

Supplementary material

Sea-level rise in northern Australia’s Kakadu National Park: a survey of floodplain eukaryotes

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Table S1. The top 15 ‘best’ indicator molecular operational taxonomic units (MOTUs) for each combined floodplain morpholog (FM) and River Zone (RZ) on the basis of their indicator-value scores

A, the conditional probability of the MOTU as an indicator of the estuary; B, the probability of finding the MOTU in sites belonging to the estuary.

Unclassified MOTUs are excluded from the summary. *i.s.*, *incertae sedis* (of uncertain position)

Environment	IV value	P-value	Kingdom	Phylum	Class	Order	Family	Genus
Backwater_Cuspate	0.544	0.004	Alveolata	Apicomplexa	Gregarinasina	Eugregarinorida		
	0.707	0.001	Amoebozoa	Discosea	Longamoebia	Centramoebida		
	0.612	0.001	Breviatea					
	0.64	0.002	Fungi	Basidiomycota	Agaricomycetes	Agaricales	Cyphellaceae	<i>Halocyphina</i>
	0.551	0.001	Fungi	Basidiomycota	Agaricomycetes	Agaricales	Cyphellaceae	<i>Halocyphina</i>
	0.707	0.001	Fungi	Basidiomycota	Tremellomycetes	Cystofilobasidiales	Cystofilobasidiaceae	<i>Guehomyces</i>
	0.707	0.001	Fungi	Chytridiomycota	Chytridiomycetes	Chytridiales		
	0.612	0.002	Fungi	Chytridiomycota	Chytridiomycetes	Rhizophydiales	Terramycetaceae	<i>Boothiomyces</i>
	0.557	0.001	Fungi	Fungi <i>i.s.</i>	Fungi <i>i.s.</i>	Endogonales		
	0.612	0.001	Fungi	Fungi <i>i.s.</i>	Fungi <i>i.s.</i>	Mucorales	Mucoraceae	<i>Apophysomyces</i>
	0.588	0.001	Fungi	Glomeromycota	Glomeromycetes	Archaeosporales	Ambisporaceae	<i>Ambispora</i>
	0.5	0.004	Metazoa	Metazoa	Arthropoda	Ostracoda	Podocopida	
	0.488	0.003	Metazoa	Nematoda	Chromadorea	Tylenchida		
	0.48	0.005	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Vampyrellida	Vampyrellidae	
	Backwater_ estuarine funnel and sinuous	0.495	0.004	stramenopiles	Bacillariophyta	Bacillariophyceae	Bacillariaceae <i>i.s.</i>	Pinnulariaceae
0.707		0.001	Amoebozoa	Alveolata <i>i.s.</i>	Schizoplasmodiida			
0.707		0.001	Amoebozoa	Alveolata <i>i.s.</i>	Schizoplasmodiida			
0.707		0.001	Amoebozoa	Discosea	Flabellinia	Dactylopodida	Paramoebidae	<i>Korotnevela</i>
0.707		0.001	Archaeplastida					
0.707		0.001	Fungi	Chytridiomycota	Chytridiomycetes	Spizellomycetales	Spizellomycetaceae	<i>Spizellomyces</i>
0.707		0.001	Fungi					
1		0.001	Metazoa	Arthropoda	Ellipura	Collembola		
0.775		0.001	Metazoa	Platyhelminthes	Rhabditophora	Rhabdocoela		
0.707		0.001	Nucleariidae and Fonticula group	Nucleariidae <i>i.s.</i>	Nucleariidae <i>i.s.</i>	Nucleariidae <i>i.s.</i>	Nucleariidae <i>i.s.</i>	<i>Nuclearia</i>
0.64		0.001	Rhizaria	Rhizaria <i>i.s.</i>	Cercomonadida_ucC	Cercomonadida	Cercomonadidae	<i>Cercomonas</i>
0.707		0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Marimonadida	Marimonadida_ukF	<i>Pseudopirsonia</i>
0.64		0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Gymnochlora	
0.707		0.001	Rhizaria					
0.662		0.001	stramenopiles	Bacillariophyta	Bacillariophyceae	Naviculales	Stauroneidaceae	<i>Stauroneis</i>
0.671	0.001	Viridiplantae	Chlorophyta	Trebouxiophyceae				
Backwater_Upstream	0.673	0.001	Alveolata	Alveolata <i>i.s.</i>	Dinophyceae	Gymnodiniales	Tovelliaceae	<i>Jadwigia</i>
	0.645	0.001	Alveolata	Alveolata <i>i.s.</i>	Dinophyceae	Syndiniales	Syndiniales Group I	
	0.738	0.001	Amoebozoa	Alveolata <i>i.s.</i>	Alveolata <i>i.s.</i>	Gracilipodida	Gracilipodida_ucF	<i>Flamella</i>
	0.696	0.001	Amoebozoa	Alveolata <i>i.s.</i>	Alveolata <i>i.s.</i>	Gracilipodida	Gracilipodida_ucF	<i>Flamella</i>
	0.707	0.001	Archaeplastida					
	0.645	0.001	Archaeplastida	Glaucophyta	Cyanoptycha			
	0.707	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Vampyrellida	Vampyrellidae	
	0.707	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Vampyrellida	Vampyrellidae	
	0.707	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Vampyrellida	Vampyrellidae	
	0.691	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Vampyrellida	Vampyrellidae	

