

Freshwater Science

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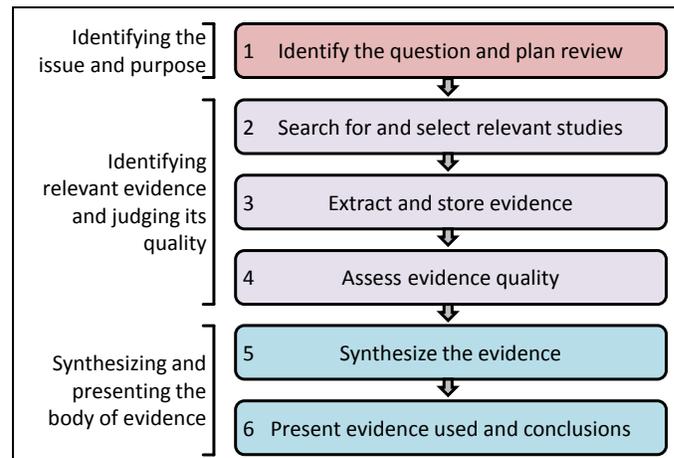
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Rapid Evidence Synthesis in Environmental Causal Assessments

Five papers in this BRIDGES cluster introduce concepts and case studies of Rapid Evidence Synthesis in environmental assessment. Against a backdrop of increasing environmental litigation, and amidst government pronouncements on 'evidence-based environmental management', efficient and robust evidence synthesis is more important than ever. Key points include:

- Systematic review is the gold standard for evidence synthesis, but often takes too long and is too expensive for environmental assessments ([Webb et al. 2017](#)).
- Rapid evidence synthesis (RES) is a relatively new and fast-developing field, with multiple methods being developed independently in different parts of the world ([Webb 2017](#)).
- RES may seek to present a body of evidence on a particular topic ([Norton and Schofield 2017](#); [CADDIS](#)) or to test specific cause-effect hypotheses within a topic ([Nichols et al. 2017](#); [eWater Toolkit](#)).
- RES methods are often being developed on-the-fly for a particular application ([Melcher et al. 2017](#); [Hydropeaking](#)), leading to duplication of effort.
- RES must have sufficient flexibility to be applicable to the wide range of potential applications. There is no standard approach that can fulfill the needs of all applications ([Webb et al. 2017](#)).
- The quality of acceptable evidence and the amount of evidence required to reach a conclusion may differ depending on the application ([Nichols et al. 2017](#)).



Phases and steps in a Rapid Evidence Synthesis or a systematic review (Fig. 1, [Webb et al. 2017](#)).

ABOUT THE AUTHORS:

The authors are at the forefront of methods development in rapid evidence synthesis, working mainly in aquatic systems, but with methods applicable to many types of environments. **J. Angus Webb** (angus.webb@unimelb.edu.au) is a Senior Lecturer in Environmental Hydrology and Water Resources at the University of Melbourne, Australia, principally researching ecological responses to changing flow regimes. **Andreas Melcher** (andreas.melcher@boku.ac.at) is Director of the BOKU Centre of Development Research at the University of Natural Resources and Life Sciences, Vienna, Austria, and is widely involved in EU-funded research on aquatic environmental degradation. **Susan J. Nichols** (sue.nichols@canberra.edu.au) is a Senior Research Fellow and **Michael Peat** (michael.peat@canberra.edu.au) is a PhD candidate, both at the Institute for Applied Ecology, University of Canberra, Australia, where they work on causal assessment methods and applications in aquatic ecosystems. **Susan B. Norton** (norton.susan@epa.gov) and **Kate Schofield** (schofield.kate@epa.gov) are Ecologists with the National Center for Environmental Assessment, Office of Research and Development, US Environmental Protection Agency, Washington DC, where they use evidence synthesis methods in environmental assessments.