



## THEME SECTION

# Politics and socio-economics of ecosystem-based management of marine resources

*Idea and coordination:* Howard I. Browman, Konstantinos I. Stergiou

## CONTENTS\*

**Browman HI, Stergiou KI**

Introduction ..... 241–242

**Agardy T**

Global marine conservation policy versus site-level implementation: the mismatch of scale and its implications ..... 242–248

**Fluharty D**

Evolving ecosystem approaches to management of fisheries in the USA ..... 248–253

**Hirshfield MF**

Implementing the ecosystem approach: making ecosystems matter ..... 253–257

**Livingston PA**

PICES' role in integrating marine ecosystem research in the North Pacific ..... 257–259

**Misund OA, Skjoldal HR**

Implementing the ecosystem approach: experiences from the North Sea, ICES, and the Institute of Marine Research, Norway ..... 260–265

**Rice JC**

Implementation of the Ecosystem Approach to Fisheries Management—asynchronous co-evolution at the interface between science and policy ..... 265–270

**Rosenberg AA, McLeod KL**

Implementing ecosystem-based approaches to management for the conservation of ecosystem services ..... 270–274

**Sherman K, Sissenwine M, Christensen V, Duda A, Hempel G, Ibe C, Levin S, Lluch-Belda D, Matishov G, McGlade J, O'Toole M, Seitzinger S, Serra R, Skjoldal HR, Tang Q, Thulin J, Vandeweerd V, Zwanenburg K**

A global movement toward an ecosystem approach to management of marine resources ..... 275–279

**Sumaila UR**

Differences in economic perspectives and implementation of ecosystem-based management of marine resources ..... 279–282

**Tudela S, Short K**

Paradigm shifts, gaps, inertia, and political agendas in ecosystem-based fisheries management ..... 282–286

**Valdimarsson G, Metzner R**

Aligning incentives for a successful ecosystem approach to fisheries management ..... 286–291

**Watson-Wright WM**

Policy and science: different roles in the pursuit of solutions to common problems ..... 291–296

## Introduction

Howard I. Browman<sup>1,\*\*</sup>, Konstantinos I. Stergiou<sup>2</sup>

<sup>1</sup>Institute of Marine Research - Austevoll, 5392 Storebø, Norway  
Email: howard.browman@imr.no

<sup>2</sup>Aristotle University of Thessaloniki, School of Biology,  
Department of Zoology, Box 134, Thessaloniki 54124, Greece  
Email: kstergio@bio.auth.gr

The ecosystem-based approach (EA) to the management of marine resources has been the focus of several recent publications (e.g. Browman & Stergiou 2004, Pikitch et al. 2004, Beddington & Kirkwood 2005, Daan et al. 2005). Despite this flurry of articles, the often over-riding importance of political and socio-economic forces in establishing and implementing the EA have not been adequately addressed (but see Turrell 2004). Thus, we canvassed experts who are familiar with this side of the EA issue, and managers involved in the decision to adopt it as national/international policy. Our goal was to provide marine scientists with insights into the forces driving the adoption of policies such as the EA, and the mechanisms through which they are

operationalized (or not). We sought contributions from colleagues who have been engaged in the interaction of politics with science, and sought to cover as many perspectives as possible: non-governmental organizations (NGOs), government, research institutes and universities.

The contributors to this Theme Section (TS) describe the structural, technical, administrative, operational, socio-economic and scientific complexities associated with the adoption and implementation of a holistic EA. 'Ecosystem services', and the need to assess the cumulative impacts of all activities (extractive or otherwise) on the ecosystem, are emphasized in several of the contributions. The Large Marine Ecosystem (LME) concept emerges as a possible practical structure upon which the EA could be operationalized. The role of uncertainty at various levels of the science–policy interface, and its relation to implementing the EA, are taken up from various perspectives. Estimating fish abundance, and characterizing/predicting ecosystem structure and function, are inherently difficult, and the result will al-

\*Contributions are in alphabetical order (by first author)

\*\*The views expressed are those of the author and do not necessarily reflect the official position of IMR

ways be fraught with uncertainty. The manner in which this uncertainty is dealt with depends upon the role that one plays in the management system. Stock assessment analysts and ecosystem modelers must focus on reducing uncertainty. Politicians, policy-makers and fisheries managers must consider this uncertainty within a precautionary approach: they must adopt the worst-case estimates and/or the concept of reversing the burden of proof (see Pikitch et al. 2004). These different perspectives on uncertainty come into play as part of policy-supporting scientific advising (*sensu* Smith & Link 2005). However, the same scrutiny is rarely applied to the scientific advice associated with policy formation (see Smith & Link 2005).

