

The text is well written and the illustrations, which effectively demonstrate the points in the chapters, are of high quality. Notwithstanding the diverse contributions of many authors, the chapters collectively have a similar feel to them. The indexes are extensive. Overall, this book is very well-thought-out and well edited.

The scope, depth, and didactic writing style of this contribution make it a good read. Its content makes the volume a "must read" for many students of larval fish biology—as well as for those of us focused more on the biology of adult fishes.

DAVID C HEINS, *Ecology & Evolutionary Biology, Tulane University, New Orleans, Louisiana*

FISHERIES IN A CHANGING CLIMATE. *Based on a symposium held in Phoenix, Arizona, 20–21 August 2001. American Fisheries Society Symposium, Volume 32.*

Edited by Nature A McGinn. Bethesda (Maryland): American Fisheries Society. \$60.00 (paper). xxii + 295 p; ill.; no index. ISBN: 1–888569–40–9. 2002.

In 2001, the United Nations Intergovernmental Panel on Climate Change summarized the prevailing scientific consensus that global temperatures are in fact rising and that changes observed over the last half century are probably mostly due to human activities. A symposium was convened the same year at the annual meeting of the American Fisheries Society; its proceedings included research and reviewed papers by notable experts in marine and freshwater fisheries and presented the evidence and outlook for the impact of climatic variability on inland and coastal waters and their fisheries.

The core of the book is organized into four parts. The first part includes three papers on climate change impacts from an ecosystem perspective. Magnuson gives a useful, comprehensive review of global trends in ice and snow cover and glacial retreat. Stevenson et al. present a case study of the cascading effects of sea level rise in reducing sea grass cover and resultant declines in blue crab that use tidal wetlands as a nursery.

The second and third parts are separated along freshwater and marine lines, and focus on particular taxa. Part Two, the freshwater section, has five papers that flesh out the mechanisms by which climate variability affect distributional shifts within and among lakes. Casselman provides empirical evidence for the linkage between temperature variability, reproductive performance, and recruitment in several fishes with contrasting thermal tolerances. Subsequent papers (e.g., Brandt et al.) involve modeling approaches to predict how life-history processes, trophic interactions, and competitive dominance will change species distributions with climatic warming.

Part Three, on marine fisheries, is the largest, with 11 papers on taxa, ranging from North Atlantic cod (Drinkwater), Pacific sardine (McFarlane et al.), West Coast Dungeness crab (Botsford et al.), and East Coast bivalves (Weinberg et al.), among others. Most are retrospective analyses in which long-time series of abundance are related to corresponding climatology. An important revelation in several of these papers is that declines in abundance, previously believed to result solely from overfishing, are now recognized to have been at least in part responses to unfavorable climate-ocean conditions exacerbated by fishing pressure.

A theme throughout the proceedings is that although global warming is a recognized long-term trend, it is the substantial decadal scale variability that results from climatic "regime shifts" that perhaps pose the greater confounding challenge to fishery scientists and managers. This theme leads to the final part of the book on strategies for adaptive fishery management. There is wide acknowledgement that because sustainable yields are likely a moving target, management plans that work during one regime may not work during another. The authors of the two papers in this section (Mantua and Mote; Magnuson) advocate a proactive approach in which fishery models incorporate environmental forcing and estimate uncertainty.

One great virtue of the proceedings is in the insights gained from bringing marine and freshwater fishery science together in an interdisciplinary forum. It is done a disservice, though, by numerous typographical errors, several muddy color plates, and one case of an equation overprinted by text. Nonetheless, the volume is essential reading for students and professionals in fisheries and environmental science.

RICHARD A WAHLE, *Bigelow Laboratory for Ocean Sciences, West Boothbay Harbor, Maine*

THE ROCKFISHES OF THE NORTHEAST PACIFIC.

By Milton S Love, Mary Yoklavich, and Lyman Thorsteinson; with contributions from John Butler. Berkeley (California): University of California Press. \$60.00 (hardcover); \$24.95 (paper). x + 404 p; ill.; index. ISBN: 0–520–23437–5 (hc); 0–520–23438–3 (pb). 2002.

