



Universiteit
Leiden

The Netherlands

Assessing global regionalized impacts of eutrophication on freshwater fish biodiversity

Zhou, J.

Citation

Zhou, J. (2024, January 30). *Assessing global regionalized impacts of eutrophication on freshwater fish biodiversity*. Retrieved from <https://hdl.handle.net/1887/3715136>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/3715136>

Note: To cite this publication please use the final published version (if applicable).

**Assessing global regionalized impacts
of eutrophication on freshwater fish
biodiversity**

Jinhui Zhou

© Jinhui Zhou (2024)

Assessing global regionalized impacts of eutrophication on freshwater fish
biodiversity

PhD Thesis at Leiden University, The Netherlands

The research described in this thesis was conducted at the Institute of Environmental
Sciences (CML), Leiden University, the Netherlands. All rights reserved. No parts of
this publication may be reproduced in any form without the written consent of the
copyright owner.

ISBN: 9789051916669

Cover: Images were created and drawn by Jinhui Zhou. The use of icons and fonts
obeys the license policies of Adobe Photoshop and Canva.

Layout: Jinhui Zhou

Printing: Print & Bind

**Assessing global regionalized impacts of eutrophication on freshwater fish
biodiversity**

Proefschrift

ter verkrijging van

de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof.dr.ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op dinsdag 30 januari 2024

klokke 10.00 uur

door

Jinhui Zhou

geboren te Changsha, China

in 1992

Promotor:

Prof.dr.ir. P.M. van Bodegom

Co-promotores:

Dr. J.M. Mogollón

Dr. L.A. Scherer

Promotiecommissie:

Prof.dr.ing. M.G. Vijver

Prof.dr.ing. J.W. Erisman

Prof. dr. W. de Vries (Wageningen University & Research)

Dr. R. van Zelm (Radboud Universiteit)

Dr. V. Barbarossa

Table of contents

| | |
|--|-----|
| Chapter 1..... | 1 |
| General introduction | |
| Chapter 2..... | 15 |
| Regionalized nitrogen fate in freshwater systems on a global scale | |
| Chapter 3..... | 57 |
| A comparison between global nutrient retention models for freshwater systems | |
| Chapter 4..... | 101 |
| Effects of nitrogen emissions on fish species richness across the world's freshwater ecoregions | |
| Chapter 5..... | 121 |
| Global regionalized characterization factors for phosphorus and nitrogen impacts on freshwater fish biodiversity | |
| Chapter 6..... | 153 |
| General discussion | |
| References..... | 167 |
| Summary..... | 183 |
| Samenvatting | 187 |
| Acknowledgments | 192 |
| Curriculum vitae | 195 |
| List of publications | 196 |
| Presentations | 197 |
| Propositions | 198 |

