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Quantitative Fish Dynamics (Biological Resource Management)



Synopsis

This book serves as an advanced text on fisheries and fishery population dynamics and as a reference for fisheries scientists. It provides a thorough treatment of contemporary topics in quantitative fisheries science and emphasizes the link between biology and theory by explaining the assumptions inherent in the quantitative methods. The analytical methods are accessible to a wide range of biologists, and the book includes numerous examples. The book is unique in covering such advanced topics as optimal harvesting, migratory stocks, age-structured models, and size models.

Book Information

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Customer Reviews

"This book, intended as a text for advanced courses, is a synthesis of quantitative fish population models and methods for quantitative stock assessment. Broadly inclusive, the book covers a variety of methods and models and incorporates modern statistical concepts where appropriate.

Proceedings from simple to complex, chapters cover population growth, mortality, and the fishing process (CPUE); stock productivity and surplus production; stock and recruitment; growth and fecundity; delay-difference models; age-structured models; catch-age and age-structured assessment methods; size-structured models and assessment methods; migration, movement, and spatiotemporal considerations; and optimal harvesting."--Fisheries" Why should a terrestrial ecologist be interested in a book on fish population dynamics, and especially a book on quantitative fish population dynamics? There are at least two compelling reasons. First, much of the

foundational work in population ecology was motivated by problems in fisheries. . . . Second, mathematical methods are not taxon biased; theoretical methods have made a considerable contribution in ecology because they allow us to see connections between apparently disparate systems. . . . Quinn and Deriso give a broad and deep synthesis of the quantitative models used to study the dynamics of fish populations and the methods used for fisheries stock assessment. . . . Reading and studying the book . . . will definitely be worthwhile because one will see that this is really a book about the fundamental problems in ecology . . . The book will set a very high standard for analysis of fish population dynamics and stock assessment as we move towards a sustainable future."--Ecology"This book stimulates valuable syntheses of diverse theory and methods, deepens understanding of the properties and ensures wiser applications of management modelling. The book covers a broad spectrum of the recent developments in qualitative fish dynamics, provides considerable theoretical and mathematical depth and an excellent synthesis for many of these diverse developments. The book is the first to review several recent applications of Bayesian methods for estimation and decision analysis in fisheries. It is worthwhile reading mainly for those genuinely interested in the mathematical properties of modelling approaches, and to gain information on recent advances in this field and on topics poorly covered in other books. The book's broad coverage of current developments, attention to detail and numerous illustrated examples make it an important contribution and a handy reference for quantitative fisheries scientists." - Murdoch McAllister, *Trends in Ecology & Evolution*"Over the last two decades the fields of fish population dynamics and stock assessment have seen major advances; concomitantly, fisheries worldwide have declined in productivity owing to overfishing, habitat degradation, and climate change. This suggests that strategies for improved fisheries assessment and management will require greater overall understanding of linkages among demographic, environmental, and anthropogenic processes that underlie the dynamics of exploited populations. This book provides an up-to-date synthesis and coherent framework with which to explore and comprehend these theoretical and practical issues. . . [It] clearly fills a void where no up-to-date textbooks exist . . . [and will also] be useful to a wider audience of fishery scientists, mathematical ecologists, conservation biologists, population dynamicists, and resource managers involved in research . . ."--The Quarterly Review of Biology

Richard B. Deriso is at Scripps Institute of Oceanography. Terrance J. Quinn is at University of Alaska, Fairbanks.

This one is a keeper! A comprehensive masterpiece of the world of dynamic fish population modeling. Excellent examples using a multitude of fish species makes this book a must for anyone involved in fishery research or management into the new millennium. I give the books content 5 stars although I, also, would like to see the release of a new book jacket.

This is a well organized book that includes relevant real-world examples and all the latest in contemporary population dynamics. Aside from an appalling cover design, this book is a winner!

This is a great book. I especially liked that he gets right into the math on page 1. The book is well thought out and researched. I would have imagined that this book would be my go-to reference for my long and illustrious career in fisheries but the cover art is so atrocious and offensive that I have decided on a different path.

An excellent resource for anyone involved in the world of fisheries stock assessment or population dynamics. I only give it 4 stars because of the poor cover design.

This is the book -I- keep on the nightstand. Covers a broad base of contemporary population dynamics with relevant examples. Disregarding the insipid cover design, its an essential addition to any biologist's library

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