

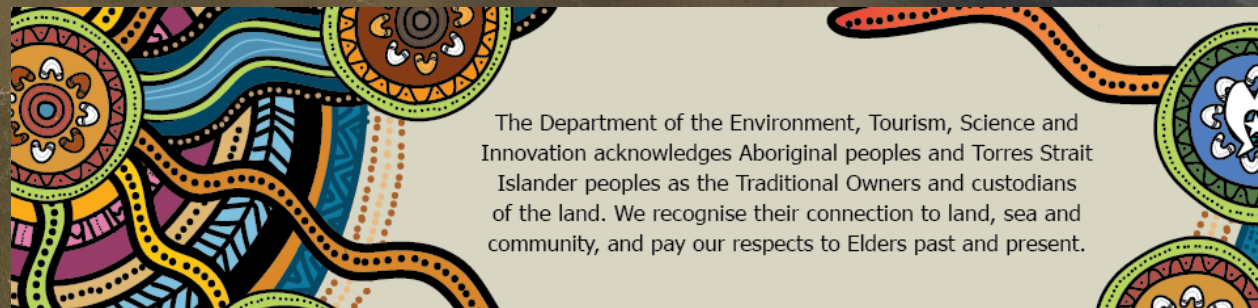
Extending estuarine water quality assessments with eDNA

2nd Australian & New Zealand Environmental DNA Conference
18 – 21 February 2025

Dr Katie Hillyer
A/Principal Scientist

Aquatic Ecosystem Health, Water Ecosystem Science,
Department of Environment, Tourism, Science and Innovation,
Queensland Government, Australia

katie.hillyer@des.qld.gov.au



The Department of the Environment, Tourism, Science and Innovation acknowledges Aboriginal peoples and Torres Strait Islander peoples as the Traditional Owners and custodians of the land. We recognise their connection to land, sea and community, and pay our respects to Elders past and present.

Photo credit: MRCCC





Pilot estuarine eDNA samples

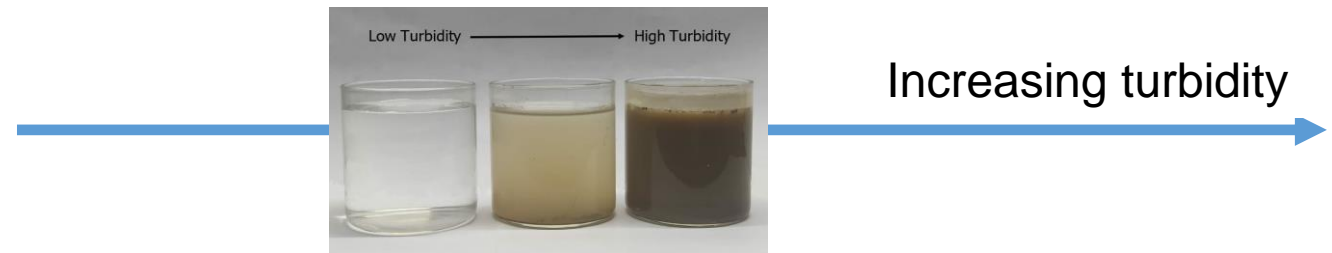
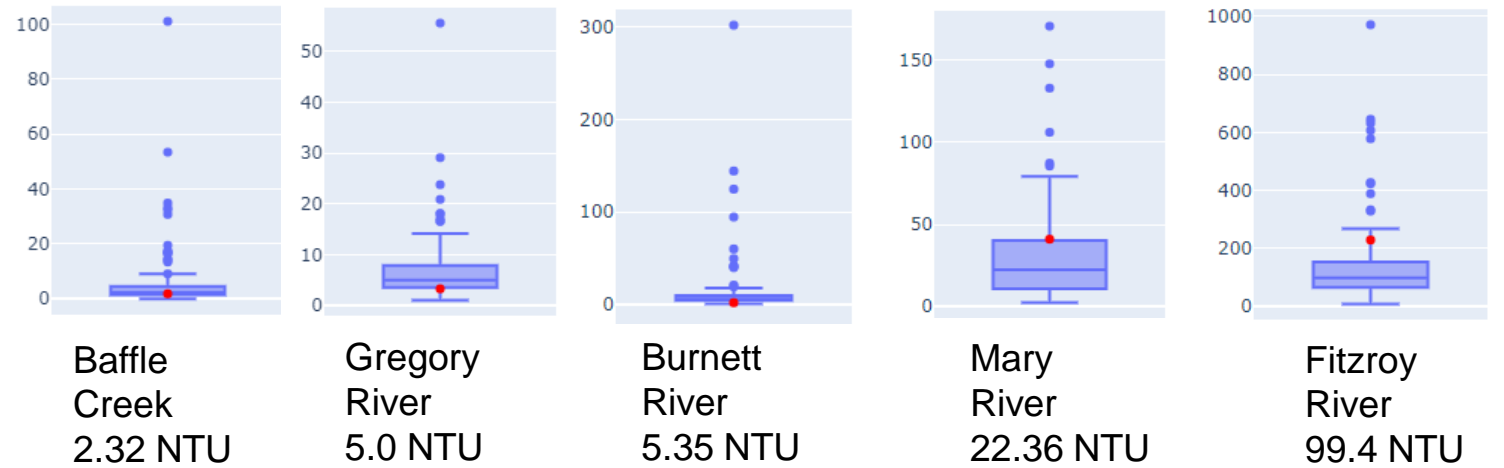
- N = 6, Aug 2023
- Baffle Creek 1000 mL
 - Burnett River 1000 mL

