

Macroinvertebrate Report for Warriewood Valley: Sector 3

1 Introduction

Narrabeen Creek was monitored for macroinvertebrate fauna on 19th July 2004 as part of the pre-construction monitoring requirements for the Warriewood Valley. The stream was monitored upstream and downstream of the development area.

2 Methods

Sampling

A cross section of the creek was sampled at each of the two sites for macroinvertebrates, using a fine net. Each cross section was sampled for 10 minutes, including edge, pool and bottom habitats. Organisms were live picked for representative taxa. These specimens were then transferred to a 100 mL phial and preserved with absolute ethanol. Any sightings or signs of vertebrates (eg fish, frog calls) were also recorded

SIGNAL Index

The SIGNAL index (Chessman, 1995) is a measure of water quality using the factors of indicator animals and abundance. Animals are identified to family level classification, with each family assigned a grade between 1 and 10 depending on the tolerance to common pollutants (higher values represent lower levels of tolerance). Each species is then assessed for abundance on a 4 point scale. Scores for each type are calculated from the product of grade and abundance. The Index is derived from the sum of scores divided by the sum of abundances. This provides a comprehensive ecological indicator that takes into account the number and abundance of pollutant sensitive animals.

SIGNAL indices are classified into 4 levels:

- less than 4 = probable severe pollution
- 4-5 = probable moderate pollution
- 5-6 = doubtful quality, possible mild pollution
- greater than 6 = clean water

3 Results

A low diversity of organisms was present at both sites, albeit in low numbers (probably as a result of winter conditions). The fauna included mostly pollution tolerant types but there were some more sensitive taxa. Table 1 presents the SIGNAL scores. There was little difference between upstream and downstream sites.

Table 1 SIGNAL Scores

Site	Date	Time of Sample	SIGNAL Index
Narrabeen Creek Upstream of Development (1)	19/7/2004	1500	5.2
Narabeen Creek Downstream of Development (2)	19/7/2004	1600	4.5

4 Conclusions

The data provides a baseline for assessment of ecological impacts from development of Sector 3. Currently Narrabeen Creek is accommodating a variety of different fauna including some pollutant sensitive taxa.

Reference

Chessman B.C. (1995) Rapid assessment of rivers using macroinvertebrates: a procedure based on habitat-specific sampling, family-level identification and a biotic index, *Australian Journal of Ecology*, **20**, 122-129



Sector 3 upstream Narrabeen Creek**19 Jul 2004**

Total Number of Taxa 9

<u>Taxon ID</u>	<u>Number of Taxa</u>	<u>Abundance</u>	<u>Score</u>
Baetidae	1	1	5
Chironomidae	1	1	1
Coenagrionidae	3	3	21
Copepoda	1	2	0
Hemicorduliidae	1	2	14
Physidae	1	2	6
Poeciliidae	1	2	0

Sector 3 downstream Narrabeen Creek**19 Jul 2004**

Total Number of Taxa 9

<u>Taxon ID</u>	<u>Number of Taxa</u>	<u>Abundance</u>	<u>Score</u>
Chironomidae	2	1	1
Coenagrionidae	1	3	21
Hemicorduliidae	1	2	14
Naididae	1	1	1
Physidae	1	2	6
Poeciliidae	1	2	0
Stratiomyidae	1	1	2
Talitridae	1	1	0