

# EBM Opinion: On Marine Ecosystems, Fisheries Management, and Semantics

By Daniel Pauly

[Editor's note: Pauly is head of the Sea Around Us Project at the University of British Columbia, Canada. E-mail: [d.pauly@fisheries.ubc.ca](mailto:d.pauly@fisheries.ubc.ca)]

In the 1970s, when I was a student of fisheries biology in Kiel, Germany, we were taught from textbooks, by Beverton & Holt, Ricker, Gulland and others, which did not mention more than casually the ecosystems within which the exploited species in question are embedded. In fact, these species were presented as having mainly internal dynamics, upon which the "outside", i.e., the ecosystem, could impact only via natural mortality, which was represented by a constant. It was the same in other countries, and there were reasons for that, perhaps good reasons, but they are no good any more.

Two related developments led to this extreme reductionism being gradually overcome. One was the inordinate number of exploited stocks that crashed in the 1980s and 1990s, the most famous of those crashes being that of Northern cod off Eastern Canada, which was supposedly well-managed and whose collapse hugely impacted on the credibility of fisheries science. The other development was the collateral damage of fisheries, in the form of marine mammals, seabirds and turtles drowned and in form of habitat destruction, both of which became big public issues in that period.

I don't know who first coined the term "ecosystem-based fisheries management" (EBFM), which was proposed as the solution to these ills. But the term was extremely successful, as attested by its acceptance by the NGO community and the public and by various governments, often before their fisheries management agencies could adapt. In fact, the quick acceptance of the term preceded serious scientific discussion of its implications. (It also preceded any consensus on its meaning and feasibility, but this is not a problem as "consensus" is never achieved on this Earth).

Fisheries scientists and marine ecologists thus had to scramble to give the term some operational definition. Most settled on a list of essentials, including: a place (for the ecosystem to be in), which is zoned (for different uses), whose integrity (e.g., the sea floor communities) is to be protected from, for example, trawling (at least in part; we are realists), and whose key forage species (e.g., krill, or small fishes) are to be shared between humans and other predators, such as marine mammals and seabirds. Also, social scientists have joined in the fray, informing us of such things as "people are part of the ecosystem." (The quotation marks are a hint that this seemingly platitudinous phrase is anything but, given that it prevents us from conceiving of ecosystems that we would deliberately leave alone.)

Out of this scramble came the realization that once an ecosystem becomes the focus of concern, there is no reason to privilege the fisheries, and thus ecosystem-based management (EBM) was born. However, this term hides more than it clarifies. Here is how a major environmental NGO defines "the Principles of EBM" in one of its brochures:

"Ecosystem-based management has objectives and targets that:

- Focus on maintaining the natural structure and function of ecosystems and their productivity;
- Incorporate human use and values of ecosystems in managing the resource;
- Recognize that ecosystems are dynamic and constantly changing;
- Are based on a shared vision of all stakeholders;
- Are based on scientific knowledge, adapted by continual learning and monitoring."

In other words, EBM as defined here means everything and nothing, i.e., the term has devolved toward vacuity. This is similar to "sustainability", which could be taken to mean things being done such that they could remain more or less the way they are forever (or at least for a long time). Sustainability then devolved to "sustainable growth", which is an oxymoron, because

something that grows (e.g., an economy, or fisheries catches) cannot continue to do so forever, or even for a long time. This is in fact neatly illustrated by the unraveling of the various Ponzi schemes of which Wall Street was so fond.

And while we are agonizing about EBM vs. EBFM, and whether humans should be considered in or out, fisheries go on their merry fuel- and subsidy-guzzling ways, smashing deep coral and driving iconic and other species toward extinction. And when fisheries will run out of things to smash and of oil to burn, ocean warming and acidification will complete the job. The difference between EBM and EBFM is not relevant to anything real. What is important is what happens on the ground. We have lots of work to do.

---

**Source URL:** <https://www.openchannels.org/news/meam/ebm-opinion-marine-ecosystems-fisheries-management-and-semantics>