- N = 2, Nov/Dec 2023
- Baffle Creek 1000 mL
 - Burnett River 1000 mL
 - Mary River 300 mL
 - Fitzroy River 360 mL
 - Gregory River 165 mL (after significant rainfall)





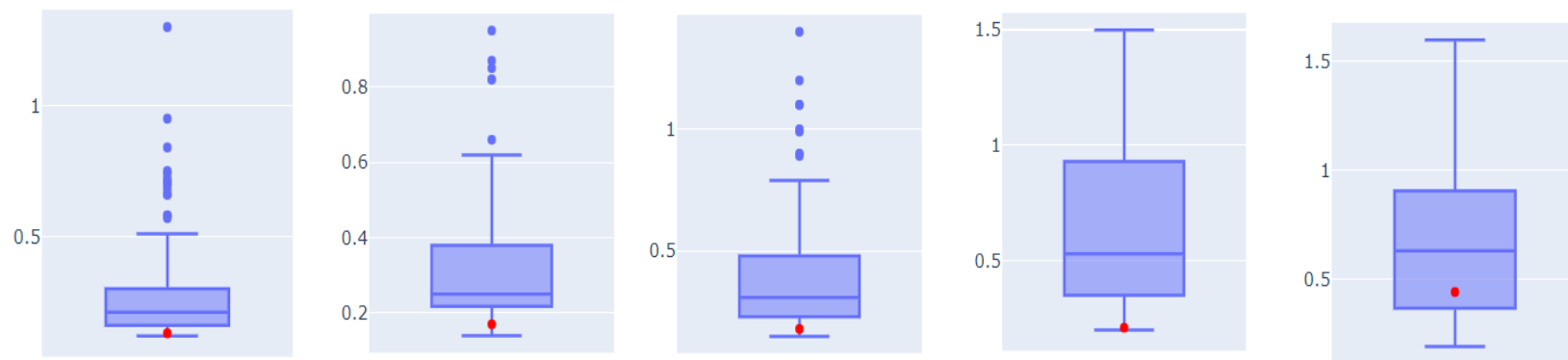
