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# PATRICIA BURKHARDT-HOLM

## CV – SHORT VERSION

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### CURRENT POSITIONS

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**PROF. DR. RER. NAT. / PROFESSOR OF ECOLOGY**

**HEAD OF THE PROGRAM “MAN – SOCIETY - ENVIRONMENT” (MSE)**

Since 2003

Department of Environmental Sciences, University of Basel, Switzerland

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### CONTACT DETAILS

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### WEBSITES

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<https://mgu.unibas.ch>  
<https://mgu.unibas.ch/en/team/patricia-burkhardt-holm>

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## PREVIOUS POSITIONS

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- 1999 – 2003      **DIRECTOR OF THE NATIONAL RESEARCH PROGRAMME ON FISH CATCH DECLINE “NETZWERK FISCHRÜCKGANG SCHWEIZ” (FISCHNETZ)**  
EAWAG, Dübendorf, Switzerland
- 1992 – 1999      **ASSISTANT PROFESSOR**  
Interdisciplinary Center for General Ecology, University of Bern and  
Institute for Animal Pathology, University of Bern
- 1997– 1999      **DEPUTY DIRECTOR OF THE DEPARTMENT FOR ELECTRON MICROSCOPY**  
University of Bern
- 1990 – 1992      **POST-DOC**  
Department of Neurobiology, Swiss Federal Institute of Technology (ETH),  
Zurich, Switzerland (50%)
- 1989 – 1990      **CONSULTANT FOR BIOLOGY AND ECOLOGY**  
RauCon Bioinformatics and Consulting GmbH, Dielheim, Germany

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## EDUCATION

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- 1999              **VENIA DOCENDI**  
for Ecology, Phil. Nat. Faculty  
University of Bern
- 1989              **PH.D., SUMMA CUM LAUDE**  
Title: Histochemische und cytologische Untersuchungen zum Darm von  
Osteichthyes und die Beeinflussung durch Ernährungsbedingungen und toxische  
Substanzen  
(Histochemical and electron microscopical studies on the intestinal tract of  
teleosts under different nutritional conditions)  
Zoological Institute I, University of Heidelberg, Germany
- 1985              **M.SC.**  
Ruprecht-Karls-University Heidelberg, Germany

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## SELECTED CURRENT ADDITIONAL PROFESSIONAL ACTIVITIES

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Since 2020	Vice president of the Swiss Committee on Polar and High Altitude Research (SKPH). Swiss Academies of Sciences.
Since 2019	Swiss expert of the scientific advisory committee on 'Marine Plastic Litter and Microplastics' of the UN Environment Programme (UN Environmental Resolution 4).
Since 2019	Appointed convenor/chair subcommission 'Environmental Concern', Scientific Committee, International Whaling Commission
Since 2019	Deputy president of the board "Naturhistorisches Museum Basel"
Since 2018	Member of Exploratory Grants Evaluation Panel of the Swiss Polar Institute
since 2017	Member of the board "Naturhistorisches Museum Basel"
since 2017	Reviewer, special research field 1357 "Microplastic", German Research Foundation (DFG), Bonn, Germany
since 2015	Member of the Scientific Advisory Board "Naturforschende Gesellschaft Senckenberg", Frankfurt a. Main, Germany
since 2010	Founding Member of "International Centre for Water Management Services" (CEWAS), Willisau, Switzerland
since 2010	Member of the Board of "Foundation for Information and Research on Marine Mammals" ( <i>firmm</i> ) Switzerland and Spain
since 2009	Swiss delegate for the International Whaling Commission (IWC), scientific committee and steering committee member of the sub-commission "Pollution 2000+"
since 2008	Member of "Society of Environmental Toxicology and Chemistry Europe" (SETAC)
since 2008	Mentor of the Swiss Study Foundation
since 2005	Representative of the Faculty of Science and Chairperson of the curriculum commission of the Master's Degree in Sustainable Development at the University of Basel
since 1995	Member of "European Association of Fish Pathologists" (EAFP)

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## MAJOR RESEARCH INTERESTS

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- Ecology, biology, physiology, biochemistry and ecotoxicology of aquatic animals, especially fish, but also invertebrates and marine mammals
- Effects of natural and anthropogenic stress factors, such as microplastics, temperature, fine sediments, synthetic chemicals, hormones and food on aquatic organisms
- Invasive species in aquatic ecosystems
- Microplastics in aquatic and terrestrial ecosystems
- Education for sustainability

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## REVIEWER ACTIVITY

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### SCIENTIFIC JOURNALS AND BOOKS

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*Aquatic Toxicology; Aquatic Sciences; Aquatic Biology; Biological Chemistry; Cambridge University Press; Canadian Journal of Fisheries and Aquatic Sciences; Canadian Journal of Zoology; Cell and Tissue Research; Cellular and Molecular Life Sciences; Chemosphere; Comparative Biochemistry & Physiology Developmental and Comparative Immunology; Diseases of Aquatic Organisms; Ecological Applications; Environment Asia Journal; Environmental Chemistry; Environment International; Environmental Pollution; Environmental Science and Technology; Environmental Science and Pollution Research; Environmental Toxicology and Chemistry; Global Change Biology; Histochemical Journal; Fish Physiology and Biochemistry; Marine Biology; Nature Communications; Parasite Epidemiology and Control; PLOS ONE; Proceedings of the Royal Society B; Science of the Total Environment; Scientific Reports; Water Research* and various books and book chapters (for publishers such as Springer, Routledge, et al.)

