

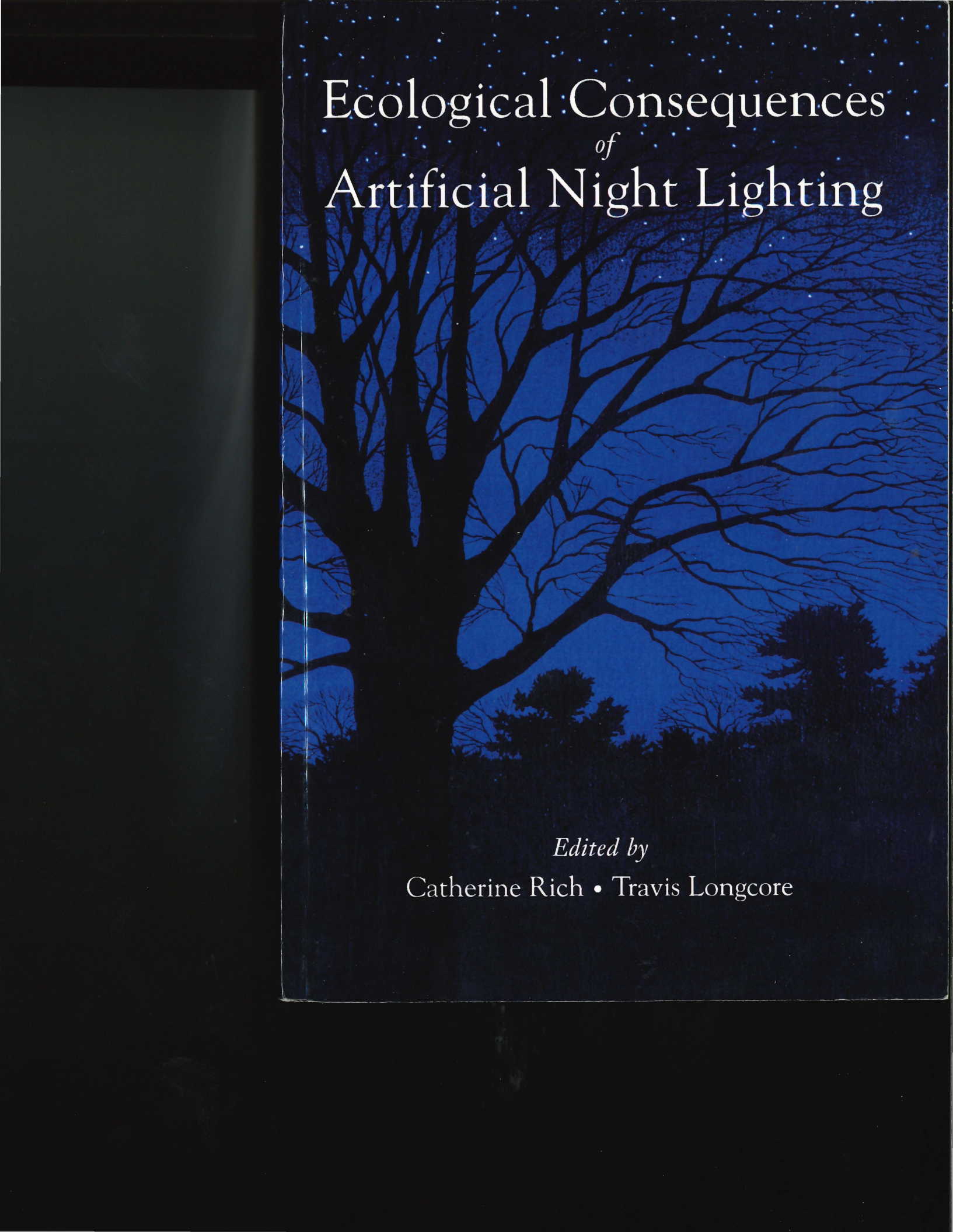
## *Chapter 11*

# Artificial Night Lighting and Fishes

Barbara Nightingale, Travis Longcore,  
and Charles A. Simenstad

Human activities subject many aquatic habitats to significant alterations in natural cycles of illumination. More than half of the world's human population lives within 100 km of an ocean, and most other major human developments are near rivers or lakes (Marsh and Grossa 2002). Coastal zones, lakes, rivers, ponds, and streams are all subject to artificial night lighting from cities, recreation, commerce, and industry. Permanent lights are also found at fish farms in nearshore zones, and cruise ships and recreational boats dot the seas. Fishing boats operate all night, some using high-intensity lights to attract their catch. Humans have altered natural lighting conditions in the most productive and biodiverse portions of aquatic environments.

The alteration of natural lighting regimes could be expected to have a substantial effect on aquatic organisms because light, along with temperature, structures aquatic habitats. Despite the well-known and profound influence of light on the behavior of aquatic organisms, especially invertebrate and vertebrate animals, little research has addressed the consequences of human disruption of diel, lunar, and seasonal cycles of illumination.



# Ecological Consequences *of* Artificial Night Lighting

*Edited by*

Catherine Rich • Travis Longcore




# Ecological Consequences *of* Artificial Night Lighting



*Edited by*

Catherine Rich • Travis Longcore

 **ISLANDPRESS** / Washington • Covelo • London

Copyright © 2006 Island Press

All rights reserved under International and Pan-American Copyright Conventions.  
No part of this book may be reproduced in any form or by any means without permission  
in writing from the publisher: Island Press, 1718 Connecticut Avenue, N.W., Suite 300,  
Washington, DC 20009.

ISLAND PRESS is a trademark of The Center for Resource Economics.

No copyright claim is made in the work of Robert N. Fisher, an employee of the  
federal government.

*Library of Congress Cataloging-in-Publication Data*

Ecological consequences of artificial night lighting / edited by Catherine  
Rich and Travis Longcore

p. cm.

Includes bibliographical references.

ISBN 1-55963-128-7 (cloth : alk. paper) — ISBN 1-55963-129-5 (pbk. :  
alk. paper)

1. Exterior lighting—Environmental aspects. I. Rich, Catherine.

II. Longcore, Travis.


QH545.E98E26 2005

577.27'2—dc22

2005020202

*British Cataloguing-in-Publication Data available.*

Book design: Brigid Willson

Printed on recycled, acid-free paper 

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2