Water Science and Sustainability
Secondary Science Teacher Professional Development Course
Wednesday 21st July 2021

Time	Details
4:00pm – 4:05pm	Official welcome and introductions
4:05pm – 4:15pm	Presentation 1: *Effects of a changing climate on rainfall and water availability*
	Presented by **Dr. Pauline Treble,** Isotope Paleoclimateologist and Senior Research Scientist, NSTLI The Environment, ANSTO
4:15pm – 4:25pm	Presentation 2: *Monitoring water resources so that they can be managed for sustainable use*
	Presented by **Dr. Karina Meredith**, Groundwater Research Scientist and Acting Research Leader, NSTLI The Environment, ANSTO
4:25pm – 4:45pm	Presentation 3: *Social, economic, political and cultural factors that can affect decisions about water management*
	Presented by **Prof. Richard Kingsford,** River Ecologist and Conservation Biologist, Director of the Centre for Ecosystem Science, University of New South Wales
4:45pm – 5:00pm	Question and answer session
	Chaired by: ANSTO
5:00pm – 5:05pm	Refreshment break
5:05pm – 5:25pm	Teaching Water Science and Sustainability in the classroom
	Presented by Tina Baradaran and Julie Mulholland, ANSTO Education. An introduction to resources developed by ANSTO's Education team and a discussion about how teachers can use the resources to build their own lesson on Water Science and Sustainability. Teachers will be shown an example lesson plan. Instructions will also be given on the post TPD work required to receive the 7 NESA or 5 TQI accredited hours.
5:25pm – 5:30pm	Evaluation and wrap up
	Final questions and survey feedback form

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Speaker Profiles

Dr Pauline Treble, Isotope Paleoclimateologist and Senior Research Scientist, NSTLI The Environment, ANSTO

Dr Treble is a mid-career researcher with an international reputation in the field of speleothem (cave deposit) palaeoclimate research. She is currently employed as a Research Scientist within the Environment project at the Australian Nuclear Science and Technology Organisation (ANSTO). She specialises in constructing stalagmite-based terrestrial palaeoclimate records for the southern Australian region. She employs stable isotopic (d18O) and trace element data from stalagmites, as well as age measurements using the uranium-thorium disequilibrium technique, to build high-resolution terrestrial palaeoclimate records. These records provide a history of the natural variability of rainfall and diffuse recharge above a cave site. They hence form critical baseline information required to identify and understand climate change for this important water resource region.

Dr Karina Meredith, Groundwater Research Scientist and Acting Research Leader, NSTLI The Environment, ANSTO

Dr Karina is a research scientist in the Isotopes for Water project. She is working in the fields of hydrochemistry, hydrogeology and isotope hydrology on a variety of projects located throughout Australia. Her research interests lie in applying a variety of stable, radiogenic and cosmogenic isotopic tracers to investigate groundwater resource sustainability and the suitability of aquifer systems as potential low resolution climate archives.

Prof. Richard Kingsford, Director of the Centre for Ecosystem Science, University of New South Wales

Professor Richard Kingsford is a river ecologist and conservation biologist who has worked extensively across the wetlands and rivers of the Murray-Darling Basin and Lake Eyre Basin. He worked for the NSW Government Environment agency from 1986-2004. He also worked with many different communities and governments across this region. His research has influenced the policy and management of rivers in Australia, including through involvement on state and federal advisory committees. He also leads a reintroduction or rewilding project, Wild Deserts, in Sturt National Park (NSW), collaborating on the Platypus Conservation Initiative and Red-Listing of Ecosystems. He is also researching effective ways of implementing effective conservation actions through developing adaptive management approaches and engagement with communities.

	**Bridget Murphy, Education Manager, ANSTO** Bridget Murphy has a background in biological science and science education and has worked in the ANSTO Education Team for ten years. Bridget is responsible for developing and delivering new programs for high school students and professional development for secondary teachers.
	**Julie Mullholland, Education Officer, ANSTO** Julie Mulholland is an Education Officer at the Australia's Nuclear Science and Technology Organisation. She is a highly experienced science educator, having over 30 years of experience teaching science, senior chemistry and senior physics in both TAFE and high schools, as well as 14 years as a Head Teacher Science. In 2013, she achieved a Minister's award for excellence in teaching. Julie is instrumental in developing ANSTO's data set resources for high school students.
	**Tina Baradaran, Education Officer, ANSTO** Tina Baradaran has a background in medical physics and science communication education. As part of the ANSTO Education Team, Tina uses her secondary expertise to assist the development of new education programs and professional development for secondary teachers.