

EPA Technical Guidance feedback

WA Division EIANZ



Bridget Hyder
Manager, Terrestrial Ecosystems Branch
EPA Support Unit
Department of Water and Environmental Regulation
Level 4, The Atrium, 168 St Georges Terrace
PERTH WA 6000
Locked Bag 33, Cloisters Square, PERTH WA 6850

Via email: bridget.hyder@dwer.wa.gov.au

Dear Bridget,

Re: Feedback from EIANZ members on EPA environmental considerations and technical guidance used in EIA in Western Australia.

The Environment Institute of Australia and New Zealand (EIANZ) (the Institute) Western Australia (WA) Division (the Division) is pleased to have this opportunity to provide comments on environmental considerations and technical guidance used in Environmental Impact Assessment (EIA). The Institute acknowledges the efforts being made by the DWER EPA Support Unit to update environmental considerations and technical guidance for environmental factors for terrestrial fauna (vertebrate & invertebrate SRE), subterranean fauna, and flora and vegetation.

The EIANZ is the leading professional body in Australia and New Zealand for environmental practitioners, and promotes independent and interdisciplinary discourse on environmental issues. On all issues and all projects, the Institute advocates good practice environmental management delivered by competent and ethical environmental practitioners.

We forward this submission on behalf of the WA EIANZ members. The Division currently has approximately 140 members while the Institute has over 1400 members across Australia in a range of technical disciplines including certified environmental practitioners (CEnVP), ecological consultants, environmental advocates and environmental impact specialists working in government, industry and the community. The contents of this submission are based on the following sources:

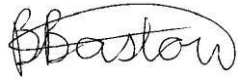
- I. a survey of members specifically for the purposes of this review, and
- II. a structured 3-hour workshop with experienced and respected environmental practitioners in EIA.

Our response is divided into two sections. Firstly, we make some high level general comments about environmental considerations and technical guidance used in EIA, its intent and potential application. Secondly, we respond to key gaps in specific technical guidance for environmental factors.

We also acknowledge and support the submission made by WRM which highlights the gap in technical guidance relating to the survey and analysis of inland water.

Again, we thank the EPA for the opportunity to be engaged in its review of environmental considerations and technical guidance used in EIA in Western Australia.

Regards,



Belinda Bastow
President, EIANZ (WA Division)
on behalf of the WA Division Committee and WA Members



Environment Institute
of Australia and
New Zealand Inc.

1. INTRODUCTION

1.1 Background

The EIANZ WA Division is pleased to make comments on environmental considerations and technical guidance for environmental factors; terrestrial fauna (vertebrate & SRE invertebrate), subterranean fauna, and flora and vegetation.

EIANZ considers that the maintenance and enhancement of biodiversity values is important to achieve a resilient and sustainable landscape that meets the environmental, social and economic needs of Australian communities. A decline in biodiversity values has been reported in recent years in spite of political commitments and legislative frameworks to protect this essential characteristic of the Australian landscape (DoEE, 2017¹).

While the essential components of Ecological Impact Assessment (description, evaluation, assessment, impact management and monitoring) are the same anywhere in the world, their practical application depends on the local regulatory framework (which usually reflects local environmental factors). The EIANZ supports review and updating of technical guidance relating to biodiversity and development to ensure that it remains relevant to contemporary issues and can work effectively.

EIANZ have engaged practitioners and technical experts to provide valuable feedback on the reform of environmental considerations and technical guidance for biodiversity environmental factors.

1.2 Role of the EIANZ

The EIANZ, as the leading membership based professional organisation for environmental practitioners in Australia and New Zealand, is an advocate for good practice environmental management. The Institute supports environmental practitioners and promotes independent and interdisciplinary discussion on environmental issues. The Institute also advocates environmental knowledge and awareness, advancing ethical and competent good practice environmental management.

A Certified Environmental Practitioner Scheme (www.cenvp.org) is also in place to assess and certify competent experienced environmental practitioners working in government, industry and the community. This includes specialist competencies such as Impact Assessment, Ecology and Contaminated Lands.

The EIANZ is an advocate for environmental assessment and monitoring investigations and reports being certified by suitably qualified and experienced persons for the completeness and scientific rigor of the documents. One of the ways of recognising a suitably qualified practitioner is through their membership of, and certification by, an organisation that holds practitioners accountable to a code of ethics and professional conduct, such as the EIANZ.

