Monitoring Sheet One

Habitat Survey – How well can our stream support life?

Site name _____ Group number ☐

What is a habitat? _____

_____

_____

_____

Look around you. Use the tables below to find the description that most matches the type of habitat in and around your stream. The tables are divided into Habitat in the Stream and Habitat on the Stream Banks

1. Habitat Survey in the stream

Habitat Factors	Excellent Score 8	Good Score 6	Fair Score 4	Poor Score 2	Your Score
Does the stream provide protection and cover for stream life?	More than ½ the stream has cover, logs, cobbles, and rocks, many plants over	Up to ½ the stream has cover	Less than a ⅓ of the stream has cover	There is very little or no cover and no plants in or overhanging the stream	
Riffles, pools, bends and meanders	Wide variety of flow types and pools of varying depth	Some variety	Only slight variety	Uniform flow, stream is all one depth	
Sediment on the stream bed	The stream bed is up to ¼ covered in fine sediments	The stream bed is Between ¼ and ½ covered in fine sediments	The stream bed is Between ½ and ¾ covered in fine sediments	The stream bed is more than ¾ covered in fine sediments	

Monitoring Sheet One (continued)

2. Habitat on the stream banks

Habitat Factors	Excellent Score 8	Good Score 6	Fair Score 4	Poor Score 2	Your Score	
					Left Bank	Right Bank
Bank vegetation. Are the banks protected?	Stream banks covered with trees and shrubs	More than 3/4 covered with trees and shrubs	More than 1/2 covered	Less than 1/2 covered		
How stable are the banks?	No erosion	Spots of erosion	Significant active erosion	Very unstable bank		
Is the stream open to land run off?	Well vegetated margins at least 30 metres wide	Well vegetated margin 20 metres wide	Narrow margin 5-10 metres wide	Bare of introduced grass cover such as pasture land		

Add up your total score	Score
Habitat in the stream	
Habitat on the left bank	
Habitat on the right bank	
TOTAL	

Rating
Score 18 – 30 = poor
Score 31 – 42 = fair
Score 43 – 59 = good
Score 60 – 72 = excellent

Monitoring Sheet One (continued)

Draw a cross section of your stream

Observations: _____

Monitoring Sheet Two

Calculating river flow

Site name _____ Group number ☐

Step 1

Calculate the average depth
Measure the depth at up to ten points across the river

1. _____ metres
2. _____ metres
3. _____ metres
4. _____ metres
5. _____ metres
6. _____ metres
7. _____ metres
8. _____ metres
9. _____ metres
10. _____ metres

