



Best practice guidelines for Australian/New Zealand eDNA biomonitoring programs

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The rapid uptake of environmental DNA methods globally is an indication of its potential in environmental monitoring. In less than 15 years, the field of eDNA has matured well beyond the proof-of-concept state to current moves towards integration in research and monitoring projects globally. Australian and New Zealand researchers have played an important role in this eDNA revolution and as a region we continue to be at the leading edge of many new developments in the field. Despite this expertise, however, integration in official biomonitoring programs remains limited. There remains strong hesitancy with resource managers using eDNA because of the lack of a standardised biomonitoring workflow. National best practice guidelines, and a harmonised understanding of quality measures and controls, are essential for the uptake of eDNA methods in government mandated biosecurity and ecosystem monitoring programs. As a cross-institutional group of >30 eDNA experts, we developed the first AUS/NZ best practice eDNA guidelines for monitoring programs for the wider eDNA community. The *Environmental DNA protocol development guide for biomonitoring* provides minimum standard considerations for eDNA and environmental RNA projects across the complete workflow, from ethical considerations and experimental design to interpreting and communicating results. The *Environmental DNA test validation guidelines* outline key steps to be used in assay development and validation for species-specific testing and metabarcoding. Both guidelines were developed as an initiative of the Australian Government Department of Agriculture, Fisheries and Forestry and led by the Southern eDNA Society in a collaborative process including multiple consultation rounds with eDNA experts, end-users, and stakeholders to adapt the guidelines to Australian and New Zealand needs. The aim of these guidelines is not to be prescriptive, but to set minimum standards to support a consistent and best-practice approach to eDNA testing.