

## BOOK REVIEW

CHARLES, A. *Sustainable Fishery Systems*. Oxford: Blackwell Science, 2001. 370 pp.

Tony Charles, professor of management science and environmental studies in St. Mary's University, Canada, has long been associated with fisheries and is a respected author in the field. His ambitions in this full-length volume are far-reaching: a comprehensive state-of-the-art survey, bringing together insights from marine biology as well as from the social sciences. His intended audience is broad too, ranging from college students to practitioners and fellow academics. Written in an easy, accessible style, *Sustainable Fishery Systems* provides an ideal introduction to the field.

Part I is devoted to an analysis of what Charles calls the fishery system – a common enough concept in fishery science. However, he defines this system differently than most fishery scientists do, and it is worthwhile to pause for a moment to consider his approach. Marine biologists still tend to conflate a fishery system with an ecosystem, viewing the act of fishing as an (often negative) external influence. Similarly, fishery economists, sociologists, and anthropologists regard fisheries primarily as economic or sociocultural phenomena, bringing in biological insights and conditions from the wings. Despite the fact that fishery scientists, for many years now, remain convinced that human and natural aspects should be taken together – and are making efforts in this direction – Charles is the first author, to my knowledge, to assimilate the various disciplinary viewpoints into a single, balanced conceptual framework. For him, a fishery system thus consists of three equal and interconnected parts: the natural system (including the fish, the ecosystem and the biophysical environment); the human system (with fishers, processors, traders and consumers) and the fishery management system (including planners, scientists, and politicians).

Part I of the book describes the structure and dynamics of fishery systems as they are found in various parts of the world. For although Charles is most knowledgeable about northern fisheries, and the Canadian situation in particular, his argument is global in nature and pertains to the south as well. Chapter 1 introduces the concept of fishery systems, and presents a typology of systems according to scale. The eight chapters that follow discuss aspects of the three sub-systems mentioned above, with special attention dedicated to contemporary management practice. The latter is seen as four components – strategic management, tactical and operational management, measures toward fishery development, and fishery research – with a chapter devoted to each component. The last substantive chapter in Part I looks into the most intractable aspect of fishing systems – the one dimension that has frustrated well-meaning management efforts time and time again – that is, the *dynamics* of fish and their reproduction, fishing fleets and fishing communities, and the management system itself.

In Part II, the perspective changes, shifting from descriptions about contemporary fishery systems and how they work, to prescriptions about how they ought to operate. The catchword here is *sustainability*, which Charles links to resiliency, the ability of a fishery to absorb and 'bounce back' from natural and human disturbances. In line with his concern for a broadly defined fishery system, Charles distinguishes four dimensions of sustainability – ecological, socioeconomic, community, and institutional sustainability – and then argues (p. 190) that 'overall sustainability of the fishery system can be seen to require simultaneous achievement of all four components'. I will return to this issue below.

The remainder of Part II discusses major approaches to fisheries management as marine biologists, social scientists, and managers alike presently promote them. These include the precautionary approach, the ecosystem approach, co-management, and the rights-based approach. In the final chapter, Charles gathers together the various strands of the book and declares his own management priorities. These are embodied in the concept of *robust management*, a management approach that seeks to avoid the pitfalls associated with illusions of certainty and controllability and instead promotes flexibility and adaptiveness.

For those who have followed academic and policymaking discussions in this particular field, Charles summarizes the contemporary state of knowledge, but presents little that is new. At the same time, he impresses the reader with his understanding of what is happening in the faraway corners of fishery science, offering remedial teaching to those of us who have been less than holistically trained. *Sustainable Fishery Systems* is in many ways a rich book.

In its broad scope and ambition too, lie important weaknesses, however. The most straightforward criticisms are those levelled by specialists who argue that important disciplinary aspects have been overlooked, misunderstood, or shortchanged. For social scientists, for example, it is clear that Charles does not achieve sufficient depth in analysing the human dimensions of fisheries. The gaps in the reference list serve to point out the limitations of Charles's reading in this field; there is, for example, no mention of eminent anthropologists and historians such as Raymond Firth, Paul Alexander, Gísli Pálsson, or Arthur McEvoy, to mention only a few. In principle these weaknesses, however, are capable of redressing.

The same might be said of Charles's view of management as a rational and impartial process, in which governments weigh objectives and instruments and calculate which stakeholder is to be involved, when, how, and where. Such an approach tends to neglect the fact that in many countries, particularly in the south, the state lacks strength and purpose, and 'money power' holds sway. And while Charles does mention, for example, that 'particularly in poorer developing nations, [...] the good intentions inherent in fishery legislation can be thwarted by a lack of policy attention to (or financial capability for) enforcement of that legislation' (p. 92), he does not reason the consequences of this situation through to his planning model.

This brings me to the fundamental problem of the book; that is, the idea of fisheries as one large integrated *system*. The problem with a systems approach is that it tends to be functionalist in nature; each part is thought to link up to and play a role in relation to other parts. As social scientists will testify, however, this viewpoint is extremely problematic if applied to society. Society is diverse and dynamic, consisting of changing social constellations with their own trajectories, and no sector, including fisheries, can be viewed as separate from the rest. Although fisher societies adapt themselves to the possibilities afforded by the marine resource, their choices and lifestyles have other sources of inspiration as well.

The precariousness of Charles's position comes to the fore most prominently in his discussion of sustainability, with its four dimensions, of which three are arguably human in nature. In chapter 10, Charles proposes a framework for sustainability assessment in which the nature and extent of sustainability in a given fishery system is evaluated, both qualitatively and quantitatively. In the following pages he suggests sustainability checklists, indicators, and indices for all four dimensions. The checklist (p. 193) thus includes questions like: 'will the activity increase the aggregate long-term rate of employment?' and 'is the project likely to maintain or increase the long-term stability of affected communities?'

These are relevant issues, to be sure, and Charles is to be commended for his attempt to integrate them more fully in the policymaking process. I wonder, however, whether his

framework, which connects everything to the concept of sustainability, is the most practicable way forward. The crucial question that arises is this: sustainable in relation to what? In fisheries, the term sustainability has gained most clarity where it concerns the relationship between harvesting activity and so-called ecological carrying capacity. But how can we measure sustainability of a socioeconomic system or of communities? Is their sustainability a function of their contribution to ecological sustainability? Or does one apply other indices, such as economic performance, or social justice? Finally, if the indices are indeed different, does it make sense to cluster everything under the same concept? I think not. Charles does not address these issues clearly or directly, and in fact, seems to vacillate back and forth between different positions. This leaves our understanding of a fishery system, as it *should be*, hanging in the breeze.

These shortcomings detract little from my general appreciation of the book, however. I highly recommend it for those entering and working in the fishery field.

*Maarten Bavinck*