This volume provides an amusing, attractive, insightful, and delightful understanding of this "species flock" that belongs to the genus *Sebastes*, meaning "magnificent" in Greek. Beautiful cover art by Ray Troll prefaces an eclectic abundance of poems, history, fishing lore, maps, the latest genetics, life-history comparisons, and up-to-date references—essentially most everything a scientist, student, fisher, or nature lover would like to know

about this important and, sadly, threatened group. Especially engaging are the photographs of the eyed larvae developing in the ovary, the historic fishery accounts, and the parasites. There is a revised key to the species, graphs of growth curves, list of parasites and specific hosts, distribution maps, reproductive notes, and photographs galore. There are some reference omissions and errors, probably due to the sheer volume of work summarized. The cost of the book is reasonable and it promises to be a well-read addition to many bookshelves. This volume reminds me why I became a biologist.

CAROL A STEPIEN, *Great Lakes Environmental Genetics Laboratory, Center for Environmental Science, Technology & Policy, Cleveland State University, Cleveland, Ohio*

THE FISHES OF ILLINOIS.

By Philip W Smith. *Published for the Illinois State Natural History Survey by the University of Illinois Press, Urbana (Illinois)*. \$34.95 (paper). xxix + 314 p + 8 pl; ill.; index to common and scientific names. ISBN: 0-252-07084-4. 2002.

The original version of *The Fishes of Illinois* was published in 1979 (Urbana (IL): University of Illinois Press). It has been a useful identification guide and general reference for ichthyologists and aquatic biologists, as well as for students taking ichthyology courses at colleges and universities in Illinois. The text, illustrations, and color plates of the current version are of high quality, with only slight differences noticeable between the 1979 and 2002 editions (some halftones are a bit darker in the latter). The attractive cover displays one of the most colorful species in Illinois, the southern redbelly dace.

As with any such work, the passage of time results in acquisition of new information on distributions of native and nonindigenous species and changes in taxonomy and scientific names (contrary to a quotation on the back cover). About 10 additional species are known to occur in the state—some native, such as the fringed darter (*Etheostoma crossotermum*), and others introduced (*Hypophthalmichthys molitrix* and *Neogobius melanostomus*). Thirteen introduced species are listed in Smith's book, but at least five more nonindigenous species are established in Illinois. There are additional records of aquarium fish releases and other introductions that have not resulted in established populations in the state as far as is known. The scientific name of rainbow trout has changed from *Salmo gairdneri* to *Oncorhynchus mykiss*, and the generic names of many of the minnow species have changed since 1979.

Even with the changes in faunal composition and scientific names, Smith's work remains a valuable tool for identification and a source for detailed distribution records of most species. The fine quality and low cost of this volume makes it a worthwhile purchase. The book was out of print for many years and was difficult to obtain throughout the 1990s. The current volume fills a void and will be welcomed by those who have been searching for a copy of the original work.

WILLIAM J POLY, *Ichthyology, California Academy of Sciences, San Francisco, California*

MARINE MAMMAL BIOLOGY: AN EVOLUTIONARY APPROACH.

Edited by A Rus Hoelzel. *Oxford and Malden (Massachusetts): Blackwell Science*. \$69.95 (paper). x + 432 p; ill.; index. ISBN: 0-632-05232-5. 2002.

Mammals originated on land, where most live today, but during the course of mammalian history many subgroups evolved at different times to become semiaquatic or aquatic, and some became partially to fully marine. Marine mammals represent one of our grandest examples of evolutionary adaptation. As the editor writes in the Preface, "the sea is a powerful and in some ways unifying influence. For this reason it is useful to explore the similarities and differences among the various mammalian species that have adapted to life in the oceans" (p ix).

Mammals discussed include the sea otter and polar bear (order Carnivora), pinniped seals, sea lions, and walrus (Carnivora or Pinnipedia), manatees and dugongs (Sirenia), and whales, porpoises, and dolphins (Cetacea). We can make three generalizations about mammalian adaptation to the sea. First, land and sea are so different that there are almost no species really bridging the two. Second, the sea required a major change in the mammals that succeeded there—with the result that most are classified in distinct orders. Finally, groups that really succeeded in the sea were carnivorous at the beginning or rapidly became so (pinnipeds and cetaceans). Why? Chapters here treat systematics, body form and physiology, brains, sensory systems, acoustic communication, patterns of movement, feeding ecology, energetics, life history and reproduction, genetic structure of populations, and social behavior. The book concludes with a chapter on conservation, but it really needs a summary coming back to the subject of adaptation that introduced the book.

The key, it seems, is the need for metabolic energy. Mammals are inherently active, with high metabolic rates requiring much energy. This is available in the sea in the form of fish for a mam-

