

Can marine reserves enhance fishery yield?

WITH MANY FISHERIES UNDER MOUNTING PRESSURE, the use of marine reserves as a strategy for enhancing fishery yields is becoming more popular. However, empirical data on the effectiveness of this strategy are rare, as is often the case with fishery data. This lack of data leads scientists and managers to rely on modeling to determine the efficacy of marine reserves in enhancing commercially harvested fish populations. A recent paper by Crow White and Bruce Kendall in *Oikos* describes two influential fishery science papers that come to different conclusions regarding the use of marine reserves—whether the reserves provide “equivalence at best” or “potentially improved” yield—and provide a third model analysis suggesting that reserves can substantially benefit yield in fisheries with post-dispersal density dependence, where crowding tends to increase deaths and decrease births after dispersal.

For managers, this journal article emphasizes a classic dilemma in understanding and applying modeling studies. Simply put, all models are not created equal; understanding a model's assumptions and what questions a particular model is good at asking is very difficult for the uninitiated. Furthermore, inventorying and monitoring underwater resources are hard for marine reserves managers. One of the few tools available to them is the judicious use of models. The progress made by White and Kendall in better understanding the links between management of protected areas and resource extraction helps push the field forward.

Reference

White, C., and B. E. Kendall. 2007. A reassessment of equivalence in yield from marine reserves and traditional fisheries management. *Oikos* 116:2039–2043.

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