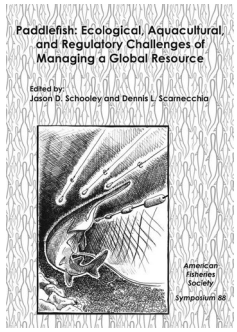
BOOK REVIEW

Paddlefish: Ecological, Aquacultural, and Regulatory Challenges of Managing a Global Resource



Jason D. Schooley, and Dennis L. Scarnecchia, editors. American Fisheries Society Symposium 88, Bethesda, Maryland. 2019. 297 pages. US$79.00 (hardcover).

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Paddlefish *Polyodon spathula* are unique among North American freshwater fishes because of their unusual morphology and remarkable life history. Though much has been written about Paddlefish since the early 20th century, management of the species was based on legal status by jurisdiction and was largely uncoordinated among them. This ad hoc approach to management began to change in 1983 with the advent of the first symposium dedicated to the status, management, and propagation of Paddlefish range wide. The information presented in that symposium was synthesized and published as the first "Paddlefish Book" (Dillard et al. 1986) and was the basis for Paddlefish research and management for over 20 years. Given the success of the first symposium and the utility of the resultant book, a second such symposium was held in 2006 and a third was held in 2017. These subsequent symposia were intended to integrate new status updates, management approaches, and emerging challenges to Paddlefish management and conservation. The information presented in these symposia also was synthesized and published as the second (Paukert and Scholten 2009) and third "Paddlefish Book."

This third volume, entitled *Paddlefish: Ecological, Aquacultural, and Regulatory Challenges of Managing a Global Resource* shares many elements with the first two volumes, but also adds topics not covered by its predecessors. The current volume contains 13 chapters, themes of which are organized around "ecology," "aquaculture," "regulations," and "management." These themes provide guidance for efficiently navigating the chapters, depending on the reader's interest. The ecological information presented covers topics such as advances in knowledge about Paddlefish life history and its applications to harvest regulations (Chapter 1), hypotheses regarding Paddlefish recruitment dynamics (Chapter 5), a review of Paddlefish mortality unrelated to direct harvest (Chapter 7), and issues related to migration (Chapter 3) and migration barriers (Chapter 4) and how they affect Paddlefish ecology. Management topics include case histories of genetic-based management (Chapter 2), the use of emerging techniques (e.g., otolith microchemistry and side-scan sonar) in Paddlefish management (Chapter 6), management under a complex regulatory structure (Chapter 12), proactive harvest management (Chapter 13), and the use of genetic tools to prevent poaching Paddlefish to supply the global caviar market (Chapter 8). Aquaculture information includes a review of artificial propagation techniques of Paddlefish (Chapter 9) and propagation for Paddlefish restoration (Chapter 10), and the development of a nascent Paddlefish aquaculture industry in China and challenges to its growth (Chapter 11). In a few instances, the themes overlap and some chapters could be placed in multiple categories. For example, chapters 1, 12, and 13 deal with regulatory issues but could be listed equally to other thematic areas.

Schooley and Scarnecchia's stated objective for this volume was to "Review and update the body of knowledge and research to better inform Paddlefish management…" and this volume does that effectively. Furthermore, this volume extends the topical coverage beyond that of its predecessors by including chapters on the use of emerging technologies to manage Paddlefish populations, the use of genetics to protect against Paddlefish poaching, and about Paddlefish's emerging role as a commercial species in Europe and China. This latest Paddlefish book, *Paddlefish: Ecological, Aquacultural, and Regulatory Challenges of Managing a Global Resource,* provides a convenient, updated compendium of the available literature on this enigmatic species and will be a handy reference for anyone interested in Paddlefish management, research, conservation, or aquaculture.

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