Although we provided contributors with a series of questions that they could address, several issues that we viewed as important were not taken up. For example, the fact that governments in most of the developed world are reducing funding and personnel in the marine research sector begs the question: where are the funds that will allow a complete implementation of the EA going to come from? Further, the conservationist bent of the EA seems at odds with humanity's intensive–extensive (and unsustainable) exploitation of continental ecosystems through large-scale production of crops and livestock, with little if any thought towards preserving ecosystem health, biodiversity, endemic species, etc. This highlights a general lack of discussion concerning the moral, ethical and philosophical aspects of exploiting the sea (although see Dallmeyer 2003, Marra 2005). The overriding influence of politics, and of remunerated political lobbying, in the adoption of policy were not adequately addressed (but see, for instance Anonymous 1997, Masood 1997, Spurgeon 1997, Allisson 2001, Pauly 2003).

It is often maintained, either implicitly or explicitly, that scientists are naïve when it comes to policy issues and their implementation. Dunbar (1987, p. 6) stated:

There is a belief that the body scientific cannot judge these important matters, that scientists live in a con-founded 'ivory tower' dreaming of test tubes, high theory or the genitalia of insects, and that it takes lawyers, businessmen or perhaps emancipated economists to come down to practicalities. This is a myth fomented and perpetuated by those same lawyers, businessmen, etc. It is poppycock; no one can know better than scientists how to get the best results and the most mileage out of science. A scientist looking for advice on the stock market goes to the relevant professional, and rightly expects lawyers and politicians to come to him for guidance in science.

We hope that this Theme Section will help us along this path.

*Acknowledgements.* H.I.B.'s ongoing research and his editorial activity for MEPS are supported by the Institute of Marine Research, Norway, by The Research Council of Norway, and by the Inter-Research Science Center.

## LITERATURE CITED

- Allisson EH (2001) Big laws, small catches: global ocean governance and the fisheries crisis. *J Int Dev* 13:933–950
- Anonymous (1997) Politics and fisheries management. American Fisheries Society, Texas Chapter, Newsletter 23(4):5 (available at [www.sdafs.org/tcafs/news/97vol23/news23\\_4/v23n4.pdf](http://www.sdafs.org/tcafs/news/97vol23/news23_4/v23n4.pdf))
- Beddington J, Kirkwood G (eds) (2005) Fisheries: a future? *Philos Trans R Soc Lond B Biol Sci* 360:3–218
- Browman HI, Stergiou KI (eds) (2004) Perspectives on ecosystem-based approaches to the management of marine resources. *Mar Ecol Prog Ser* 274:269–303
- Dallmeyer DG (2003) Values at sea. Ethics for the marine environment. University of Georgia Press, Athens, GA
- Daan N, Christensen V, Cury PM (eds) (2005) Quantitative ecosystem indicators for fisheries management. *ICES J Mar Sci* 62(3):307–614
- Dunbar MJ (1987) Science policy? Ask a scientist. *Can Res March*:4–6
- Marra J (2005) When will we tame the oceans? *Nature* 436:175–176
- Masood E (1997) Fisheries science: all at sea when it comes to politics? *Nature* 386:105–106
- Pauly D (2003) Ecosystem impacts of the world's marine fisheries. *Global Change Newsl* 55:21–23
- Pikitch EK, Santora C, Babcock EA, Bakun A and 13 others (2004) Ecosystem-based fishery management. *Science* 305:346–347
- Smith TD, Link JS (2005) Autopsy your dead...and living: a proposal for fisheries science, fisheries management and fisheries. *Fish Fish* 6:73–87
- Spurgeon D (1997) Political interference skewed scientific advice on fish stocks? *Nature* 388:106
- Turrell WR (2004) The policy basis of the 'Ecosystem Approach' to fisheries management. EuroGOOS Publication No. 21, EuroGOOS, Norrköping

## Global marine conservation policy versus site-level implementation: the mismatch of scale and its implications

Tundi Agardy

Sound Seas, 6620 Broad Street, Bethesda, Maryland 20186, USA  
Email: [tundiagardy@earthlink.net](mailto:tundiagardy@earthlink.net)

**The mismatch of scale.** Addressing environmental issues requires recognition of problems, mobilization of resources to develop solutions, and leadership in driving change. These actions are best accomplished by 'thinking globally, acting locally'. However, environmental problems themselves are rarely local in scale, and piecemeal attempts to address them usually fail. This is particularly true in the conservation of the marine environment, where open marine ecosystems and the international nature of pollution, overexploitation, and of other threats dictate a large-scale multi-lateral response. The mismatch between large-scale thinking (embodied in marine policy) and small-scale conservation action has serious implications for our