Environment	IV value	P-value	Kingdom	Phylum	Class	Order	Family	Genus
Backwater_Upstream (Cont.)	0.707	0.001	stramenopiles	Bacillariophyta	Bacillariophyceae	Achnanthes	Cocconeidae	<i>Cocconeis</i>
	0.736	0.001	stramenopiles	Bacillariophyta	Bacillariophyceae	Bacillariaceae <i>i.s.</i>	Bacillariaceae	<i>Nitzschia</i>
	0.777	0.001	stramenopiles	Bacillariophyta	Bacillariophyceae	Naviculales	Stauroneidaceae	<i>Stauroneis</i>
	0.707	0.001	Stramenopiles	Stramenopiles <i>i.s.</i>	Chrysophyceae	Ochromonadales	Dinobryaceae	<i>Epipyxis</i>
LowerFloodplain_Cusplate	0.661	0.001	Viridiplantae	Chlorophyta	Chlorophyceae	Chlamydomonadales	Chlamydomonadaceae	<i>Vitreochlamys</i>
	0.7	0.001	Viridiplantae	Chlorophyta	Chlorophyceae	Chlamydomonadales	Spondylomoraceae	<i>Pyrobotrys</i>
	0.538	0.001	Alveolata	Alveolata <i>i.s.</i>	Perkinsea	Perkinsida	Perkinsidae	
	0.484	0.005	Alveolata	Apicomplexa	Gregarinasina	Eugregarinorida		
	0.554	0.004	Amoebozoa	Alveolata <i>i.s.</i>	Alveolata <i>i.s.</i>	Gracilipodida	Gracilipodida_ucF	<i>Flamella</i>
	0.544	0.005	Amoebozoa	Alveolata <i>i.s.</i>	Schizoplasmodiida			
	0.577	0.003	Opisthokont	Choanozoa	Choanozoa <i>i.s.</i>	Choanoflagellida	Salpingoecidae	<i>Salpingoeca</i>
	0.504	0.003	Fungi	Ascomycota	Sordariomycetes	Lulworthiales	Lulworthiaceae	<i>Lulworthia</i>
	0.667	0.001	Fungi	Cryptomycota				
	0.419	0.018	Fungi	Cryptomycota				
	0.574	0.001	Metazoa	Nematoda	Chromadorea	Monhysterida		
	0.506	0.01	Rhizaria					
	0.577	0.002	stramenopiles	Bacillariophyta	Bacillariophyceae	Bacillariaceae <i>i.s.</i>	Gomphonemataceae	<i>Gomphonema</i>
	0.511	0.001	stramenopiles	Bacillariophyta	Bacillariophyceae	Bacillariaceae <i>i.s.</i>	Gomphonemataceae	<i>Gomphonema</i>
	0.481	0.002	stramenopiles	Bacillariophyta	Bacillariophyceae	Bacillariaceae <i>i.s.</i>	Gomphonemataceae	<i>Gomphonema</i>
LowerFloodplain estuarine funnel and sinuous	0.558	0.001	Alveolata	Alveolata <i>i.s.</i>	Dinophyceae	Gymnodiniales	Gymnodiniphyceidae	<i>Gyrodinium</i>
	0.632	0.001	Alveolata	Ciliophora	Armophorea	Armophorida	Metopidae	<i>Metopus</i>
	0.602	0.002	Alveolata	Ciliophora	Oligohymenophorea	Peritrichia		
	0.596	0.001	Alveolata	Ciliophora	Spirotrichea	Spirotrichea	Oxytrichidae	<i>Gonostomum</i>
