's Drive Bridge and the dam near Bainfield road. This part of the river has been straightened by humans, so the river is almost a uniform depth and is almost dead straight.

The speed of the water is fastest in the middle and there are more snails present at the sides of the river compared to the middle of the river. There is no significant difference between the number of snails on the south side of the river and the number snails on the north side of the river. The water speed therefore must affect snail distribution; this is because as the water speed of the river increases, it will affect algae growth (periphyton) which will also affect the snails. 3

This trend is similar to what other students in my class found, for example, student A and student B who did similar investigations. 5

The New Zealand freshwater snail has a preference for sediment-contaminated cobbles and the presence of filamentous green algae (Suren, 2005). I feel this is why *Potamopyrgus antipodarum* population is determined by the river's velocity. 5

Potamopyrgus antipodarum found in the Waihopai River is a freshwater snail native to New Zealand. It can inhabit a wide range of ecosystems, including rivers, reservoirs, lakes, and estuaries. P. antipodarum may establish extremely dense populations that can make up over 95% of the invertebrate biomass in a river and compete with or displace native molluscs and macro-invertebrates. They can spread rapidly in introduced areas and are able to withstand desiccation, a variety of temperature regimes, and are small enough that many types of water users could be the source of introduction to new areas.

The Waihopai River has a large amount of algae present. This is because there is a large amount of nutrients flowing through the water due to intensive land use in the waihopai catchment. This provides prime growing conditions to algae so lots of it grows. This means lots of snails. 3

My data is reliable because there was a clear trend found. This trend was clearly seen at all of the sites. If this trend was not seen at every site then another site would have been chosen and the gathering of data would have been repeated. The trend I found is also supported by other students' finds, proving that my data is reliable.