

11.0 STREAM DIATOMS

Diatoms are single-celled plants which occur in aquatic environments throughout the world. They are abundant and diverse in streams of northern Australia, including streams of the Darwin Harbour region. The number and types (species) of diatoms, known as assemblages, are used world-wide as indicators of the river health.

Benthic diatom assemblages have been surveyed from rivers and streams in the Darwin Harbour region since 2002 at the biological sample sites. Sampling diatoms is a relatively simple procedure and involves scraping the algal film from hard, submerged surfaces including rocks and wood. Preliminary results indicate a diverse flora characteristic of relatively undisturbed, low nutrient waters. Thus far a total of 282 species have been identified in Darwin streams. Most of the species are relatively rare – very few

species comprised more than 5% of the total sample. The most abundant diatom species in each year was *Achnantheidium minutissimum*.



Figure 11.2
Gomphonema lagenula.

In addition to the biological sites sampled in 2004, diatom samples

were also collected from streams and lagoons at Gunn Point. Another 5 species were found at these sites, further highlighting the diversity of freshwater diatoms in the Darwin region. The diatom assemblages at Gunn Point

were different to those of the wider region, with a high proportion of rare species and the predominance of *Eunotia bilunaris* var. *mucophila*. Some species were common to the region though, such as *Achnantheidium minutissimum*, which seems to be tolerant of a wide range of stream water quality.

Some genera of diatoms in the Darwin Harbour region included several species. For example, there were 24 recorded species in the genus *Nitzschia*, 18 species in the genus *Eunotia* and 15 species in the genus *Navicula*.

Diatom species are particularly sensitive to water quality. For example, the different diatom assemblages of the Howard River, Berry and Rapid Creeks, shown in Table 11.1, reflect the different concentrations of nutrients and salts, as well as pH (acidity).



Figure 11.1
Achnantheidium minutissimum, the most abundant diatom species in Darwin



Figure 11.3. *Caloneis lauta*

Table 11.1: Most abundant diatom species in selected Darwin subcatchments

Howard River Catchment	Berry Creek Catchment	Rapid Creek Catchment
<i>Achnantheidium minutissimum</i> <i>Gomphonema gracile</i> <i>Eunotia bilunaris</i> <i>Navicula crytonenella</i> <i>Planothidium frquentissimum</i>	<i>Achnantheidium minutissimum</i> <i>Gomphonema gracile</i> <i>Navicula crytonenella</i>	<i>Eunotia minor</i> <i>Eunotia bilunaris</i> <i>Eunotia incisa</i> <i>Eunotia bilunaris v. mucophila</i>

Conclusion

Further work will be conducted to examine how diatoms may be used as a standard monitoring procedure for assessment of the health of rivers and streams of the Darwin Harbour region.

Further Reading

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