The EIANZ is a not-for-profit, charitable organisation incorporated in Victoria, and a registerable Australian body under the *Corporation Act 2001* (Cwlth), allowing it to operate in all Australian jurisdictions.

¹ Department of the Environment and Energy 2017 Australia State of the Environment 2016, Biodiversity Chapter.

2. GENERAL FEEDBACK ON TECHNICAL GUIDANCE / CONSIDERATIONS IN EIA

Observation 1: The objectives of technical guidance are not clearly defined for each environmental factor. For effective EIA, guidance should outline why sampling should be undertaken, what information should be collected, and appropriate data analyses to determine the nature, extent, frequency, timing, and duration of threats/impacts, as well as, the possible cumulative impacts of other projects. Technical survey methodology should largely be provided in a separate document (i.e. standard operating procedures). Guidance and clarity about the minimum acceptable standards for EIA documentation, and associated implications (such as the EIA will not be able to be submitted for assessment) has potential to lift the minimum standards for EIA documentation. Additionally, current guidance is too prescriptive, formulaic, and focuses on what species are present, and lacks detail of ecological function (i.e. natural processes) and dynamics of fauna/flora assemblages and distribution, and habitat indicators/requirements.

Observation 2: Technical guidance generally exhibit poor consistency of terminology / language between flora and fauna. Complex and/or technical words should be presented and communicated so that the average individual (i.e. non-technical audience) can understand, so that they may comprehend the issue to some degree. This would be enhanced through the inclusion of a glossary within each guidance.

Observation 3: To be credible and effective, EIAs should be subject to independent peer review, to evaluate scientific rigor. Without it, development decisions based on EIA are at best contestable and potentially invalid. Peer review should be applied to the whole EIA process from project development to reporting and auditing approval requirements. It should be based on rigorous, standard protocols, and produce standardized and publicly available data. Implementation of a peer review process would enhance and add validity to the EIA process.

Observation 4: Technical guidance does not specify the requirements for information / data to be made publicly available via a centralised data or library. It is acknowledged that currently WA does not have a system to achieve this aspect, however it still should be incorporated into the guidance.

Observation 5: Considerations in EIA do not always correspond to defined environmental objective associated environmental factors (flora, fauna etc.). Considerations are also inconsistent amongst environmental factors, providing targeted threats/impacts for select factors (i.e. Inland Waters Environmental Quality), and negligible variation amongst other factors (i.e. flora/vegetation and vertebrate fauna). In addition, considerations in EIA identify factors but not the processes or seasonal, temporal and spatial influences important for connectivity between environmental factors.

3. KEY GAPS IN SPECIFIC TECHNICAL GUIDANCE

Observation 6: Fauna guidance (vertebrate & SRE invertebrate) needs to consider habitat indicators (landform/soil/vegetation association) as alternative /surrogate considerations for species presence/absence. For example, systematic searching for Malleefowl mounds and Mulgara burrows as indicators for species presence. Gaps in knowledge about biodiversity (distributions, occurrences, trends, habitat indicators etc.) and ecological processes and relationships are fundamental to evaluation and assessments of effects on ecological values. Expert opinion must be used to make assessments, evaluations and predictions where there is insufficient information.

Observation 7: Fauna guidance (vertebrate & SRE invertebrate) are now out of date, and there is a substantive body of literature and diverse array of sampling methods (incl. new techniques) that should be taken in to account in redrafting the guidelines. Guidance needs a consequences / risk based approach, to ensure survey methodology is adaptive, reflects current best practice techniques (i.e. unassisted pit-traps, non-lethal methods) and better justification for the level of survey effort (i.e. project threats/impacts) is required.

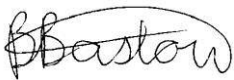
Observation 8: SRE invertebrate guidance focuses on select species, however does not address the community assemblage as a whole. To provide consistency with guidance for vertebrate fauna and flora and vegetation, assemblage-level surveys of terrestrial invertebrates should be conducted to enable an interpretation of the conservation significant fauna. Guidance also doesn't handle non-classic SRE environments (i.e. deserts), and focuses on refugial environments.

