

EAL research analysis contributes to updated water quality guidelines

Australia and New Zealand Guidelines for Fresh and Marine Water Quality

- Sample analysis by EAL leads to real world outcomes
- Australia and New Zealand Guidelines for Fresh and Marine Water Quality (2020) updated
- EAL provides data to 99% protection guidelines for updated elements
- Arsenic, mercury and chromium speciation to extremely low detection limits
- NATA accredited for trace metals in fresh and marine waters

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Environmental trace metal and ecotoxicology applications

Australia and New Zealand Guidelines for Fresh and Marine Water Quality have been updated based on collaborative work between Southern Cross University's Environmental Analysis Laboratory (EAL) and academics in the School of Environment, Science and Engineering.

Default Guideline Values (DGV's) have been updated (2020) for boron in freshwater, iron in fresh and marine water, zinc in marine water and chromium III in freshwater.

EAL are able to analyse trace elements in seawater using an ESI seaFAST sampler coupled to a Perkin Elmer NexION 300D ICPMS. This combination of matrix separation using a pre-concentration

column and the superior interference removal capability of the NexION ICPMS enable extremely low detection limits in marine waters for a suite of elements, including the new 99% protection guidelines.

Total concentrations are routinely analysed by ICPMS methods, however, where speciation is needed this requires additional specialised equipment. Arsenic, mercury and chromium speciation is performed using High Pressure Liquid Chromatography coupled to a Perkin Elmer NexION 350D ICPMS (HPLC-ICPMS). This capability enables the separation of CrIII and CrVI with extremely low detection limits required for environmental trace metal and ecotoxicology applications.