

# BOOK REVIEWS

*Copeia* 2010, No. 4, 735–737

**Fish Locomotion: An Eco-Ethological Perspective.** Paolo Domenici and B. G. Kapoor (eds.). 2010. Science Publishers. ISBN 978-1-57808-448-7. 534 p. \$139.95 (hardcover).—The recent edited volume, nominally focused on the ecological and behavioral aspects of fish locomotion, provides an interesting and timely review of recent progress in the study of locomotion in both bony and cartilaginous fishes. The most recent previous volumes of similar topical breadth, but lacking an ecological bend, were published between 17 and 27 years ago (Blake, 1983; Webb and Weihs, 1983; Videler, 1993). Like these books, the chapters in the new volume edited by Domenici and Kapoor combine findings from classic biomechanical studies with the results of more recent work using relatively newly developed experimental and analytical techniques (i.e., PIV: particle image velocimetry, CFD: computational fluid dynamics). In contrast to the previous books, however, chapters in the new volume also include a thorough consideration of the ecological implications (predator–prey interactions, patterns of community assembly) and behavioral consequences (feeding, migratory ability) of interspecific and, to a lesser extent, inter-individual variation in locomotor performance. In addition, the new volume includes several chapters that emphasize the fisheries applications of research on fish locomotion.

The book's 15 chapters are authored by a collection of the field's experts and cover a wide range of topics with the goal of understanding the broader implications of locomotor function in fishes. It is notable, however, that the volume almost entirely neglects discussion of the anatomical and physiological features underlying locomotor function, especially the skin and musculature of the body and fins. Instead, the book begins with a pair of chapters providing a detailed overview of the physical aspects of the aquatic environment and describing the nature of the forces and flows with which the piscine inhabitants of these environments must necessarily contend. In the first two chapters, considerable attention is paid to both benthic and pelagic fishes engaged in station-holding behavior in high flow environments. This is a marked improvement from the treatment received by rheotaxis in Blake's (1983) book. There, the behavior is mentioned only as an "other issue" in the book's final chapter.

The next few chapters discuss the energetics of steady swimming, the kinematics of escape responses (C- and S-starts), and the swimming behaviors associated with barrier passage. The chapters following these describe the importance of locomotion in key ecological tasks, such as feeding, predator avoidance, and reproduction, while also providing data on the potential evolutionary consequences of inter-individual variation in locomotor performance. An additional chapter relates known variation in interspecific swimming ability among wrasses and parrotfishes (Labridae) to patterns of community assembly and habitat partitioning on coral reefs. The volume closes with a pair of chapters that consider the ecological and physiological correlates of large-scale movement patterns in large pelagic bony and cartilaginous fishes.

Overall, the chapters vary in readability and overall quality, making for a somewhat uneven read. Most chapters present and summarize previously published data to provide an informative and more or less insightful synthesis. However, the chapter authored by Langerhans and Reznick (Chapter 7) stands out by including new data and analyses. Specifically, the authors ask whether external morphological features correlated with swimming performance vary predictably with predation pressure and habitat complexity across a wide variety of bony fish taxa. An additional section of the chapter describes the authors' new test for a relationship between body shape (fineness ratio) and water flow speed among 12 species of *Gambusia* (Poeciliidae).

Overall, the edited volume is a worthwhile read for those interested in fish locomotion and represents a timely addition to literature on the topic. Researchers and students alike will find that, in combination, the chapters facilitate a more broadly integrative understanding of the various aspects of fish locomotion and their ecological, evolutionary, and behavioral consequences.

## LITERATURE CITED

- Blake, R. W. 1983. *Fish Locomotion*. Cambridge University Press, Cambridge.
- Videler, J. J. 1993. *Fish Swimming*. Chapman & Hall, London.
- Webb, P. W., and D. Weihs. 1983. *Fish Biomechanics*. Praeger Publishers, New York.
- Rose L. Carlson, *Department of Organismic and Evolutionary Biology & Museum of Comparative Zoology, Harvard University, 26 Oxford Street, Cambridge, Massachusetts 02138; E-mail: rcarlson@oeb.harvard.edu*.

---

**Deep-Sea Fishes of Peru.** K. Nakaya, M. Yabe, H. Imamura, M. Romero Camarena and M. Yoshida (eds.). 2009. Japan Deep Sea Trawlers Association. 355 p. \$150.00 Available for purchase by writing Akiko Yoshioka (nittoro@jdsta.or.jp), Japan Overseas Fishing Association, NK-Bldg. 6F, 3-6 Kandaogawa-Cho Chiyoda-Ku, Tokyo 101-0052, Japan.—This book is a thorough descriptive text of Peru's deep ocean ichthyofauna with lavishly printed photographs on nearly every laminated page. The text that is in English, Spanish, and Japanese from the title to the index is, in most cases, clear and straightforward. The bulk of the text consists of one-page species descriptions providing an up-to-date taxonomy, the common names in three languages, distributional information, and remarks (typically comparing close relatives). The book itself is the product of a joint investigation by the Japanese and Peruvian governments. They conducted a study of El Niño oceanic conditions and Peruvian fisheries sustainability from 1998–2002. Fishes were collected to 1,500 meters and contributors include