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• REPORT

Coastal Ecosystem–Based Management with Nonlinear Ecological Functions and Values

Edward B. Barbier^{1,*}, Evamaria W. Koch², Brian R. Silliman³, Sally D. Hacker⁴, Eric Wolanski⁵,
 Jurgene Primavera⁶, Elise F. Granek⁷, Stephen Polasky⁸, Shankar Aswani⁹, Lori A. Cramer¹⁰,
 David M. Stoms¹¹, Chris J. Kennedy¹, David Bael⁸, Carrie V. Kappel¹², Gerardo M. E. Perillo¹³,
 Denise J. Reed¹⁴

 Author Affiliations

¹ Department of Economics and Finance, University of Wyoming, Laramie, WY 82071, USA.

² Horn Point Laboratory, University of Maryland Center for Environmental Science, Cambridge, MD 21613, USA.

³ Department of Zoology, University of Florida, Gainesville, FL 32611, USA.

⁴ Department of Zoology, Oregon State University, Corvallis, OR 97331, USA.

⁵ Australian Centre for Tropical Freshwater Research, James Cook University and Australian Institute of Marine Science, Townsville, Queensland 4810, Australia.

⁶ Aquaculture Department, Southeast Asian Fisheries Development Center, Tigbauan, Iloilo 5021, Philippines.

⁷ Environmental Sciences and Resources, Portland State University, Portland, OR 97207, USA.

⁸ Department of Applied Economics, University of Minnesota, St. Paul, MN 55108, USA.

⁹ Department of Anthropology, University of California, Santa Barbara, CA 93106, USA.

¹⁰ Department of Sociology, Oregon State University, Corvallis, OR 97331, USA.

¹¹ Bren School of Environmental Science and Management, University of California, Santa Barbara, CA 93106, USA.

¹² National Center for Ecological Analysis and Synthesis, University of California, Santa Barbara, CA 93101, USA.

¹³ Instituto Argentino de Oceanografía, B8000FWB Bahía Blanca, Argentina.

¹⁴ Department of Earth and Environmental Sciences, University of New Orleans, New Orleans, LA 70148, USA.

* To whom correspondence should be addressed. E-mail: ebarbier@uwyo.edu

ABSTRACT

A common assumption is that ecosystem services respond linearly to changes in habitat size. This assumption leads frequently to an “all or none” choice of either preserving coastal habitats or converting them to human use. However, our survey of wave attenuation data from field studies of mangroves, salt marshes, seagrass beds, nearshore coral reefs, and sand dunes reveals that these relationships are rarely linear. By incorporating nonlinear wave attenuation in estimating coastal protection values of mangroves in Thailand, we show that the optimal land use option may instead be the integration of development and conservation consistent with ecosystem–based management goals. This result suggests that reconciling competing demands on coastal habitats should not always result in stark preservation–versus–conversion choices.

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Responses to this article**Response to N. Koedam and F. Dahdouh–Guebas's E–Letter**

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