

AusRivAS (Australian Rivers Assessment System) at
Zeehan.
Final Report

Prepared by Kanunnah Pty Ltd
for
John Miedecke

ABN: 44 126 160 692



23 April 2017

CITATION

This report can be cited as: Walsh, T (2017). AusRivAS Survey of Zeehan sites. *Report by Todd Walsh of Kanunnah Pty Ltd for John Miedecke 2017.*

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Report production: Todd Walsh

Base data for mapping: TasMap

Disclaimer

Except where otherwise stated, the opinions and interpretations of legislation and policy expressed in this report are the authors own and may not necessarily reflect those of the relevant agency. It is the client's responsibility to confirm management prescriptions with the relevant agency before acting on the content and recommendations of this report

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1 Introduction

A total of four sites near Zeehan were identified to be assessed for river health (AusRivAS).

AUSRIVAS is a rapid procedure to quantify impact on the in-stream biota. At present, this is achieved by predicting the occurrence of families of macro invertebrates at test sites from environmental variables and a large database of high-quality reference sites. The raw output from this procedure is a list of the families of invertebrates expected in a standard sample from the site, the probability of occurrence of each family in that sample and a tally of which of those families did occur in an actual sample.

O/E (Observed/Expected) score is a ratio relating the number of families of macro invertebrates recorded in a sample to the number of families expected in that sample per the predictions of the model for least-disturbed conditions.

Sites are scored as follows:

Autumn Riffle Scoring Bands

O/E Score	Band	Explanation
>1.14	X	Richer than reference. More macroinvertebrate families found than expected
0.86-1.14	A	Like reference. Most or all the expected families were found at the site
0.58-0.85	B	Significantly impaired. Several expected families not found
0.30-0.57	C	Severely impaired. Many expected families not found
0.00-0.27	D	Extremely impaired. Extremely few of the expected macroinvertebrate families found

Table .1 Scoring systems for AusRivAS

The four sampling sites were as follows:

Code	Name	Northing	Easting
LESLIE001	Leslie station Creek off Zeehan Highway near Zeehan	5363073	365573
LHENTY1002	Little Henty River off Zeehan Highway near Zeehan	5361396	363517
LHENTY1001	Little Henty River at Garwoods hut near Zeehan	5359470	363493
STDIZ001	St Dizier Creek off Heemskirk Road near Zeehan	5368102	344954

Table .2 AusRivAS sampling sites and coordinates

2 Results

Date	Site	Site	O/E	Band
	Code	Name	Score	
7/04/17	LESLIE001	Leslie station Creek off Zeehan Highway near Zeehan	0.96	A
7/04/17	LHENTY1002	Little Henty River off Zeehan Highway near Zeehan	0.72	B
7/04/17	LHENTY1001	Little Henty River at Garwoods hut near Zeehan	0.75	B
7/04/17	STDIZ001	St Dizier Creek off Heemskirk Road near Zeehan	0.84	B

Table .3 AusRivAS Results for autumn 2017

3 Discussion of results

The site at Leslie Station Creek was predominantly gravel and produced an excellent result.

The Little Henty off Zeehan Highway was predominantly pebble, with some weed and algal growth. The initial score suggests significant impairment. There is obvious disturbance at the site, which is reflected in the results.

The Little Henty at Garwoods Hut was an interesting site. The site is predominantly bedrock, with heavy sedimentation and obvious human impact. There was however, plentiful in stream macrophyte for macroinvertebrate habitat, without this macrophyte habitat, the score would have almost certainly been much lower. The initial score was similar to the upstream Little Henty site, suggesting similar water quality but different macroinvertebrate refuge types.

St Dizier Creek has historical mining impacts, the creek itself has been lowered by more than 2m in areas due to mining. The score was 0.84, only 0.02 from gaining an A rating. There is sufficient large boulder and cobble habitat, but disturbing the creek bed proved difficult due to the larger substrate. This can affect a score as some macroinvertebrates such as certain fly larvae tend to bury themselves in the substrate.

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Final Report

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26 September 2017

CITATION

This report can be cited as: Walsh, T (2017). AusRivAS spring 2017 Survey of Zeehan sites. *Report by Todd Walsh of Kanunnah Pty Ltd for John Miedecke 2017.*

AUTHORSHIP

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1 Introduction

A total of four sites near Zeehan were identified to be assessed for river health (AusRivAS).

AUSRIVAS is a rapid procedure to quantify impact on the in-stream biota. At present, this is achieved by predicting the occurrence of families of macro invertebrates at test sites from environmental variables and a large database of high-quality reference sites. The raw output from this procedure is a list of the families of invertebrates expected in a standard sample from the site, the probability of occurrence of each family in that sample and a tally of which of those families did occur in an actual sample.

O/E (Observed/Expected) score is a ratio relating the number of families of macro invertebrates recorded in a sample to the number of families expected in that sample per the predictions of the model for least-disturbed conditions.

Sites are scored as follows:

Spring Riffle Scoring Bands

O/E Score	Band	Explanation
>1.15	X	Richer than reference. More macroinvertebrate families found than expected
0.86-1.15	A	Like reference. Most or all the expected families were found at the site
0.57-0.85	B	Significantly impaired. Several expected families not found
0.28-0.56	C	Severely impaired. Many expected families not found
0.00-0.27	D	Extremely impaired. Extremely few of the expected macroinvertebrate families found

Table .1 Scoring systems for AusRivAS

The four sampling sites were as follows:

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Table .2 AusRivAS sampling sites and coordinates

2 Results

Date	Site	Site	O/E Score	O/E Score	Band
	Code	Name	autumn 2017	spring 2017	spring 2017
18/09/17	LESLIE001	Leslie station Creek off Zeehan Highway near Zeehan	0.96	0.87	A
18/09/17	LHENTY1002	Little Henty River off Zeehan Highway near Zeehan	0.72	0.72	B
18/09/17	LHENTY1001	Little Henty River at Garwoods hut near Zeehan	0.75	0.64	B
18/09/17	STDIZ001	St Dizier Creek off Heemskirk Road near Zeehan	0.84	0.73	B

Table .3 AusRivAS Results for spring 2017

3 Discussion of results

There have been significant rain events in the months preceding the sampling. The water at all sample sites was turbid, making substrate more difficult to identify and therefore sample.

The water levels in the Little Henty River were very high for sampling, with a rainfall event happening on the day of sampling. The Little Henty site at Garwoods hut is predominantly macrophytes, in which the macro-invertebrates shelter. The higher flow may be a factor in the slightly lower score. The Little Henty River off the Zeehan Highway however, scored the same as autumn.

The site at Leslie Station Creek produced a lower score, but still received an “A” rating.

St Dizier Creek has historical mining impacts, the creek itself has been lowered by more than 2m in areas due to mining. The AusRivAS score was lower than autumn, but still maintained a “B” rating. The embeddedness of the creek is still quite evident, with regular sampling, the embeddedness can be lowered, and may reflect in later sample scores. St Dizier has obvious impacts from historical mining and has been artificially lowered due to those mining processes.