

# Contents

## Part I Systematics, Ecology, and Evolution of Percids

- 1 Taxonomy, Distribution, and Evolution of the Percidae.....** 3  
Carol A. Stepien and Amanda E. Haponski
- 2 Environmental Biology of Percid Fishes .....** 61  
Zachary S. Feiner and Tomas O. Höök

## Part II Reproductive Biology

- 3 Broodstock Management and Control  
of the Reproductive Cycle .....** 103  
P. Fontaine, N. Wang, and B. Hermelink
- 4 Artificial Reproduction of Percid Fishes.....** 123  
D. Żarski, A. Horváth, J.A. Held, and D. Kucharczyk
- 5 Sperm Morphology, Physiology, Motility,  
and Cryopreservation in Percidae .....** 163  
Sayyed Mohammad Hadi Alavi, Andrzej Ciereszko,  
Azadeh Hatef, Jiří Kříšťan, Boris Dzyuba, Sergei Boryshpolets,  
Marek Rodina, Jacky Cosson, and Otomar Linhart
- 6 Evaluation and Improvements of Egg  
and Larval Quality in Percid Fishes.....** 193  
B. Schaerlinger and D. Żarski

## Part III Early Life Stages: Development, Metabolism, and Husbandry

- 7 Development of the Sense Organs in Percid Fishes .....** 227  
M. Kamaszewski and T. Ostaszewska

<b>8</b>	<b>Development and Functionality of the Digestive System in Percid Fishes Early Life Stages</b> .....	239
	Neila Hamza, Teresa Ostaszewska, and Patrick Kestemont	
<b>9</b>	<b>Culture Methods of Eurasian Perch and Yellow Perch Early Life Stages</b> .....	265
	P. Kestemont, C. Mélard, J.A. Held, and K. Dabrowski	
<b>10</b>	<b>Culture Methods of Pikeperch Early Life Stages</b> .....	295
	Svend Steinfeldt	
<b>11</b>	<b>Intensive Culture of Walleye from Egg Incubation to Juvenile</b> .....	313
	Robert C. Summerfelt and J. Alan Johnson	
<b>Part IV Juvenile and Grow-Out Stages: Growth, Metabolism, Behavior and Husbandry</b>		
<b>12</b>	<b>Muscle Protein Characteristic and Its Association with Faster Growth in Percids and Other Teleosts</b> .....	339
	Karolina Kwasek, Macdonald Wick, and Konrad Dabrowski	
<b>13</b>	<b>The Energy Requirements of Percid Fish in Culture</b> .....	353
	Anders Alanärä and Åsa Strand	
<b>14</b>	<b>Bioenergetics Modeling of Percid Fishes</b> .....	369
	Charles P. Madenjian	
<b>15</b>	<b>Behaviour of Percid Fishes in the Wild and Its Relevance for Culture</b> .....	399
	Carin Magnhagen	
<b>16</b>	<b>Culture Methods of Eurasian Perch During Ongrowing</b> .....	417
	Tomáš Polícar, Azin Mohagheghi Samarin, and Charles Mélard	
<b>17</b>	<b>Intensive Culture Methods of Walleye During Ongrowing</b> .....	437
	J. Alan Johnson and Robert C. Summerfelt	
<b>18</b>	<b>Large-Scale Production of Yellow Perch, Walleye, and Hybrid Walleye in Ponds</b> .....	469
	Ruth D. Briland, Cathleen M. Doyle, and David A. Culver	
<b>19</b>	<b>The Ecology of Lifetime Growth in Percid Fishes</b> .....	499
	Michael D. Rennie and Paul A. Venturelli	

#### **Part V Nutrition, Feeds and Feeding Practices**

<b>20</b>	<b>Nutritional Requirements and Feeding of Broodstock and Early Life Stages of Eurasian Perch and Pikeperch</b> .....	539
	Patrick Kestemont and Emilie Henrotte	

<b>21</b>	<b>Effects of Dietary Levels of PUFA Fed to Adult Yellow Perch on the Fatty Acid Composition of Eggs and Larvae Characteristics: New Research Directions</b> .....	565
	Konrad Dabrowski, Jacques Rinchard, Sergiusz Czesny, and Malgorzata Korzeniowska	
<b>22</b>	<b>Feeding and Nutrition of Percid Fishes During Ongrowing Stages</b> .....	587
	Florian Geay and Patrick Kestemont	
<b>Part VI Genetic Improvement and Domestication</b>		
<b>23</b>	<b>Sex and Ploidy Manipulation in Percid Fishes</b> .....	625
	Carole Rougeot	
<b>24</b>	<b>Performance of Hybrid Percids</b> .....	635
	James A. Held, Syaghalirwa N.M. Mandiki, Carole Rougeot, and Patrick Kestemont	
<b>25</b>	<b>Comparative Genetic Diversity, Population Structure, and Adaptations of Walleye and Yellow Perch Across North America</b> .....	643
	Carol A. Stepien, Osvaldo J. Sepulveda-Villet, and Amanda E. Haponski	
<b>26</b>	<b>Production of Genetically Defined Perch Broodstocks and Their Selection for Fast Growth</b> .....	691
	Frederick W. Goetz, Daniel R. Rosauer, Michael Grzybowski, Frederick P. Binkowski, and Brian S. Shepherd	
<b>27</b>	<b>Genetic Improvement of Percids</b> .....	699
	R.J.W. Blonk and J. Komen	
<b>Part VII Stress, Immunology, Diseases and Health Management</b>		
<b>28</b>	<b>Corticosteroids and the Stress Response in Percid Fish</b> .....	725
	S. Milla, J. Douxfils, S.N.M. Mandiki, and M. Saroglia	
<b>29</b>	<b>Domestication and Responses to Stress</b> .....	743
	J. Douxfils, S.N.M. Mandiki, C. Mathieu, S. Milla, and P. Kestemont	
<b>30</b>	<b>Immune Status and Immunomodulation in Percid Fish</b> .....	761
	S.N.M. Mandiki, J. Douxfils, C. Mathieu, S. Milla, E. Henrotte, H. Jansen, and P. Kestemont	
<b>31</b>	<b>Percid Fish Health and Disease</b> .....	799
	H.D. Rodger and N.B.D. Phelps	

## **Part VIII Commercial Production, Quality, Marketing and Economics**

<b>32</b>	<b>Current Status of Eurasian Percid Fishes Aquaculture .....</b>	<b>817</b>
	Svend Steinfeldt, Pascal Fontaine, Julia Lynne Overton, Tomáš Polícar, Damien Toner, Bahram Falahatkar, Ákos Horváth, Ines Ben Khemis, Neila Hamza, and Mohammed Mhetli	
<b>33</b>	<b>Concept and Determinism of Quality in Percid Fishes .....</b>	<b>843</b>
	Marielle Thomas, Guillaume Mairesse, Jean-Noël Gardeur, and Jean Brun-Bellut	
<b>34</b>	<b>The Market for Eurasian Perch.....</b>	<b>865</b>
	Damien Toner	
<b>35</b>	<b>Commercial Production: Factors for Success and Limitations in European Percid Fish Culture.....</b>	<b>881</b>
	Julia L. Overton, Damien Toner, Tomáš Polícar, and Dariusz Kucharczyk	
	<b>Index.....</b>	<b>891</b>