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The EBM Toolbox: Tools for ocean zoning

Editor's note: The goal of The EBM Toolbox is to promote awareness of software tools for facilitating EBM processes, and to provide advice on using those tools effectively. It is brought to you by the EBM Tools Network (www.ebmtools.org), a voluntary alliance of leading tool users, developers, and training providers.

By Sarah Carr

To provide comprehensive decision support for ocean zoning, toolkits will need to help stakeholders to:

- Define their social, economic, and ecological objectives;
- Develop configurations of zones with diverse plans, policies, and regulations;
- Estimate the degree to which zoning configurations will meet defined objectives; and
- Monitor performance of implemented zones at meeting defined objectives.

Purpose-built tools for ocean zoning are just starting to emerge, and one such tool is Marxan with Zones. Marxan with Zones helps create alternative zoning configurations that maximize the achievement of social, economic, and ecological objectives while minimizing the total social, economic, and ecological cost. In Marxan with Zones, planning units can be allocated to a variety of zones including conservation zones with various protection levels and zones with other land and sea uses, such as fishing, mining, oil and natural gas exploration, and agriculture. The software was developed by the University of Queensland in partnership with Ecotrust USA and is based on the popular Marxan conservation planning software. Marxan with Zones will be available in the near future. To be notified of its release, sign up for the Marxan mailing list at marxan-owner@sib.uq.edu.au. (For more information on Marxan in general, including a handbook and manual on the software, go to www.uq.edu.au/marxan.)

Another emerging analytical method that will be useful for ocean zoning focuses on mapping the cumulative impact of different suites of human activities on the ocean. With this type of analysis, the overall impact of all human activities on ocean condition can be assessed. Furthermore, particular activities can be included or excluded from consideration to determine what suite of activities can best meet objectives for a given zone. An article in the 15 February 2008 issue of *Science* (Halpern et al. "A Global Map of Human Impact on Marine Ecosystems") provides a global cumulative impact map. To download the publication free of charge and learn more about the method and data layers used in the published analysis, go to www.nceas.ucsb.edu/GlobalMarine.

(Sarah Carr is coordinator for the EBM Tools Network. Learn more about EBM tools and the EBM Tools Network at www.ebmtools.org. Sign up for Network updates and contact Sarah at www.ebmtools.org/contact.html.)

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