Mid-estuary 10 yr median turbidity



Nephelometric Turbidity Units = NTU



Mid-estuary 10 yr median total nitrogen



Baffle
Creek
0.21 mg/L

Gregory
River
0.25 mg/L

Burnett
River
0.31 mg/L

Mary
River
0.53 mg/L

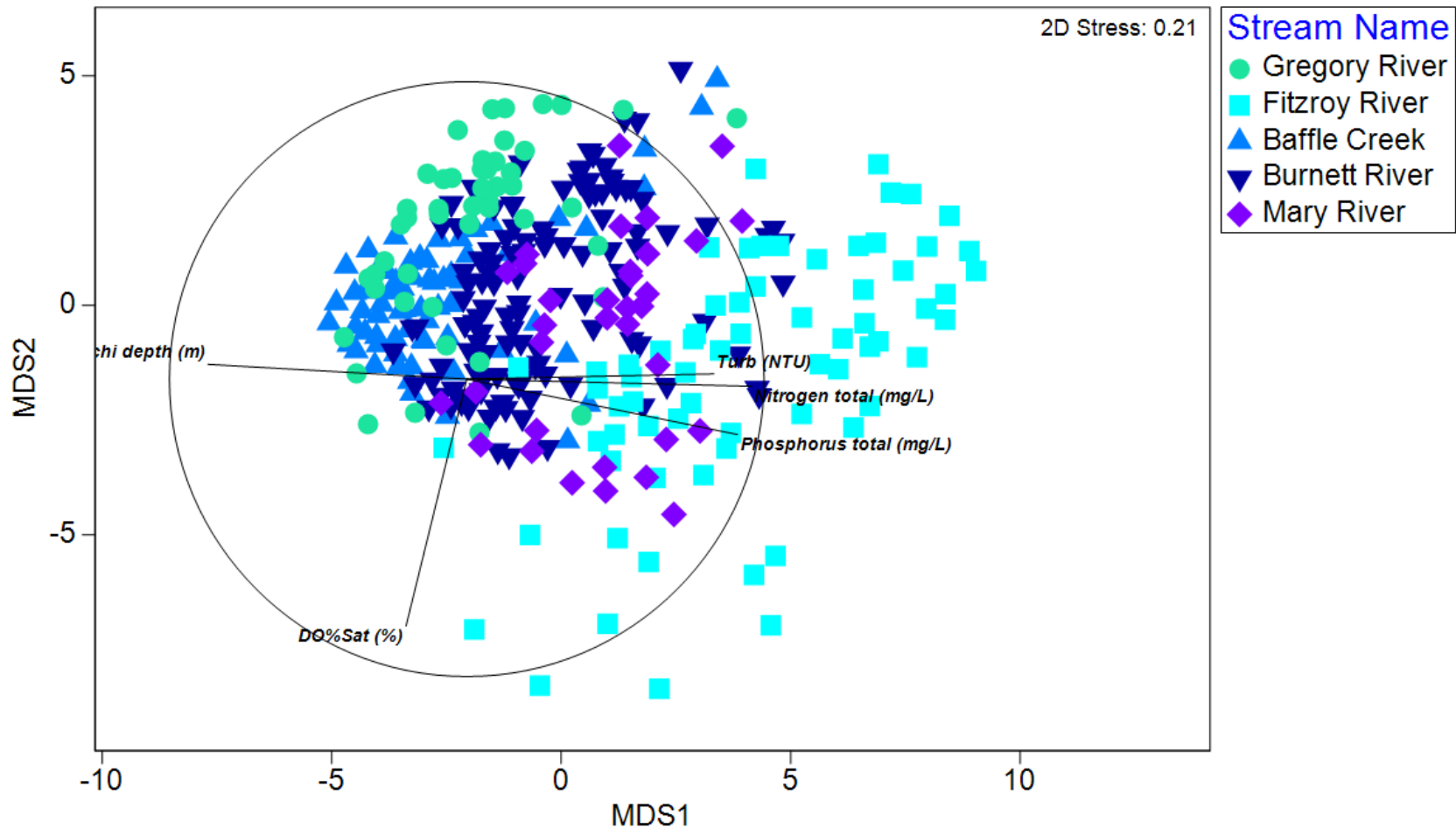
Fitzroy
River
0.63 mg/L

Increasing total nitrogen





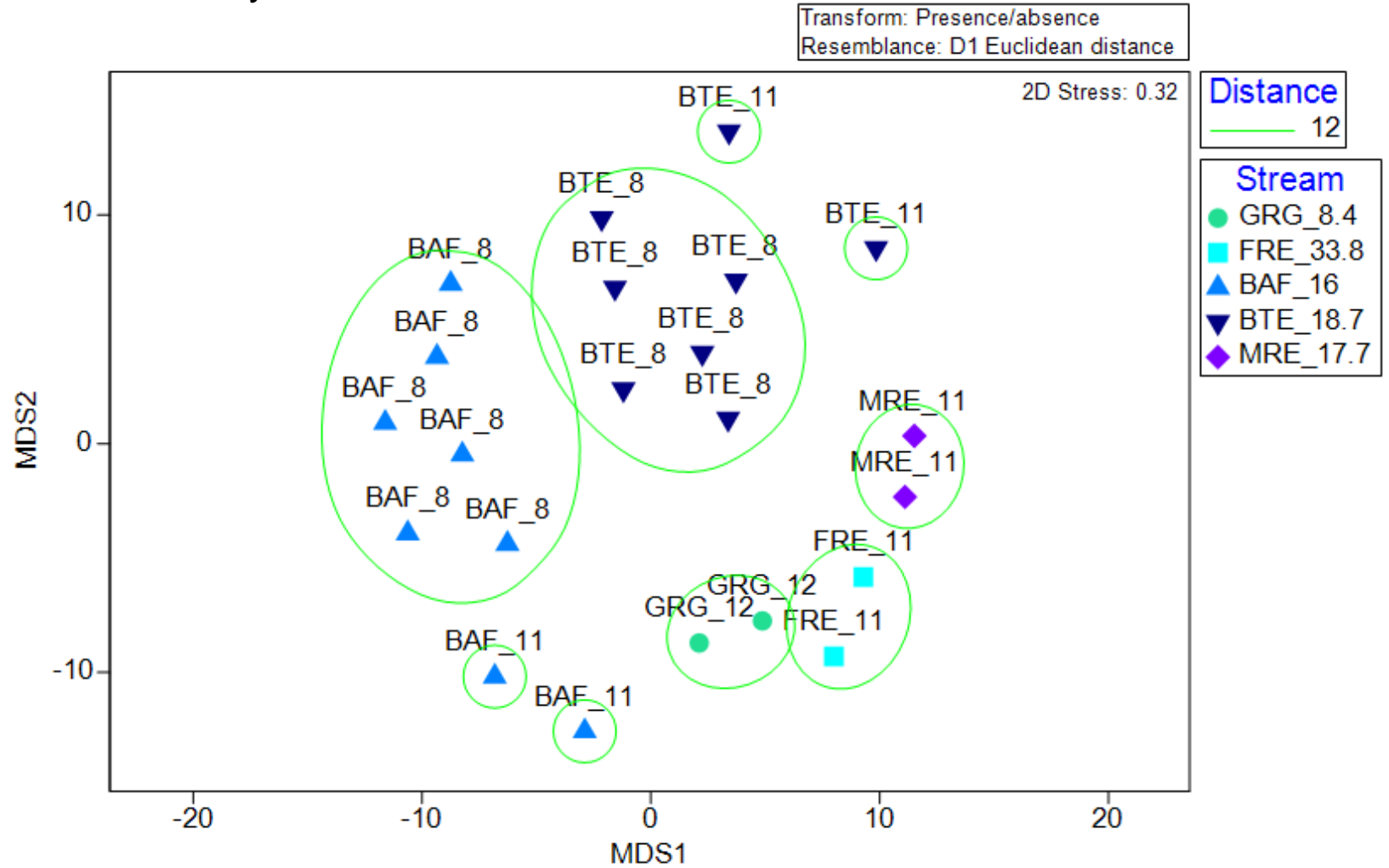
Monthly water quality data, Aug 2022 – Dec 2023



