



# Symbiosis in Fishes: The Biology of Interspecific Partnerships

By Ilan Karplus

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**Symbiosis in Fishes: The Biology of Interspecific Partnerships** By Ilan Karplus

*Symbiosis in Fishes* provides comprehensive coverage of the biology of partnerships between fishes and invertebrates, ascending the phylogenetic scale, from luminescent bacteria, sponges and coelenterates to molluscs, crustaceans and echinoderms. Both facultative and obligatory partnerships are reviewed with emphasis on the behavioral, ecological and evolutionary aspects of fish symbiosis. Each of the eight chapters of this book focuses on a different group of partners. The structure, physiology and anti-predatory strategies of each group are described to provide the necessary background for the understanding of their partnerships with fishes. The formation of the associations, the degree of partner specificity and its regulation, as well as the benefits and costs for the fishes and their associates, communication between partners and their possible co-evolution are discussed in each chapter.

This is the first attempt to critically review in a single volume all associations of fishes with invertebrates based on the latest studies in these areas, together with studies published many years ago and little cited since then.

*Symbiosis in Fishes* provides a huge wealth of information that will be of great use and interest to many life scientists including fish biologists, ecologists, ethologists, aquatic scientists, physiologists and evolutionary biologists. It is hoped that the contents of the book will stimulate many to further research, to fill in the gaps in our knowledge in this fascinating and important subject. Libraries in all universities and research establishments where biological sciences are studied and taught should have copies of this exciting book.

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## Symbiosis in Fishes: The Biology of Interspecific Partnerships By Ilan Karplus Bibliography

- Sales Rank: #2832996 in Books
- Published on: 2014-06-03
- Original language: English
- Number of items: 1
- Dimensions: 10.00" h x 1.06" w x 7.70" l, .0 pounds
- Binding: Hardcover
- 460 pages

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### Editorial Review

#### Review

"Overall, *Symbiosis in Fishes* is a valuable scientific contribution because although symbiotic interactions involving fish are common worldwide and can affect the dynamics of many ecosystems, this is the first comprehensive review of the topic." ( *The Quarterly Review of Biology*, 1 June 2015) ?

"Overall, the book reflects an exceptional breadth of knowledge and depth of integrative thinking, together with a deep appreciation for the subject of interspecific partnerships in fishes. As such, the book provides a superb resource and foundation for learning, teaching and further scientific inquiry." ( *Journal of Fish Biology*, 2015)

#### From the Back Cover

*Symbiosis between Fishes and Invertebrates* provides comprehensive coverage of the biology of partnerships between fishes and invertebrates, ascending the phylogenetic scale, from luminescent bacteria, sponges and coelenterates to molluscs, crustaceans and echinoderms. Both facultative and obligatory partnerships are reviewed with emphasis on the behavioral, ecological and evolutionary aspects of fish symbiosis. Each of the eight chapters of this book focuses on a different group of partners. The structure, physiology and anti-predatory strategies of each group are described to provide the necessary background for the understanding of their partnerships with fishes. The formation of the associations, the degree of partner specificity and its regulation, as well as the benefits and costs for the fishes and their associates, communication between partners and their possible co-evolution are discussed in each chapter.

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#### About the Author

**Professor Ilan Karplus** is a retired Senior Researcher of the Aquaculture Research Unit of the Volcani Research Center, Israel. Over the last 30 years, Ilan has extensively studied interspecific associations between gobies and alpheid shrimps, predator recognition among reef fishes, and social control of growth in fishes and crustaceans. Ilan developed new techniques for edible and ornamental fish guidance by training, social facilitation and by taking advantage of innate behavioral responses to allow sorting by computer vision.

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#### **Jonathan Bean:**

Playing with family inside a park, coming to see the coastal world or hanging out with buddies is thing that usually you could have done when you have spare time, subsequently why you don't try factor that really opposite from that. One particular activity that make you not experience tired but still relaxing, trilling like on roller coaster you have been ride on and with addition details. Even you love Symbiosis in Fishes: The Biology of Interspecific Partnerships, you can enjoy both. It is good combination right, you still desire to miss it? What kind of hang type is it? Oh seriously its mind hangout men. What? Still don't buy it, oh come on its called reading friends.

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