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Fish Diseases: Prevention and Control Strategies

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Source: Journal of Wildlife Diseases, 54(3) : 653-654

Published By: Wildlife Disease Association

URL: https://doi.org/10.7589/0090-3558-54.3.000

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Journal of Wildlife Diseases, 54(3), 2018, pp. 653–654
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Book Review

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Book reviews express the opinions of the individual authors regarding the value of the book's content for Journal of Wildlife Diseases *readers. The reviews are subjective assessments and do not necessarily reflect the opinions of the editors, nor do they establish any official policy of the Wildlife Disease Association.*

Fish Diseases: Prevention and Control Strategies. By Galina Jeney (editor). Academic Press, London, UK. 2017. 278 pp. Paperback ISBN: 9780128045640, eBook ISBN: 9780128045855. US $125 (either format).

Review by James R. Winton

This new book entitled *Fish Diseases: Prevention and Control Strategies* is edited by Galina Jeney and includes 10 chapters written by a varied but excellent group of international authors. The very broad range of topics covered in approximately 260 pages means that a only a few specific fish diseases appear as examples; the title of the book might have been more accurately listed as *Fish Health Management*. Nevertheless, this volume contains information on topics not typically addressed in other fish disease texts and is especially recommended for those interested in a contemporary overview of the varied components involved in an integrated fish health management program for finfish aquaculture. In fact, the book is somewhat novel in its organization and coverage, making it a useful addition to the libraries of both educators involved in aquaculture training and for managers of finfish aquaculture programs. Those expecting an in-depth review of individual infectious diseases affecting the many species of finfish reared in aquaculture, or a presentation of the features controlling the ecology of diseases in free-ranging populations, will be disappointed.

The overall format of the book organizes the ten chapters into the traditional Fish–Pathogen–Environment triad. Part one entitled "Fish" begins with a chapter on fish immunology that briefly, but accurately, describes the basic elements of the teleost immune system and summarizes methods to stimulate immunity in fish, and a second, somewhat longer and more comprehensive chapter on genetic methods to improve disease resistance in fish. Both chapters include an extensive list of citations that are useful sources for further reading.

The second section, entitled "Pathogens," begins with a chapter that focuses on the important features of the biology and transmission of viral, bacterial, fungal, and parasitic pathogens, but with little space devoted to specific agents or diseases. A second chapter on prophylactic and prevention methods includes a comprehensive listing of immunostimulants that have been tried in finfish. A third chapter on integrated pathogen management strategies is an excellent overview of a topic that is of increasing importance in finfish aquaculture and a central theme of the book. Again, the chapters in this section have a more extensive and current list of citations than is typical for books on fish diseases.

The third section, nearly half of the book, entitled "Environment," contains five chapters, including two on water quality, and one each on stress, planning a fish health program, and environmental impacts of aquaculture. Relative to terrestrial species (especially homeotherms), there is a continuous and intimate association between water quality, physiological stress, and the appearance or severity of diseases in captive aquatic poikilotherms. Fish have limited ability to modulate factors such as body temperature, which affects their physiology, immune response,

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or the growth rate of many pathogens. Other water quality factors (e.g., ammonia, low oxygen, contaminants) can constitute a stressful environment that reduces disease resistance or even become directly toxic. Thus, there is a degree of overlap among the two chapters on water quality and the chapter on stress. However, together they offer a comprehensive treatment of this critical feature of both infectious and noninfectious (e.g., direct toxicity) diseases affecting finfish. The last two chapters in this section on planning a fish health program and environmental impacts of aquaculture introduce topics that are not frequently covered elsewhere. In fact, the chapter on Planning a Fish Health Program would serve as a basic guide to establishing a solid program of fish health management in aquaculture, regardless of species or region of the world.

Due to the differing interests and backgrounds of the various authors, and perhaps the lack of an initial overall outline dictating the scope of coverage for each of the chapters, the book seems overly brief in some areas (e.g., specific diseases or pathogens of important species), but somewhat redundant where topics appear in two or more of the chapters (e.g., water quality, vaccination, immunostimulants, drug use). This in no way detracts from the importance of some of the sections that receive little treatment in existing books on fish diseases. Together they offer a more in-depth perspective of these important topics. As mentioned earlier, the authors of the various chapters have included a large number of citations with references to both important classical papers as well as to references less than a few years old. This is another strong point of the volume. The relatively independent nature of the individual chapters makes them, to some extent, an in-depth review of their respective topics. Of note is the ability to purchase the individual chapters as pdf files, providing a useful option for those needing up-to-date coverage for a specific topic, but for whom the cost of the entire volume might not be justified.

Given its rather specialized approach, this book may seem less relevant to most readers of the *Journal of Wildlife Diseases*. Nevertheless, professionals involved with captive rearing of any type of wildlife would benefit from the approaches toward biosecurity and infection control offered here. Overall, I enjoyed reading this book and commend its Editor and the many international authors on providing a very useful addition to the libraries of fish health professionals.

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