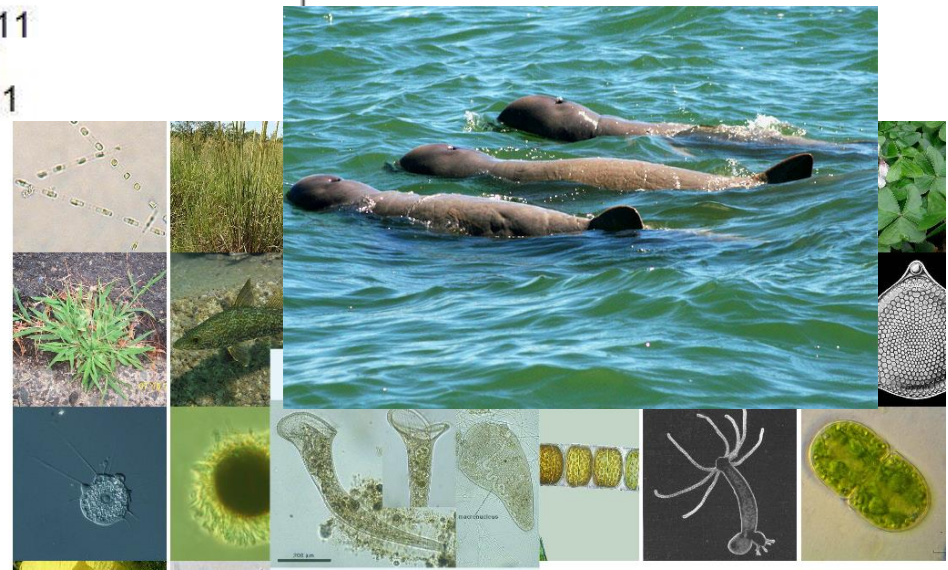
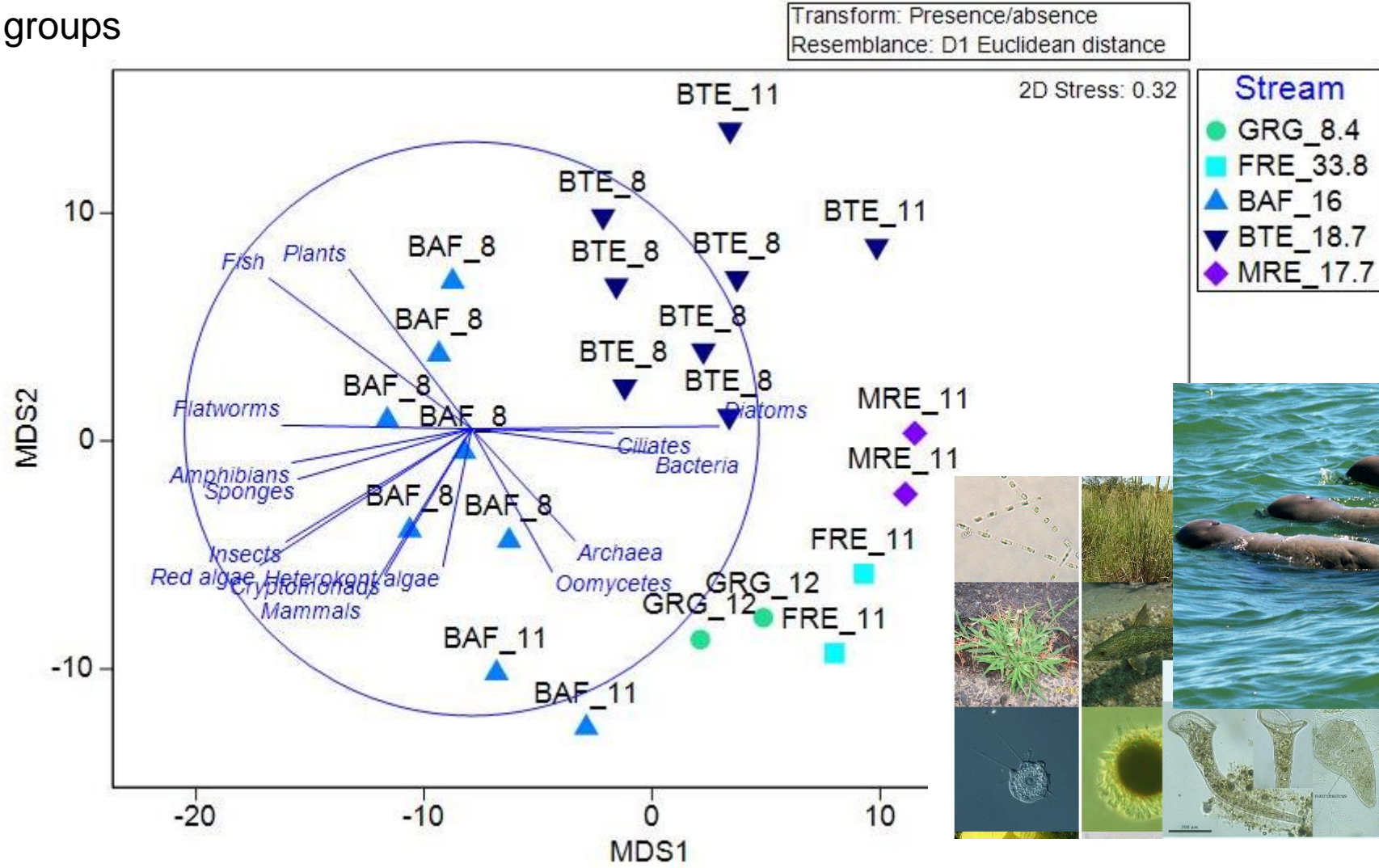
Multidimensional scaling = MDS