Divide the total by 10

Average depth _____ metres

Step 2

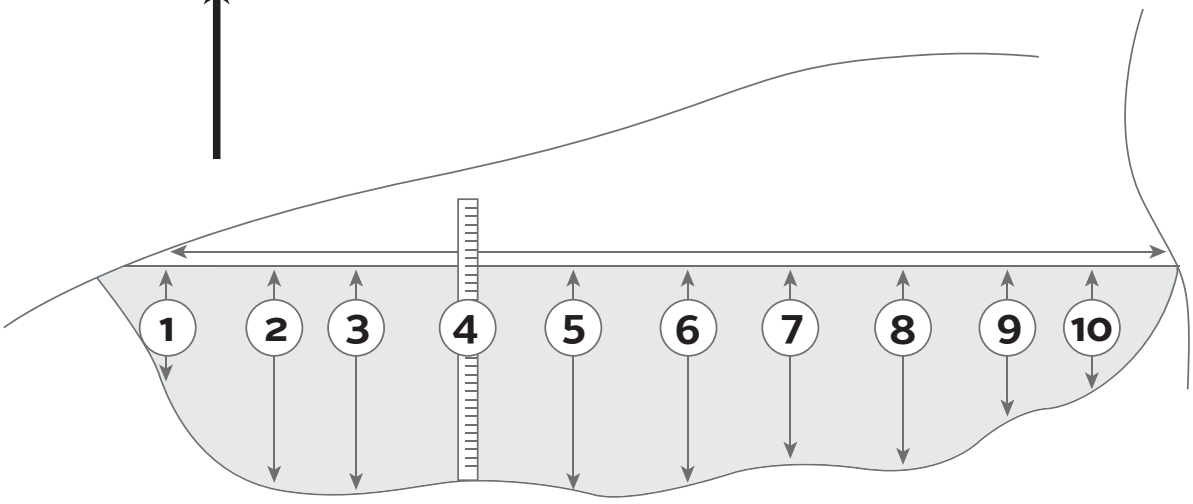
Measure the river width

_____ metres

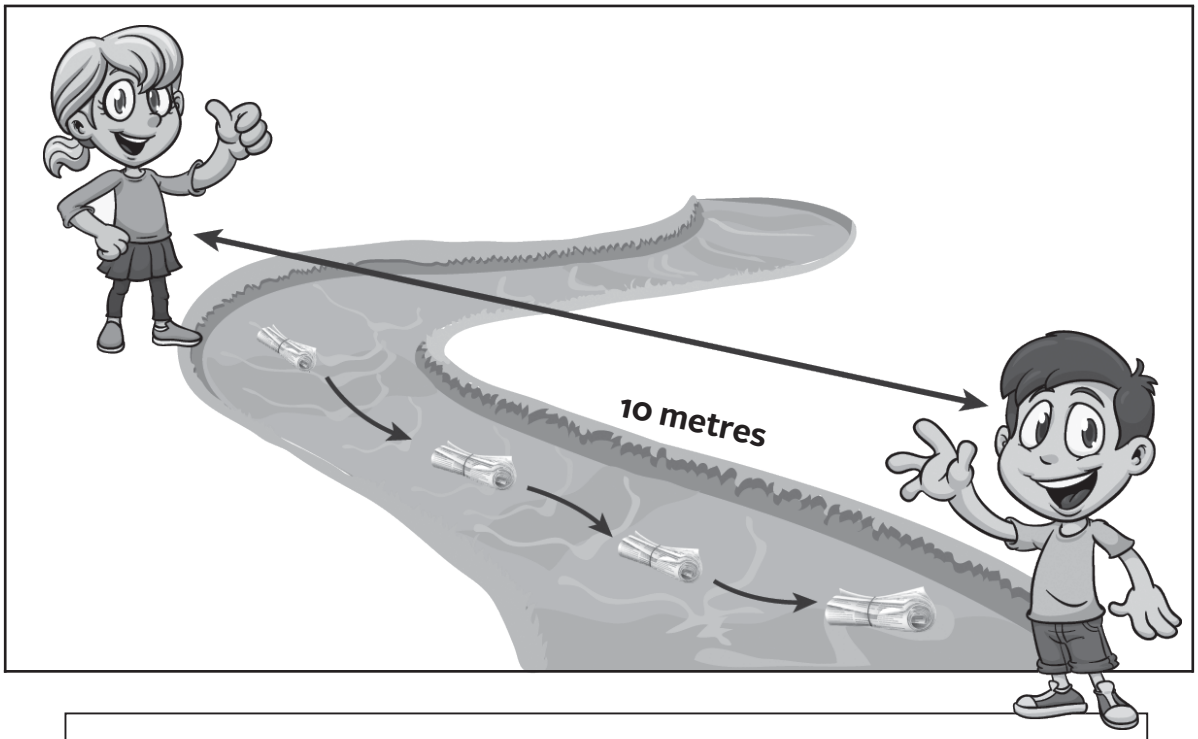
Step 3

Calculate the area of the cross section
Average depth x width = area

____ (m) x____ (m) _____ =(m²)



Monitoring Sheet Two (continued)



Step 4

Do this at at least 3 times and calculate the average.

Calculate the velocity of the flow
Measure the time it takes for the stick (or similar object) to travel 10 metres.

Time over 10m _____ seconds

Surface velocity = distance divided by average time

_____(m) = _____ (m/secs)

_____ (secs) **Surface Velocity**

1. _____
2. _____
3. _____

Average: _____

(total time divided by number of trials)

Step 5

Calculate the flow of the river – Average depth x width = area

Velocity _____(m/sec) x **area** (m^2) = **flow** (m^3sec)

There are 1000 litres in 1 cubis metre. To convert flow to litres per second multiply by 1000.

_____ (m^3/sec) **x 1000 = flow** _____ (litres/sec)

Monitoring Sheet Three

Colour and clarity

Site name _____ Group number ☐

River colour

What colour is the water when you look at the river? _____

What colour is the water when you cup it in your hands? _____

When does the river look dirty? _____

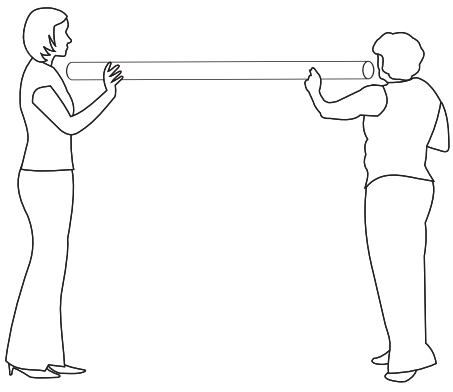
_____

How does the water smell? eg. normal, fishy, swampy, fresh? _____

_____

Factors affecting colour: Geology, silt, tannin from vegetation.
Factors affecting smell: Flow levels, algae levels, point source discharges, stock, dead animals.

Clarity



Two people are needed to take a water clarity reading. One collects undisturbed water filling the tube to the brim taking care not to stir up the sediment. Make sure there are no air bubbles in the tube.

Next, put the magnet with the black disc inside the tube making sure the disc is closest to the open end of the tube. Attach the other magnet on the outside of the tube to keep the black disc in place. Seal the tube with the rubber cap over the open end.

Move the tube into the shade away from direct sunlight and have one person hold each end. Hold it parallel to the ground and look into the clear end of the tube. Slide the magnets along until the black disc is no longer visible. You may need your partner to move the disc if it goes beyond arm length. Note the position of the disc (by reading the centimetres on the outside of the tube).

Repeat these steps a few more times until you have an average clarity reading.

Excellent: > 100cm, Fair: 55 to 100cm, Poor:< 50cm

1. _____ 2. _____ 3. _____ Average: _____

(Average) clarity reading _____ (centimetres)

Monitoring Sheet Four

Algae

Look for filaments growing on the stream bed or do the stones feel slimy? _____

_____

Thickness of film / filaments _____ (mm)

Colour _____ (green, brown or clear)

Estimate of % cover

_____ % cover filamentous

_____ % cover film

_____ % no algae growing

Take several different temperature readings using the Multimeter from different parts of the stream (e.g. shaded, in full sun, fast fiow, slow fiow etc.)

Temperature °C: _____

_____

_____

Measure the conductivity of a water sample from the main flow using the Multimeter.

Conductivity: _____

_____

_____

Using the Multimeter measure a sample of the stream water from the main flow to calculate pH.

pH: _____

_____

_____

Monitoring Sheet Five

Site name _____ Group number ☐

Invertebrate type	Number found of each type
Mayflies	
Large stoneflies	
Small stoneflies	
Uncased caddis	
Cased caddis	
Purse caddis	
Dobsonflies	
Beetles	
Damselflies	
Dragonflies	
Amphipods	
Snails	
Waterboatmen	
Worms	
Flies	