

Science for Environment Policy

How to ensure monitoring delivers effective, evidence-based conservation

Long-term biological monitoring is key to effective, evidence-based conservation management, new research concludes. However, greater collaboration is needed to ensure that scientists understand what kind of information is needed by conservation managers. In this way the data can deliver answers for the most important management questions.

Evidence-based management is a crucial part of effective conservation. 'Management effectiveness evaluation' is a framework designed to facilitate this, and encompasses every stage, from defining the conservation objective and planning to assess conservation outcomes. While qualitative data, such as expert opinions, can be used in such evaluations, quantitative data (i.e. numeric measurements) are often more appropriate, especially for measuring ecological condition. Quantitative condition assessments allow more transparent and repeatable monitoring, and are less subject to the possible biases of expert opinion.

To investigate the use of long-term quantitative monitoring in the management of [marine](#) protected areas (MPAs), researchers for this study interviewed 20 individuals from five management agencies encompassing seven long-term monitoring programmes from across Australia. Interviewees were either managers or scientists and all had intimate knowledge of their monitoring programmes.

The results showed that although the monitoring programmes provided quantitative data, the material used to inform the efficacy of management decisions was qualitative. In other words, experts would interpret the data and provide their opinion. This results in a loss of key benefits, the researchers argue. The programmes, which had been running for durations of 12–27 years, provided a large amount of useful data which could have been used for objective, transparent ecological condition assessments.

The interviewees felt that data collected through long-term monitoring had been valuable for informing management. For example, it provided information on habitat distributions which was useful for decisions such as changes to the siting of MPAs. It was also helpful for invasive alien species control, compliance efforts and educational programmes.

The management effectiveness evaluation framework was used by the management agencies, but it was common for management decisions to be made without following it. This might be partly to do with the time scales, the researchers say. The evaluations were often only carried out every 5–10 years, often as a part of external reporting. This is generally not frequently enough to help with on-going management decisions, the researchers say.

The researchers make four key recommendations to improve the use of long-term monitoring data and ensure effective management:

- 1) Ensure that management is evidence-based. Management effectiveness evaluation should be a 'closed loop'; this requires that assessments of conservation outcomes feed directly into new management decisions.
- 2) Invest in effective long-term monitoring. Stronger collaborations between management and the scientific community are also needed to ensure that monitoring really provides answers to the questions asked by managers.
- 3) Use quantitative ecological condition assessments rather than qualitative. This will be facilitated by better collaborations, as the data will be designed to provide the information managers need.
- 4) Increase the frequency of evaluations to ensure that the evidence really drives management, rather than only being used for reporting.



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