

Wetlands method consolidation

New tools to determine the environmental health of wetlands

A completed Water Research Commission (WRC) study has developed a series of decision-support tools for the assessment of the present ecological status (PES) of wetlands.

Background

The present ecological state (PES) of a wetland refers to its present ecological condition relative to the perceived natural condition. The ability of a wetland to continue providing ecosystem goods and services is determined, to a large degree, by its present ecological condition.

Government agencies (and other parties responsible for the management of wetlands) typically take the PES of a wetland into account when making management decisions relating to the sustainable use and protection of wetlands. It is thus important for government agencies to ensure that appropriate methods, which generate reliable and comparable results, are used for wetland PES assessments.

Through their use over a number of years, gaps have been identified in the existing methods that are available for wetland PES assessment in South Africa.



Practitioners assessing the present ecological condition of a wetland.

The rationale for this WRC project was to identify key areas for future research and development with regard to the assessment of wetland PES in South Africa, so as to pave the way towards improving the existing methods; and to provide interim decision-support tools to assist government agencies and wetland assessors in selecting appropriate wetland PES assessment methods and reporting the results in a transparent and consistent manner.

Review of existing methods

The focus of the overall project was on existing methods or tools that have been developed for the assessment of wetland condition in South Africa, in particular for determining the PES of a wetland. While the focus was on South African PES assessment methods, as a point of comparison, consideration was also given to some of the more prominent wetland assessment methods used internationally, particularly in the US, Europe, Australia and New Zealand.

A number of key stakeholders in the South African wetland community (including government officials, consultants and academics) were individually consulted to test key methods and determine what wetland assessment methods are generally used or advocated by various organisations and groups across the country. Based on the comparison of the available wetland PES assessment methods and the findings of the gap analysis, areas requiring further research and development were identified in relation to tools for the assessment of the ecological condition of inland wetlands in South Africa.

Policy implications and recommendations for future research

The following recommendations for further research and development are made specifically in relation to the tools and methods for wetland PES assessment in South Africa:

- The existing assessment tools (particularly WET-Health, and Wetland-IHI) should be combined into a single assessment tool or an integrated suite of assessment tools for the categorisation of wetland PES.
- In the interim, a decision-support tool of some sort should be developed to assist in the determination of which of the existing wetland PES methods (or specific components of the existing methods) would be most appropriate for particular situations and/or particular wetland types.
- A method for assessing the ecological condition of depressions and wetland flats (and seeps that are not connected to a drainage network) should be formulated as a matter of urgency, or one of the existing methods should be adapted to account for these wetland types.
- Written guidelines should be produced to assist with the determination of the perceived natural reference state for wetlands.
- The characteristics of reference wetlands in different geographical areas should be documented, following a standardised approach and reporting format.
- Photographic field-guides and report templates should be produced for wetland PES assessments.
- An overarching decision-support framework for wetland assessment in South Africa should be developed.

Proposed framework for wetland assessment in South Africa

During the course of this project, it became apparent that in South Africa there is a lot of confusion about the tasks that should generally be carried out during a wetland assessment process and the correct methods to use for the various tasks. The prevalence of such confusion, which often leads to the inappropriate application of existing PES assessment methods, was one of the main motivating factors behind the development of the proposed Framework for Wetland Assessment as an additional deliverable in the project.

It is anticipated that the framework will minimise the incorrect application of wetland assessment tools by guiding an assessor through the various steps that should

typically be followed before and after conducting a wetland assessment, and by elucidating the different types of wetland assessments that can be undertaken.

The proposed framework simply provides a visual summary of the process that is typically followed in the cycle of wetland identification, mapping (delineating), classification (typing), assessment, management and monitoring, by breaking the process down into five generic steps:

- Step 1: Contextualisation of assessment
- Step 2: Wetland identification, mapping (delineation) and classification
- Step 3: Wetland assessment
- Step 4: Setting of management objectives
- Step 5: Formulation and implementation of management measures.

It is anticipated that there is a wide range of potential areas of application for the proposed framework for wetland assessment due to its generic nature. At the same time, it is important to bear in mind that the framework is specifically intended for inland wetlands, and not for other types of inland aquatic ecosystems (such as rivers or open waterbodies).



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Decision-support protocol (DSP) for rapid wetland PES assessment

The DSP for the rapid assessment of wetland PES is the main deliverable that has been produced for the project. This tool is in the form of an electronic spreadsheet compiled in Microsoft Excel format.

The main worksheet outlines the protocol that has been developed for the rapid assessment of wetland PES as a

series of steps. This worksheet contains hyperlinks to the various worksheets that need to be filled in for each step when using the DSP.

The steps in the DSP have been purposefully formulated to align with the steps in the proposed framework for wetland assessment.

Conclusions

It is anticipated that the DSP and overarching decision-support framework for wetland assessment in South Africa will provide much-needed support and guidance for assessors and decision-makers involved in wetland assessment, management and/or monitoring throughout the country.

Further reading:

To order the reports (including CD), *Development of decision-support tools for assessment of wetland present ecological status Volume 1 (Report No. TT 608/14)* and *Volume 2 (TT 609/14)*

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