	0.542	0.001	Alveolata	Ciliophora	Spirotrichea	Sporadotrichida	Oxytrichidae	<i>Oxytricha</i>
	0.542	0.001	Amoebozoa	Alveolata <i>i.s.</i>	Alveolata <i>i.s.</i>	Gracilipodida	Gracilipodida_ucF	<i>Flamella</i>
	0.745	0.001	Amoebozoa	Alveolata <i>i.s.</i>	Schizoplasmodiida			
	0.678	0.001	Apusozoa	Apusozoa <i>i.s.</i>	Apusozoa <i>i.s.</i>	Apusozoa <i>i.s.</i>	Apusomonadidae	<i>Amastigomonas</i>
	0.571	0.001	Fungi	Blastocladiomycota	Blastocladiomycetes	Blastocladales	Blastocladiaceae	<i>Blastocladia</i>
	0.549	0.003	Metazoa	Arthropoda	Arachnida			
	0.577	0.004	Metazoa	Mollusca	Gastropoda	Heterobranchia		
	0.745	0.001	Metazoa	Platyhelminthes	Rhabditophora	Rhabdocoela		
	0.787	0.001	Metazoa	Platyhelminthes	Turbellaria	Macrostomida		
	0.602	0.001	Ochrophyta_ucK	Ochrophyta	Xanthophyceae	Mischococcales	Pleurochloridaceae	<i>Trachydiscus</i>
	LowerFloodplain estuarine funnel and sinuous	0.528	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Thecofilosea		
0.614		0.001	Viridiplantae	Chlorophyta	Trebouxiophyceae	Chlorellales	Chlorellaceae	<i>Auxenochlorella</i>
0.632		0.002	Alveolata	Ciliophora	Spirotrichea	Oligotrichia	Strombidiidae	<i>Strombidium</i>
0.64		0.001	Alveolata	Ciliophora	Spirotrichea	Choreotrichida	Strobilidiidae	<i>Pelagostrobilidium</i>
0.632		0.002	Amoebozoa	Alveolata <i>i.s.</i>	Alveolata <i>i.s.</i>	Gracilipodida	Gracilipodida_ucF	<i>Telaepolella</i>
0.632		0.001	Amoebozoa	Alveolata <i>i.s.</i>	Alveolata <i>i.s.</i>	Gracilipodida	Gracilipodida_ucF	<i>Telaepolella</i>
0.64		0.002	Amoebozoa	Discosea	Longamoebia	Centramoebida		
0.632		0.001	Amoebozoa	Discosea	Longamoebia	Centramoebida		
0.632		0.001	Centroheliida					
0.632		0.001	Fungi	Cryptomycota				
0.632		0.001	Metazoa	Arthropoda	Branchiopoda	Diplostraca		
0.632		0.001	Rhizaria	Rhizaria <i>i.s.</i>	Silicofilosea	Euglyphida	Ephenoderiidae	<i>Sphenoderia</i>
0.662		0.001	stramenopiles	Bacillariophyta	Bacillariophyceae	Bacillariaceae_ucO	Pinnulariaceae	<i>Pinnularia</i>
0.64		0.002	Stramenopiles	Bacillariophyta	Bacillariophyceae	Naviculales	Pleurosigmataceae	<i>Pleurosigma</i>
0.64		0.002	Stramenopiles	Stramenopiles <i>i.s.</i>	Oomycetes			

