

New Approach for Measuring the Performance of MPAs

Often, the reasons for establishing a marine protected area are to protect a resource or ecosystem while providing various social and economic benefits, among them increased fishery catches. As more MPAs are designated around the world, the ability to evaluate the effectiveness of these areas in meeting their policy objectives becomes increasingly important.

Jackie Alder of Edith Cowan University (Australia) has suggested that there is an urgent need for useful approaches capable of measuring MPA performance. In a paper she co-authored and delivered last month at the "Economics of MPAs" conference in Vancouver, British Columbia (Canada), Alder stated, "An assumption underlying the growing support for MPAs is that they meet conservation goals and provide economic benefits, such as to fisheries and ecotourism. However, continued support for MPAs will be at risk if managers cannot assess whether multidisciplinary objectives are being fulfilled."

To serve this need for an evaluative technique, Alder is exploring one approach, called Rapfish. Short for "Rapid Appraisal for the Status of Fisheries," Rapfish was originally developed at the Fisheries Centre of the University of British Columbia for evaluating the sustainability of fisheries. Alder has adapted it to evaluate MPA performance, and says it holds promise as a tool for managers to score their MPAs' performance quickly and across disciplines.

The Rapfish model

Under Alder's adapted approach, Rapfish allows the measurement of MPA performance in the following "dimensions":

- maintenance of living and non-living resources
- market value of the MPA and its resources
- social expectations
- maintenance of ecosystem functions
- management

Each of these dimensions is subdivided into a list of detailed attributes, which are scored on a sliding scale -- such as from 0 to 3, with 0 representing a good score and 3 representing a bad score.

Managers fill out a scoring sheet and submit it to Alder, who uses a statistical program to analyze each MPA by individual dimension and total score. Alder is able to compare each protected area to 20 MPAs that she has already analyzed from around the world, ranging from those with "poor" performance to those with "better" performance.

Alder noted that the computer program she used to analyze the 20 MPAs -- called the Statistical Package for the Social Sciences -- is expensive and beyond the budgets of most developing nations or community organizations. She said work was needed to transfer the analytical methods to cheaper technology. In the meantime, she has invited MPA managers and researchers to use her model to evaluate their own MPAs and submit their data to her for analysis. Ideally, she said, she would like to analyze at least 100 MPAs prior to encouraging the model's wide use in MPA management. [To participate, contact Alder at the e-mail address below.]

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Explaining Variation in MPA Performance

Many MPAs fail to achieve their policy objectives, but little social scientific research exists to explain the variation in MPA performance. Responding to this gap, Mike Mascia of the Duke University Marine Laboratory (North Carolina, US) suggests that an understanding of institutions and individual choices can be used to predict the effectiveness of MPAs and improve MPA policy.

In a paper delivered last month at The Coastal Society's 17th International Conference (Portland, Oregon, US), Mascia offered

a comparative study of three MPAs in the Wider Caribbean, analyzing the factors that shaped these areas' social and biological performance. The results, he said, were in line with recent academic theories on the evolution of institutions for collective action. That is, positive social and biological outcomes for the MPAs were correlated with clear boundaries, well-defined resource-use rights, accessible conflict-resolution mechanisms, and user self-governance rights, he said.

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