

Name:

WATERBUGS SIGNAL data sheet

Record the following information about your waterbug sampling site.

Location

Date and time

Waterway name

Weather condition (circle)



SUNNY



CLOUDY



RAINING



WINDY

Waterway depth (mm/cm – approximate)

Waterway width (cm/m – approximate)

Rainfall estimate (past 24 hrs)

Estimate the percentage of each habitat type that makes up your waterway.

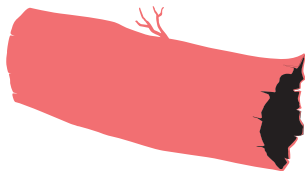
LEAF PACKS

 %

AQUATIC PLANTS

 %

WOOD

 %

EDGE PLANTS

 %

ROCKS

 %

GRAVEL

 %

SAND/SILT

 %

OPEN WATER

 %

**OVERALL TOTAL MUST
ADD UP TO 100%**

 %

Record the different waterbugs you find.

SENSITIVITY	NAME	TICK IF PRESENT	A	B	C	D	
			SIGNAL	NUMBER OF BUGS	WEIGHT FACTOR	COLUMN A X COLUMN C	
Very Sensitive	Stonefly Nymphs		10				
	Mayfly nymphs		9				
Sensitive	Alderfly larvae		8				
	Caddisfly larvae		8				
	Riffle beetle and larvae		7				
	Water mites		6				
Tolerant	Beetle larvae		5				
	Dragonfly nymph		4				
	Whirligig beetle and larvae		4				
	Yabby / Freshwater crayfish		4				
	Water strider		4				
	Damselfly nymph		3				
	Fly larvae and pupa		3				
	Midge larvae and pupa		3				
	Freshwater mussel		3				
	Nematode		3				
	Freshwater sandhopper		3				
	Freshwater shrimp		3				
	Water scorpion / Needle bug		3				
	Very Tolerant	Diving beetle		2			
Flatworm			2				
Hydra			2				
Water treader			2				
Freshwater worm			2				
Freshwater slater			2				
Waterboatman			2				
Backswimmer			2				
Bloodworm			1				
Leech			1				
Mosquito larvae and pupa			1				
Freshwater snail			1				
TOTALS							



No. of each bug found Column B	Weight Factor Column C
1-2	1
3-5	2
6-10	3
11-20	4
>20	5

WEIGHT TABLE



Calculating the health of your site.

1. Count the number of bug types by adding up your ticks.

2. Calculate the Stream Pollution Index (SPI).

$$\frac{\text{TOTAL COLUMN D} \span style="border: 1px solid green; display: inline-block; width: 20px; height: 15px; vertical-align: middle;">}{\text{TOTAL COLUMN C} \span style="border: 1px solid yellow; display: inline-block; width: 20px; height: 15px; vertical-align: middle;">} = \span style="border: 1px solid blue; display: inline-block; width: 30px; height: 20px; vertical-align: middle;">$$

3. Using Table 1 below, classify the **Stream Pollution Index** (SPI) and number of bug types as high or low based on your site description.

SPI = High Low

Number of bug types (taxa richness) = High Low

TABLE 1: BUG TYPE AND SPI RATING

SITE DESCRIPTION	SPI		BUG TYPES (TAXA RICHNESS)	
	LOW	HIGH	LOW	HIGH
Wetlands	0–3.1	>3.1	0–14	>14
Streams <300 metres asl	0–3.1	>3.1	0–11	>11
Other rivers and creeks	0–3.5	>3.5	0–15	>15

4. Identify the site conditions based on your bug count using the SIGNAL 2 Scoring table. Circle your score.

TABLE 2: SIGNAL 2 SCORING TABLE

SIGNAL 2 SCORING	BUG TYPES (TAXA RICHNESS)	HOW HEALTHY IS YOUR WATERWAY BASED ON YOUR WATERBUG SAMPLE?
High	High	Good water quality and a diversity of habitats. It may be a well-managed site, natural bushland or a national park.
Low	High	Water quality may be slightly affected by human activity or natural factors. There may be higher levels of salinity and/or nutrient levels at the site.
High	Low	Water quality is affected by a pollution source upstream or there are few habitats due to harsh physical conditions.
Low	Low	Water quality is affected by human use such as urban, industrial or agricultural pollution or by the downstream effects of dams.
Unable to calculate	Unable to calculate	Unable to calculate an SPI score as there are fewer than 50 waterbugs in the sample. This may indicate poor sampling technique, or that your site is under stress. There may be poor habitat diversity and/or water quality. Make sure you sample in all habitats and keep an eye on the site.