Environment	IV value	P-value	Kingdom	Phylum	Class	Order	Family	Genus
LowerFloodplain estuarine funnel and sinuous (<i>Cont.</i>)	0.645	0.001	Viridiplantae	Chlorophyta	Chlorophyceae			
Lower Floodplain Upstream	0.632	0.001	Viridiplantae	Chlorophyta	Prasinophytae			
	0.943	0.001	Fungi	Ascomycota	Dothideomycetes	Botryosphaeriales		
	0.733	0.001	Fungi	Ascomycota	Eurotiomycetes	Chaetothyriales	Chaetothyriales_ukF	<i>Glyphium</i>
	0.745	0.001	Fungi	Ascomycota	Pezizomycetes	Pezizales	Ascobolaceae	
	0.758	0.001	Fungi	Ascomycota	Sordariomycetes	Boloniales	Boliniaceae	<i>Lentomitella</i>
	0.673	0.001	Fungi	Basidiomycota	Tremellomycetes	Tremellales		
	0.83	0.001	Fungi	Chytridiomycota	Chytridiomycetes	Spizellomycetales		
	0.749	0.001	Fungi	Glomeromycota	Glomeromycetes	Diversisporales	Gigasporaceae	<i>Scutellospora</i>
	0.882	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Cercomonadida_ucC	Cercomonadida	Cercomonadidae	<i>Cercomonas</i>
	0.716	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Cercomonadida_ucC	Cercomonadida	Cercomonadidae	<i>Cercomonas</i>
	0.816	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Chlamydomphryidae	<i>Rhogostoma</i>
	0.756	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Thaumatomonadida	Thaumatomastigidae	<i>Thaumatomonas</i>
	0.68	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Thecofilosea		
	0.68	0.001	Rhizaria					
	0.716	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Silicofilosea	Euglyphida		
	0.745	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Thecofilosea			
Upper Floodplain estuarine funnel and sinuous	0.667	0.001	Alveolata	Apicomplexa	Gregarinasina	Neogregarinorida	Syncystidae	<i>Syncystis</i>
	0.667	0.001	Alveolata	Ciliophora	Ciliophora	Ciliophora <i>i.s.</i>	Ciliophora <i>i.s.</i>	<i>Cryptocaryon</i>
	0.686	0.001	Amoebozoa					
	0.745	0.001	Amoebozoa	Discosea	Longamoebia	Centramoebida	Acanthamoebidae	<i>Acanthamoeba</i>
	0.673	0.001	Apusozoa	Apusozoa <i>i.s.</i>	Apusozoa <i>i.s.</i>	Apusozoa <i>i.s.</i>	Planomonadidae	<i>Fabomonas</i>
	0.707	0.001	Fungi	Ascomycota	Dothideomycetes	Acrospermales	Acrospermaceae	<i>Acrospermum</i>
	0.707	0.001	Fungi	Ascomycota	Pezizomycetes	Pezizales	Pyronemataceae	<i>Otidea</i>
	0.686	0.001	Fungi	Basidiomycota	Agaricomycetes	Agaricales	Tricholomataceae	<i>Camarophyllopsis</i>
	0.745	0.001	Fungi	Basidiomycota	Agaricomycetes			
	0.745	0.001	Metazoa	Nematoda	Chromadorea	Tylenchida		
	0.686	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Cercomonadida_ucC	Cercomonadida	Cercomonadidae	<i>Cercomonas</i>
	0.745	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Thecofilosea	Ebriacea	<i>Ebria</i>
	0.745	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Silicofilosea	Euglyphida	Euglyphidae	<i>Euglypha</i>
	0.745	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Silicofilosea	Euglyphida	Euglyphidae	<i>Euglypha</i>
UpperFloodplain Upstream	0.707	0.001	Alveolata	Alveolata <i>i.s.</i>	Dinophyceae	Syndiniales	Syndiniales Group I	
	0.64	0.001	Alveolata	Ciliophora	Spirotrichea	Sporadotrichida	Oxytrichidae	<i>Oxytricha</i>
	0.707	0.001	Amoebozoa	Alveolata <i>i.s.</i>	Schizoplasmodiida	Schizoplasmodiida <i>i.s.</i>	Schizoplasmodiida <i>i.s.</i>	<i>Phalansterium</i>
	0.707	0.001	Hacrobia	Cryptophyta	Cryptophyta <i>i.s.</i>	Cryptomonadales	Cryptomonadaceae	<i>Cryptomonas</i>
	0.748	0.001	Fungi	Blastocladiomycota	Blastocladiomycetes	Blastocladales	Physodermataceae	<i>Physoderma</i>
	0.771	0.001	Fungi	Chytridiomycota	Chytridiomycetes	Chytridiales		
	0.632	0.001	Metazoa	Arthropoda		Thysanoptera		
	0.707	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	<i>Gymnophrys</i>
	0.707	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Vampyrellida	Vampyrellidae	<i>Arachnula</i>
	0.681	0.001	Rhizaria	Rhizaria <i>i.s.</i>	Rhizaria <i>i.s.</i>	Vampyrellida	Vampyrellidae	<i>Arachnula</i>
	0.632	0.002	Stramenopiles	Bacillariophyta	Dictyochophyceae	Florentiellales	Florentiellales <i>i.s.</i>	<i>Florentiella</i>
	0.727	0.001	Viridiplantae	Chlorophyta	Chlorophyceae	Chlamydomonadales	Chlamydomonadaceae	<i>Chlamydomonas</i>
	0.789	0.001	Viridiplantae	Chlorophyta	Chlorophyceae			
	0.636	0.001	Viridiplantae	Chlorophyta	Chlorophyceae			
	0.648	0.001	Viridiplantae	Chlorophyta	Zygnemophyceae	Desmidiales	Desmidiaceae	<i>Euastrum</i>

