BOOK REVIEW


In a short review it is very difficult to do justice to this impressive book, which synthesizes the authors’ extensive publications, especially Ken Able’s life’s work, and updates their previous synthesis (Able, K. W. & Fahay, M. P. (1998). The First Year in the Life of Estuarine Fishes in the Middle Atlantic Bight. New Brunswick, NJ: Rutgers University Press). This is especially the case in the first 11 chapters (130 pages) which then gives way to a catalogue of species. One’s first response, given the final size of the book and as someone working outside the geographical area covered by the catalogue of species, is to have preferred two books separating the fundamental aspects from the catalogue as this would have made the former more widely valued and more accessible to estuarine fish biologists worldwide (although the book is comparatively cheap and so this should not deter the reader). The book is wide ranging, given the background and its geographical basis but also it will be of wide interest. It will not only be necessary reading for U.S. East Coast freshwater, estuarine and marine ecologists and managers, but also relevant for other North Americans and of very high interest for estuarine ecologists and managers elsewhere worldwide.

All of the initial chapters include valuable embedded boxes giving main points or central features and extensive tables of data/summaries; it is especially valuable to have all of these in one place. Chapter 1, the introduction, sets the scene and gives the geographical focus: Cape Cod, Massachusetts to Cape Hatteras and North Carolina (described in Chapter 2). It is valuable in indicating the ongoing debates amongst fish biologists such as bottlenecks, dependency and connectivity as forcing functions for estuarine fish ecology. Chapter 2 then gives a synthesis with much useful information for comparing with estuaries worldwide. This starts by presenting primary data and sources of information (and continued into Chapter 3 which also leads into the catalogue), the type of extremely valuable material that unfortunately often does not get into journal publications. Chapter 4 gives the general characteristics of temperate ichthyofauna species, populations and communities, their structure and functioning, especially life stages, population dynamics and seasonal information, which then leads to the specific aspects in Chapter 5 that discusses on reproduction and development, morphological information. Together with the Chapter 6 which gives larval supply, settlement, growth and mortality of the communities and populations, these sections give valuable information on which future research can build.

The text discusses coastal and estuarine influences, e.g. from upwelling, nearshore processes and communities, and so presents background information for the
interrogation of essential fish habitat. Chapter 7 gives the spatial and temporal habitat use, the environmental constraints on the fishes and it comments on the constraints of our knowledge, information and data. For example, it indicates the problems of studying habitats and of the methods used in analysis. It touches on the problems of alien species and habitat restoration is covered although, unfortunately, it missed the more up to date reviews than those mentioned. The chapter not only gives some conceptual models regarding restoration, but it also shows the need to quantify these models. One gets the impression that the book must have taken a long time in production following the drafts as recent literature is not given despite the book’s publication date.

Chapter 8 then extends discussions of the functioning of the communities and ecosystems by covering predators and prey and it shows the importance of getting direct information e.g. via stomach analyses. The tables here give a large amount of raw data/matrices, and cover the role of other prey and of fishes as prey for invertebrates and higher vertebrate predators. Although not given here, Chapter 11 returns to this with the future role of stable isotope analysis; again there is a large amount of recent literature on this and on fatty acid analysis for determining trophic relationships. Chapter 9 then takes the connectivity analysis further by covering migrations, residents and species into estuaries by what the authors term ‘transients’ (although these are now called stragglers and marine and diadromous migrants elsewhere), and it gives patterns of residence and movement into and out of the estuaries. Chapter 10 covers climate change and thus gives an ability to look ahead to future scenarios; this chapter is good for general ideas and concepts but emphasizes the need to quantify future changes, to give the repercussions on seasonal effects and compare the effects on larval and juvenile fishes. It gives a large description of recent changes, but it could have looked further using surrogates e.g. power station discharge areas as indicative of assemblage changes under changed temperature regimes.

Chapter 11 is perhaps the most valuable chapter for those already knowledgeable about the ecology of estuarine fishes and thus could have been given more attention; it gives future directions for work and thus could spawn numerous doctoral studies. It links the previous chapters, emphasizes connectivity, raises questions for future research and shows the importance for our understanding of the physical/hydrodynamic aspects and human interactions/impacts (including fisheries, habitat loss, etc.). This reinforces the need for knowledge of the intimate ecology of the individual species, especially new areas and stressors such as sound, turbidity, etc., and their effects on life cycles. It illustrates the problems in attempting to assess population dynamics confounded by fisheries extraction. It also shows the value of new technologies, such as taggng and telemetry, in tracking for migration patterns, and of landscape (habitat and biotope) mapping, leading to modelling and management. Most workers will agree with the plea for more work on functional aspects of estuarine fish ecology as well as structural ones.

The remaining 92 chapters over almost 400 pages are each devoted to a single species, in alphabetical order, giving the topics covered in the general chapters: distribution, reproduction/development, larval supply, settlement, growth, seasonality and habitat use, prey and predators and migrations. For some species, there are figures and tables showing seasonality and distribution, again including data which are rarely given in journal articles. It would be good to give these data as a searchable electronic format.
The book contains an impressive literature list of 1800 references drawing heavily on North American literature plus a limited amount from European, South African and Australian studies. The North American bias in the examples and literature is as expected, although it may infuriate estuarine fish biologists elsewhere, but there is some coverage of other geographical areas.

This reviewer congratulates the authors on the volume and expects and hopes that this valuable volume will be obtained and used by estuarine fish biologists worldwide.

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