

Reducing Fish Mortality at Hydropower Plants Impact of Clear Bar Spacing

Author: Dr. Guntram Ebel, Publisher: Büro für Gewässerökologie und Fischereibiologie
ISBN: 978-3-00-083923-8



Development and application of a
modelling method to predict the
combined effect of biological and
technical factors on the mortality rate

Bibliographical information

Size / format: 20 x 28 cm (Hardcover), 211 pages (all in color), 114 diagrams, 9 drawings, 61 photos, 17 tables, 14 summary boxes, 254 references

Language

German (with an abstract in English and French)

Acquire from

Büro für Gewässerökologie und Fischereibiologie
Saalwerderstraße 10
D-06118 Halle (Saale)
E-Mail: info@bgf-halle.de
Internet: <https://www.bgf-halle.de>

Intended readership

Planners, consultants, experts, hydropower plant
operators, administrators, academics and students,
fisheries associations, nature conservation organisations

Order form

Order by e-mail

Send

or letter

Print

**Reducing Fish Mortality at Hydropower Plants: Impact of Clear Bar Spacing. Development and application
of a modelling method to predict the combined effect of biological and technical factors on the mortality rate.**

ISBN: 978-3-00-083923-8, 211 pages (all in color), Hardcover, price 145,- EUR (including VAT, excluding shipping costs)

number of items: _____

date: _____

name: _____

institution: _____

address: _____

country: _____

Büro für Gewässerökologie und Fischereibiologie
Literaturbestellung

Saalwerderstraße 10

06118 Halle (Saale)
Germany

Contents

The clear bar spacing of a power plant bar rack influences both the profitability and the environmental impact of hydropower utilisation. It is therefore the subject of intense discussions in numerous modernisation and new construction projects. While the significance of clear bar spacing for investment costs and generation losses can be quantified by existing approaches, its effect on the mortality rate of migrating fish can so far only be predicted with considerable restrictions. This also applies to angled bar racks with horizontal bar elements and a bypass at the rack's downstream end, which are of particular practical interest due to their increasing prevalence.

Against this background, the present study provides a modelling method that, by combining several regression models, allows the estimation of residual mortality at hydropower plants where angled bar rack bypass systems of said type are installed or are going to be used. The method is applicable to eel (*Anguilla anguilla*) and salmon (*Salmo salar*), species particularly threatened by hydropower use, as well as to Kaplan turbines predominantly installed in run-of-river power plants.

For illustrative purposes, the method is equally applied to a wide range of case constellations. The expected mortality in the migrating stock is modelled by looking at 60 real-life turbines, each combined with angled bar racks of different clear widths. Further presentations deal with using the modelling method to assess existing, and to design future angled bar rack bypass systems. Practical advice on how to implement such systems completes this publication.

In view of the rapid international expansion of hydropower potential and the need to reduce the mortality of migrating fish at numerous existing facilities, the issues addressed in this book are highly topical and of considerable practical importance.

Structure

Abstract in German, English, French (3 pages), Preface (1 page), Acknowledgements (1 page), Table of contents (3 pages), Introduction (3 pages), 7 Chapters with 48 Subchapters (107 pages), References (14 pages), Other lists (5 pages), Annex (63 pages)

Example pages