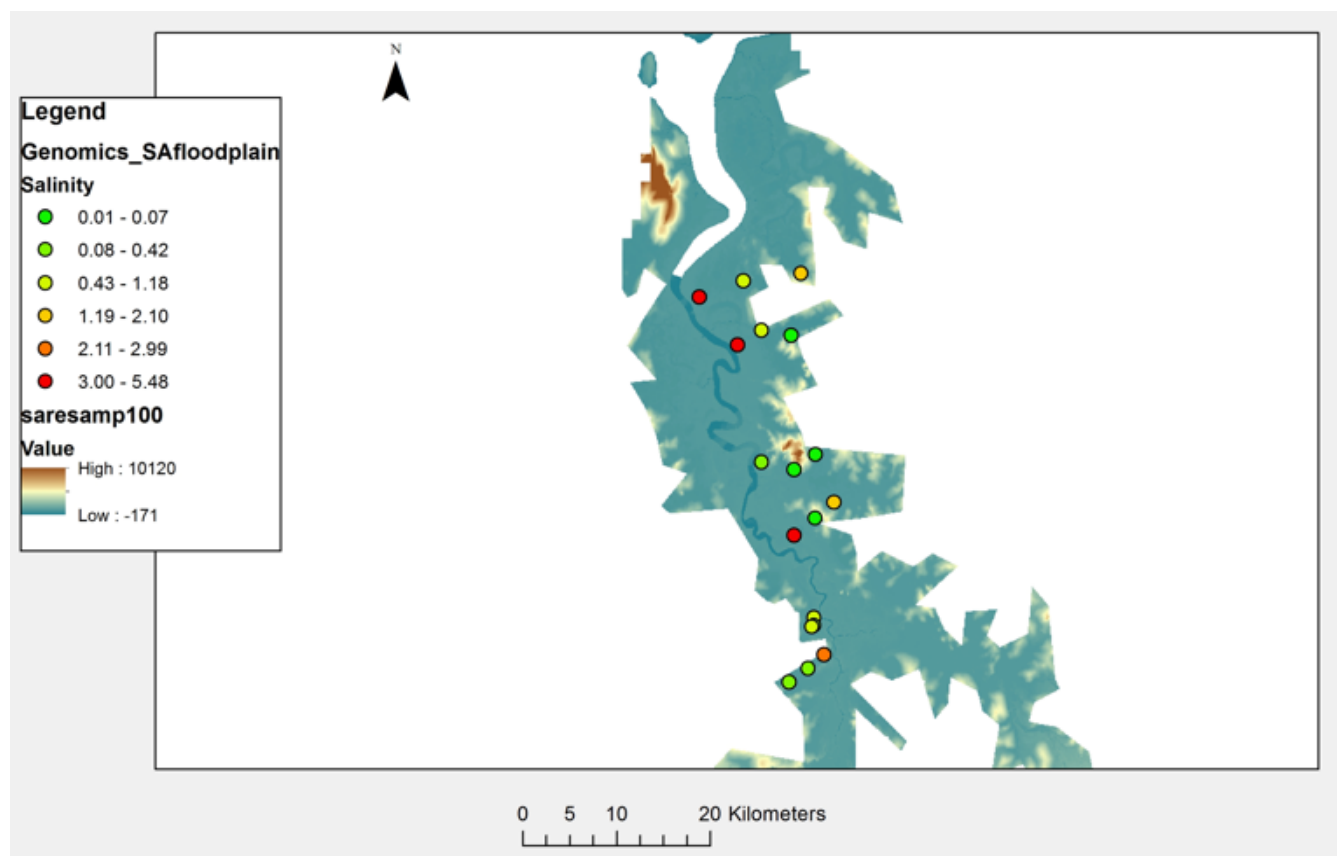


Fig. S1. Mean total dissolved solids (TDS) concentration (TDS L^{-1}) and elevation at the study sites. Mean salinity and elevation data are from Nelson *et al.* (2018). Map was created by David Williams.

References

- Nelson, T. M., Streten, C., Gibb, K. S., and Chariton, A. A. (2018). Bacteria in tropical floodplain soils are sensitive to changes in saltwater. *Marine and Freshwater Research* **69**(7), 1110–1123. doi:10.1071/MF16033