Observation 9: Lack of technical guidance for Inland Waters Environmental Quality and consideration of aquatic biota (invertebrate and vertebrate groups) in EIA. Environmental management of Inland Waters (Water Theme) warrant equal consideration to that afforded to Marine Waters (Sea Theme), as do aquatic biota indicators (i.e. phytoplankton, zooplankton, hyporheic fauna, macroinvertebrates, fish) to that afforded to plants, terrestrial vertebrates, SRE invertebrates and subterranean fauna. The choice of biological indicators should be elucidated, which is dependent on location, logistics, and efficiency (money) for EIA. As a stimulus to this, the WA EPA, with assistance from aquatic specialists, should give priority to developing guidance documents for water quality management of inland ecosystems, and surveying aquatic invertebrates (i.e. macroinvertebrate community) as an indicator or measure of performance of water quality and ecological health, using a format that is consistent with guidelines that have already been produced for other states (VIC, QLD, NZ). See attached letter for further information.

Observation 10: Flora and Vegetation guidance while revised in 2016 still does not provide enough guidance especially in the field of vegetation classification and mapping and contains a number of logical errors that perpetuate old and invalid beliefs (indeed beliefs, not science). WA guidance and approach lags behind other state such as Queensland and New South Wales.

The EIANZ recommends that the biodiversity technical guidance reform should not proceed without substantial revision in consultation with expert specialists. Representatives of the EIANZ would be pleased to attend a face to face meeting with the EPA Support Unit to give specialist expertise if this would assist in its revisions of technical guidance. EIANZ can be contacted directly via the WA Division President on 0418 950 678 or by email on wa@eianz.org

Regards,



Belinda Bastow
President, EIANZ (WA Division)
on behalf of the WA Division Committee and WA Members



Environment Institute
of Australia and
New Zealand Inc.

EPA Strategy & Guidance
Department of Water and Environmental Regulation
Level 4, The Atrium, 168 St Georges Terrace
PERTH WA 6000
Locked Bag 33, Cloisters Square, PERTH WA 6850

Dr Andrew Storey
Director
WRM
16 Claude St
Burswood WA 6100
T: +61 8 9361 4325, M: +61 456 9232 164
E: andrew.storey@wetlandresearch.com.au
ABN: 43 145 831 554

15 September 2017

Review of the WA Environmental Protection Authority (EPA) environmental considerations and procedures and technical guidance used in Environmental Impact Assessment (EIA).

To whom it may concern,

The WA Division of the Environment Institute of Australia and New Zealand (EIANZ) seek constructive and targeted input and advice from members to provide feedback to the EPA on environmental considerations and procedures and technical guidance used in Environmental Impact Assessment (EIA).

The EPA has 14 environmental factors, organised into five themes: Sea, Land, Water, Air and People. The EPA has identified an environmental objective for each environmental factor. The OEPA briefing(s) on the EPA's new EIA procedure and guidelines framework on Tuesday 14th March 2017, provided advice that application of technical guidance demonstrates how the EPA's objective for individual environmental factors will be met. However, under the theme 'Water', no technical guidance is currently available to communicate how the environmental factor 'Inland Waters Environmental Quality' will be considered by the EPA in EIA. It is imperative a document is published which sets out the context for the guidance, describes the structure of the environmental quality management framework, and how it is to be applied through EIA to maintain a high level of quality in Western Australia's inland waters (groundwater and surface water). Technical guidance or requirements in relation to the method for the survey or analysis of inland waters, would reduce uncertainty around the predictions of environmental impact, and establishes the aims for monitoring and management plans designed to ensure that the EPA's objectives for Inland Waters Environmental Quality are achieved.

The EPA's objective for the factor 'Inland Waters Environmental Quality' is: "To maintain the quality of groundwater and surface water so that environmental values are protected". Environmental value is defined under the Environmental Protection (EP) Act 1986 as a beneficial use or an ecosystem health condition. The ecosystem health condition is relevant to the maintenance of ecological structure, ecological function, or ecological process. This objective recognises the fundamental link between water quality and the environmental values supported by good water quality. For the purposes of EIA and in relation to ecosystem health, where Inland Water Environmental Quality has been identified as an environmental factor, the EPA may require the proponent to provide information or studies on the following:

- I. background groundwater and surface water quality;
- II. potential of a proposal to impact water quality; and
- III. prediction of the impact of changing water quality on environmental values.

