

# Diving Physiology of Marine Mammals and Seabirds

Analyzing the physiological adaptations of marine mammals and seabirds, this book provides a comprehensive overview of what allows these species to overcome the challenges of diving to depth on a single breath of air. Through comparative reviews of texts on diving physiology and behavior from the last 75 years, Ponganis combines this research into one succinct volume.

Investigating the diving performance of marine mammals and seabirds, this book illustrates how physiological processes to extreme hypoxia and pressure are relevant to the advancement of our understanding of basic cellular processes and human pathologies. This book underscores the biomedical and ecological relevance of the anatomical, physiological, and molecular/biophysical adaptations of these animals to enable further research in this area.

An important resource for students and researchers, this text not only provides an essential overview of recent research in the field, but will also stimulate further research into the behavior and physiology of diving.

**Paul Ponganis** is a Research Marine Biologist and Marine Physiologist at the Scripps Institution of Oceanography, University of California, San Diego. A leading expert in the field and also an anesthesiologist, his primary clinical interests are in cardiac anesthesia, which he has practiced for the last 30 years in conjunction with his research at the Scripps Institution of Oceanography. His research has focused on the diving physiology of marine mammals and penguins at field sites around the world. In recognition of their Antarctic research, the Ponganis Icefall on Coulman Island was named after him and his wife.



Cover illustration (front): emperor penguins dive at the ice edge near Cape Washington, Antarctica.  
© P. Ponganis; (back): fin whale surfaces off the island of Spitsbergen (Svalbard). © P. Ponganis.

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