eDNA data by site and month



Correlated eDNA groups



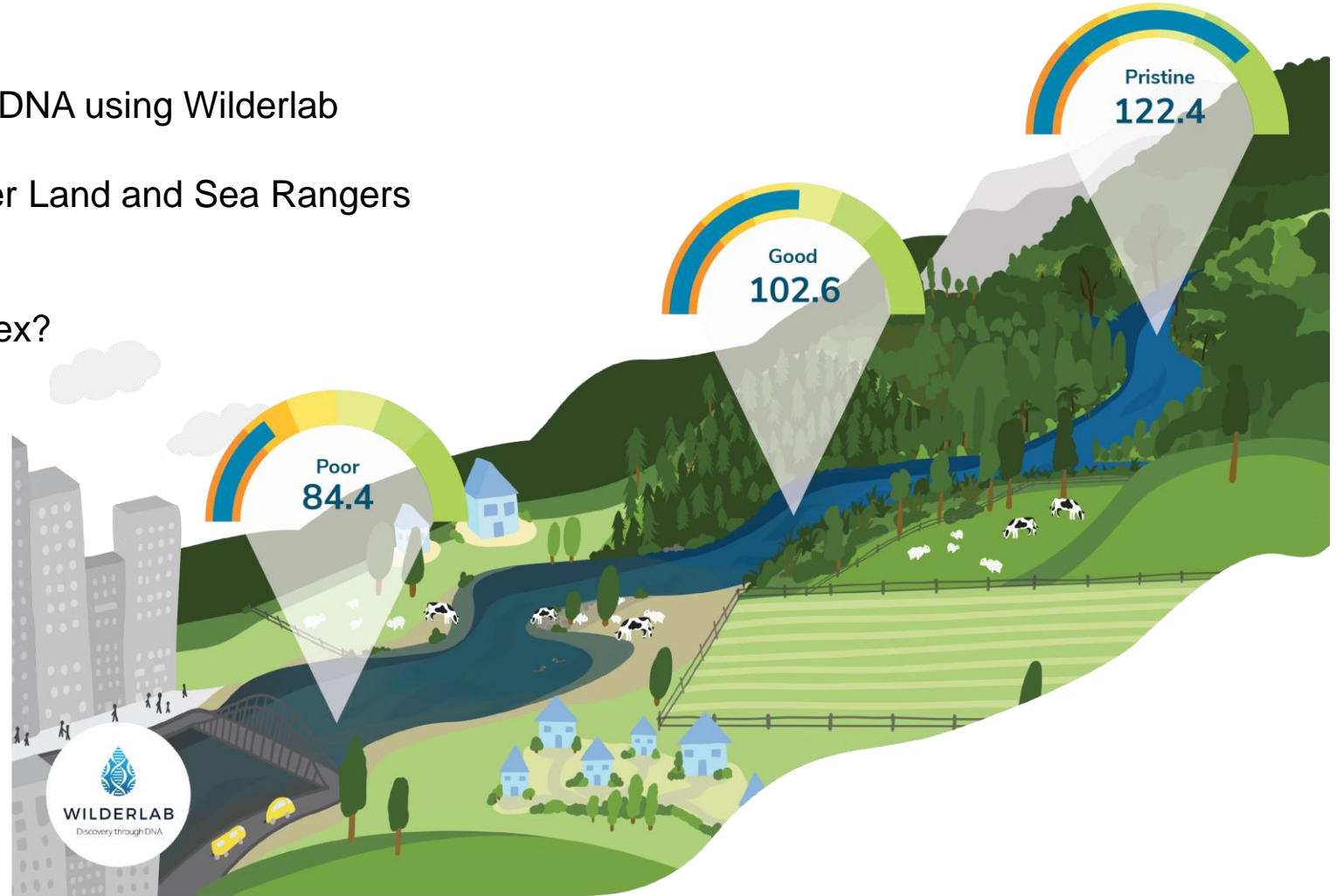
<https://fba.org.au/article/australian-snubfin-dolphin-2>

Where to next?

Jan 2025

- Our team sampled 10 estuaries for WQ and eDNA using Wilderlab comprehensive eDNA kits
- Working where possible with Traditional Owner Land and Sea Rangers
- Sites at high, mid and low estuary

→ QLD estuarine health index?



Thank you!

Team AEH, who make this all possible;
Jacob, Darren, James, Mark, Steve,
Noah, Matt, Michelle, Helen, Lily, and
Andrew

Traditional Owner Groups, in particular
Gidarjil Land and Sea Rangers

And to all the team at Wilderlab for their
continued support



WILDERLAB