Absence of technical guidance which provides a consistent and standardised approach for measuring and reporting on Inland Water Environmental Quality across projects and regions has led to considerable confusion within and amongst proponents and consultants during EIA. For instance, there is notable variance in the approach to derivation and application of water quality guidelines. Management approach for beneficial human water uses (i.e. Australian Drinking Water Guidelines 2011) and values (e.g. irrigation, stock watering, recreation) do not sufficiently protect aquatic ecosystems, based on the recommendations and approaches in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ 2000), in accordance with the State and National Water Quality Management Strategy (SWQMS/NWQMS). Water quality guidelines for aquatic ecosystem protection are considerably more complex, because:

- I. aquatic ecosystem protection guidelines for some water quality parameters (e.g. electrical conductivity, nutrients) need to be specific to different regions (e.g. Pilbara versus South West of Australia) because there are natural variations in their values;
- II. the ANZECC guidelines have specified three different levels of aquatic ecosystem protection (high ecological value, slightly to moderately disturbed, highly disturbed), for which different guideline values may need to be derived.

An appropriate understanding of inland waters requires an integrated assessment of habitat and biological indicators, as well as the physical and chemical indicators of sediment and surface waters. While the risk-based approach established by ANZECC & ARMCANZ (2000) provides an assessment of the perceived level of risk that stressors and toxicants pose to ecosystems, it also recommends site-specific objectives (established using background data) be set for biological indicators of ecosystem health (i.e. aquatic fauna) at local or regional scale. Where these environmental quality objectives are not met and an ecological risk has been identified, management actions and targets should also be set.

Biological indicators of inland waters are direct measures of the health of the aquatic fauna and flora (collectively referred to as 'biota'). Commonly used biological indicators in freshwater include various structural and functional measures of aquatic invertebrates (zooplankton and macroinvertebrates) or fish. Aquatic macroinvertebrates are the most widely used biological indicators globally, because they are abundant and diverse, and can be sensitive to changes in water quality, flow regime and habitat conditions. A range of aquatic macroinvertebrate indices (i.e. taxa richness, SIGNAL, EPT) are currently used as a measure of ecosystem health of inland waters as part of EIA in other states (i.e. VIC, QLD) and New Zealand, and form a critical component of the Department of Water and Environmental Regulation (DWER) assessment of the condition of rivers and estuaries in the South West of Australia (South West Index of River Condition (SWIRC)).

For physico-chemical and biological indicators, guidelines are typically developed using a referential approach. Using a referential approach, guideline values for a particular indicator are determined by the condition of that indicator in a relatively undisturbed system. This becomes the reference (or baseline) condition. The actual guideline value is calculated on the basis of maximum acceptable departure from reference condition. ANZECC & ARMCANZ (2000) (section 3.3.2.4) suggest that the default acceptable departure from the guideline value be based on the 20th and/or 80th percentile (whichever is most appropriate for the indicator) of values at the reference site. For example, dissolved oxygen guidelines would be based on typical 20th and/or 80th percentile dissolved oxygen values found in a relatively undisturbed system. Similarly, guidelines for biological indicators, such as macroinvertebrates, would be based on macroinvertebrate diversity and species composition found in undisturbed systems. A key consideration is that reference data is collected according to agreed protocols (adequate numbers of reference sites and data values, time periods of collection and quality assurance).

As part of the EPA's review process, it is critical guidance be developed to protect the environmental factor guideline 'Inland Waters Environmental Quality'. I strongly recommend that a working group is established with specialists in the field of aquatic ecology, particularly freshwater, through relevant stakeholder reference groups, for further discussion relating to sediment quality, water quality, and biological indicators of inland waters, the method of survey or analysis of indicators, and design of monitoring and management plans.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'A. Storey', with a stylized flourish at the end.

Dr Andrew Storey | Director



Wetland Research & Management
16 Claude St, Burswood, WA 6100
ph: 93614325
mobile: 0456232164
email: Andrew.Storey@WetlandResearch.com.au