Freshwater Discovery

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1. **Name of your school =** Parua Bay School

2. **Name of the waterway =** Waikaraka Stream – at entrance to Waitotara Lane.

3. **Date of stream study and recent conditions:** 29/02/12. Sunny day with warm breeze. A few showers over last few days.

4. **Location of stream study =** Waitotara Lane – adjacent to grassy verge at entrance to road.

5. Clarity

Measure the clarity of the water. Write the answer in the space below:

Clarity = 100 cm +!

A clarity of more than 70cm is okay. A clarity of more than 100cm is good.

6. Water Temperature

Test the water temperature using the thermometer. Write the answer in the space below:

Water Temperature reading = 14 degrees celcius

A temperature of 12-14 degrees is good for most stream life around this time of year.

7. Water Flow

- Measure the flow of the stream. Write the answer in the space below:

  Time = 27 seconds

  Distance = 5 metres 5/27 = 0.2m/s

A velocity (flow rate) of 0.3-0.7 m/s is best for most stream life.

8. pH

pH was measured at 6 which means that the stream is high in nutrients – this may be from lots of nutrients washing into the stream from the surrounding catchment. Most streams are slightly acidic

(6-6.5).

9. Thinking about changes

Main landuse?

Forestry
Farming
Bush

Are the plants shading and protrecting the stream – are there enough riparian plants?

YES – although there could be more up by the bridge

What types of pollutants could be getting into this stream and how?

Type of pollutant	**How is it getting into the stream?**
Stormwater	Drains
Cow Poo and fertilizer?	Farmland upstream
Rubbish	Washing down from further upstream

Do you think it's safe to get into this stream? Why?

Yes as long as we sanitise our hands before eating and drinking and wear shoes in the stream.

Invertebrate Life

If it is safe to get into the water collect up to five samples. Always move upstream as you go and take good care of your bugs! Try to sort and identify your bugs using the "Waicare Invertebrate Field Guide – Invertebrate Identification' front pages. Begin to fill in the table below if you can:

Here's the key code for the tally:

Rare:	1-4 animals
Common:	5-19 animals
Abundant:	20-99 animals
Very abundant:	100-499 animals
Very very abundant:	>500 animals

Species:	**Tally:**	**Sensitivity Score:**
Freshwater pointed snail	VA	3
Freshwater Crayfish	R	5
Worm	C	1
Swimming mayfly	A	9
Spiny gilled mayfly	A	9
Free-living caddisfly	VA	5
Dobsonfly	C	7
Spiral stony cased caddis	A	10
Shrimp	C	5
Woody-cased Caddisfly	C	7
Flatworm	C	3
Stony-cased Caddisfly	A	9
Cranefly Larvae	R	5
Leech	R	3

9. Fish and Eels

Check the traps with Kim and record what you find in the table below:

Species:	**Size:**	**Tally:**
Banded kokopu	3cm – 12cm	38
Redfinned Bullies	1.5cm-8cm	15
Shortfin Eels	6cm-76cm	14
Bully Eggs	Patches around the size of 50 cent pieces	VA

10. Putting it all together...

Add all of your sensitivity scores together and divide that number by the number of different species you found. This will give you a health rating. Write your calculation below...

3+5+1+9+9+5+7+10+5+7+3+9+5+3=81 84/14=6

Thinking about your health score for the stream and everything else you saw and experienced at the stream, how healthy do you think the study site is? Write your decision as a rating out of ten in the space below...

9/10. Considering that we found a wide range of life and most of things we found were quite high scoring creatures we can assume that the stream is quite healthy. There is lots of vegetation around but further upstream we are not sure what could be getting into the waterway.

Brainstorm ideas you have on how the quality of the habitat for the invertebrates and water in the stream could be improved...write your ideas below...

Plant low species like flaxes, RengaRenga lilies, Carex and sedges by the bridge for Inanga and Kokopu to spawn in.
Keep monitoring the site
Summarise (with art, story or drama, maths – whatever works!) what we found out about the stream and how we can look after it and share it with the rest of the school and the wider community so they can get excited about our waterway too and help to look after it.