

# CONTENTS

Preface . . .	xi
OVERVIEW	
<b>Development of Marine Resources</b> . . . . .	3
Thomas J. Billy and Betty M. Hackley	
2. <b>Paralytic Shellfish Poisoning: An Emerging Perspective</b> . . . . .	9
Clarice M. Yentsch	
3. <b>Ciguatera Seafood Poisoning: Overview</b> . . . . .	25
Edward P. Ragelis	
4. <b>Miscellaneous Seafood Toxicants</b> . . . . .	37
Bruce W. Halstead	
5. <b>Alaska's Shellfish Industry</b> . . . . .	53
Richard A. Nevé and Paul B. Reichardt	
6. <b>Risks and Benefits of Seafood</b> . . . . .	59
Brenda C. Higgins and Albert C. Kolbye	
7. <b>Ciguatera Toxins: Where Do We Go from Here?</b> . . . . .	69
Norman J. Doorenbos	
SHELLFISH TOXINS	
8. <b>Toxic Dinoflagellates: Taxonomic and Biogeographic Aspects with Emphasis on <i>Protogonyaulax</i></b> . . . . .	77
F. J. R. Taylor	
9. <b>Historical Perspective on Paralytic Shellfish Poison</b> . . . . .	99
Edward J. Schantz	
10. <b>Cryptic Paralytic Shellfish Toxins</b> . . . . .	113
Sherwood Hall and Paul B. Reichardt	
11. <b>Shellfish Toxicity and Dormant Cysts in Toxic Dinoflagellate Blooms</b> . . . . .	125
Donald M. Anderson	
12. <b>Potential Importance of an Endoparasite of <i>Gonyaulax</i> in Paralytic Shellfish Poisoning Outbreaks</b> . . . . .	139
Louisa Nishitani, Raleigh Hood, John Wakeman, and Kenneth K. Chew	
13. <b>Biosynthesis of Paralytic Shellfish Toxins</b> . . . . .	151
Yuzuru Shimizu, Masaru Kobayashi, Almoursi Genenah, and Naoshi Ichihara	
14. <b>Paralytic Shellfish Toxins in Tropical Waters</b> . . . . .	161
Yasukatsu Oshima, Yuichi Kotaki, Takako Harada, and Takeshi Yasumoto	

15.	<b>Paralytic Shellfish Toxins and Finfish</b> .....	171
	Alan W. White	
16.	<b>Development of Immunoassays for Paralytic Shellfish Poisoning: A Radioimmunoassay for Saxitoxin</b> .....	181
	Robert E. Carlson, Marie L. Lever, Brian W. Lee, and Patrick E. Guire	
17.	<b>Response of the House Fly to Saxitoxins and Contaminated Shellfish</b> .....	193
	Alvin Siger, Bernard C. Abbott, and Maria Ross	
18.	<b>Determination of Paralytic Shellfish Poisoning Toxins by High Pressure Liquid Chromatography</b> .....	197
	John J. Sullivan and Marleen M. Wekell	
19.	<b>Diarrhetic Shellfish Poisoning</b> .....	207
	Takeshi Yasumoto, Michio Murata, Yasukatsu Oshima, Gayle K. Matsumoto, and Jon Clardy	
CIGUATERA		
20.	<b>Mode of Action of Ciguatera Toxins</b> .....	217
	A. M. Legrand and R. Bagnis	
21.	<b>Ciguatoxic Dinoflagellates from the Caribbean Sea</b> .....	225
	Donald R. Tindall, Robert W. Dickey, Rolland D. Carlson, and Gregory Morey-Gaines	
22.	<b>Lipid-Extracted Toxins from a Dinoflagellate, <i>Gambierdiscus toxicus</i></b> .....	241
	Donald M. Miller, Robert W. Dickey, and Donald R. Tindall	
23.	<b>Extraction of a Water-Soluble Toxin from a Dinoflagellate, <i>Gambierdiscus toxicus</i></b> .....	257
	Robert W. Dickey, Donald M. Miller, and Donald R. Tindall	
24.	<b>Ecology of Toxic Dinoflagellates from the Caribbean Sea: Effects of Macroalgal Extracts on Growth in Culture</b> .....	271
	Rolland D. Carlson, Gregory Morey-Gaines, Donald R. Tindall, and Robert W. Dickey	
25.	<b>Ciguatera in the Pacific: Incidence and Implications for Marine Resource Development</b> .....	289
	Nancy Davis Lewis	
26.	<b>An Enzyme Immunoassay for the Detection of Ciguatoxin and Competitive Inhibition by Related Natural Polyether Toxins</b> .....	307
	Y. Hokama, L. H. Kimura, M. A. Abad, L. Yokochi, Paul J. Scheuer, M. Nukina, T. Yasumoto, D. G. Baden, and Y. Shimizu	
27.	<b>Effect of Ciguatera-Associated Toxins on Body Temperature in Mice</b> .....	321
	Phyllis R. Sawyer, David J. Jollow, Paul J. Scheuer, Richard York, Joseph P. McMillan, Nancy W. Withers, H. Hugh Fudenberg, and Thomas B. Higerd	
TETRODOTOXIN		
28.	<b>Occurrence and Origin of Tetrodotoxin</b> .....	333
	Harry S. Mosher and Frederick A. Fuhrman	
29.	<b>Tetrodotoxin Determination Methods</b> .....	345
	Yoshio Onoue, Tamao Noguchi, and Kanehisa Hashimoto	

TOXINS FROM RED TIDE AND CYANOBACTERIA

30. <b>Toxins from Florida's Red Tide Dinoflagellate <i>Ptychodiscus brevis</i></b> . . . Daniel G. Baden, Thomas J. Mende, Mark A. Poli, and Ronald E. Block	359
31. <b>Public Health and Toxins from Marine Blue-Green Algae</b> . . . . . Richard E. Moore	369
32. <b>Toxins from Freshwater Cyanobacteria</b> . . . . . Wayne W. Carmichael and Nik A. Mahmood	377
33. <b>Studies on <i>Aphanizomenon</i> and <i>Microcystis</i> Toxins</b> . . . . . John J. Sasner, Jr., Miyoshi Ikawa, and Thomas L. Foxall	391
34. <b>Toxins of <i>Microcystis aeruginosa</i> and Their Hematological and Histopathological Effects</b> . . . . . Harold W. Siegelman, William H. Adams, Richard D. Stoner, and Daniel N. Slatkin	407

SCOMBROID FISH POISONING

35. <b>Toxicology of Scombroid Poisoning</b> . . . . . Steve L. Taylor, Julia Y. Hui, and David E. Lyons	417
36. <b>Enzymatic Mechanisms for Amine Formation in Fish</b> Ronald R. Eitenmiller and Selwyn C. De Souza	431
37. <b>Histamine Formation in Tuna</b> . . . . . Hilmer A. Frank and Derrick H. Yoshinaga	443
Author Index . . . . .	453
Subject Index . . . . .	454