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### SCIENCE FOUNDATIONS, EVALUATION PANELS AND FUNDING BOARDS

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Akademien der Wissenschaften Schweiz (*Swiss Academies of Arts and Sciences*); Deutsche Bundesstiftung Umwelt DBU (*German Federal Environmental Foundation*), Deutsche Forschungsgemeinschaft DFG (*German National Science Foundation*), European Academies Science Advisory Council (EASAC); *foraus* - Swiss Forum on Foreign Policy; Geschäftsstelle des Gutachterpanels Forschungsschiffe (GPF) (*German Research Vessels Portal*); Leibniz-Institute for Freshwater Ecology and Inland Fisheries, Berlin; Nanyang Technological University, Singapore; Federal Veterinary Office (Schweiz), Faculty of Life Sciences, University of Frankfurt; Swiss National Science Foundation (SNF); Swiss Polar Institute.

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### Supervision of Academic Theses

Co-supervisors from University of Basel, unless noted otherwise

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### SUPERVISION OF JUNIOR RESEARCHERS – GRADUATE AND POSTGRADUATE LEVEL (SELECTION)

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2003 – current      Supervised more than 55 Master and Diploma theses and 13 Ph.D. Theses in the field of aquatic biology and ecology, microplastics, invasion biology, ecotoxicology, fish physiology, conservation biology, sustainability. Some of the students were nominated and/or awarded for prizes, such as Candidate for the Best Student's Paper Award, (Patrick Faller; *Environmental Toxicology and Chemistry*), Best Diploma Thesis (René Benguerel; *Hydrobiology-Limnology-Award*), Best Master Thesis (Nadia von Moos; SETAC-GLB 2011); Schwoerbel-Benndorf Nachwuchspreis (Philipp E. Hirsch, DGL 2013); Irene Adrian-Kalchhauser: Post Doc/ junior researcher in my group (2011- 2019) starting 01/2020 as appointed professor at the University of Bern (CH).

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**SELECTED FUNDING AWARDS**  
ABSTRACT OVER THE LAST TEN YEARS

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Cruise: Antarctic Project “Microplastics in the Southern Ocean”

Project Leader: **Holm, P.**

Duration: Februar - March 2021

Financed by: Germany

Research vessel: FS Polarstern, PS124.

Non-cash contribution: EUR 120'000.-

Title: Role of Rhine in global plastic waste problem

Project Leader: **Holm, P.**

Duration: 2020-2023

Financed by: Wilson-Mettler Foundation

Amount: CHF 30'000.-

Approved Cruise: Antarctic Project “Microplastics off Antarctic Peninsula’ (postponed due to COVID-19 pandemic)

Project Leader: **Holm, P.**

Duration: March 2020- April 2020

Financed by: Germany

Research vessel: Maria S. Merian, MSM90

Non-cash contribution: EUR 127'272.-

Cruise: Antarctic Project “Occurrence of microplastics in the Antarctic Seas”

Project Leader: **Holm, P.**

Duration: December 2018 - February 2019

Financed by: Germany,

Research vessel: FS Polarstern, PS117.

Non-cash contribution: EUR 202'040.-

Title: Microplastics in Antarctic ocean

Project Leader: **Holm, P.**

Duration: 2019-2021

Financed by: Ricola Foundation, Laufen

Amount: CHF 36'000.-

Title: Expedition for sampling of microplastics in the Antarctic sea

Project Leader: **Holm, P.**

Duration: December 2018 – February 2019

Financed by: FAG Basel

Amount: CHF 15'000.-

Title: Invasive gobies (aggregated several sub-projects)  
 Project Leader: **Holm, P.**  
 Duration: April 2017 – April 2022  
 Financed by: Different funding sources (swisslos-fonds BL, SO, AG, Canton BS; Federal Office for the Environment FOEN, University Basel)  
 Amount: CHF 755'000

Title: Round goby in Switzerland  
 Project Leader: **Holm, P.**  
 Duration: October 2015 - September 2017  
 Financed by: AWEL, Amt für Abfall, Wasser, Energie und Luft, Abteilung Gewässerschutz, Zürich, Switzerland  
 Amount: CHF 67'200

Title: Microplastic in Rhine catchment. Sources and assessment of biological and ecological effects  
 Project Leader: **Holm, P.**  
 Duration: July 2015 - June 2016  
 Financed by: WWF Switzerland  
 Amount: CHF 49'500

Title: Microplastic in Rhine catchment. Occurrence, Sources and Meaning  
 Project Leader: **Holm, P.**  
 Duration: 2016 - 2019  
 Financed by: FAG Basel  
 Amount: CHF 43'000

Title: Towards societal consensus – Influencing the perception and evaluation of energy policy measures by means of self-reflection and information  
 Project Leader: **Holm, P.**  
 Duration: January 2015 – December 2018  
 Financed by: Swiss National Science Foundation  
 Amount: CHF 266'000

Title: Microplastic in running waters. Load and concentration of microplastics in Rhine between Basel and the North Sea  
 Project Leader: **Holm, P.**  
 Duration: June 2014 – May 2015  
 Financed by: Stiftung Emilia Guggenheim-Schnurr der Naturforschenden Gesellschaft in Basel  
 Amount: CHF 8'970

Title: Discovering the cold: Are Antarctic fish capable of coping with anthropogenic chemicals?  
 Project Leaders: **Holm, P.**, Segner, H., Schmid, P.  
 Duration: March 2014 – November 2017  
 Financed by: Swiss National Science Foundation  
 Amount: CHF 439'000

Title: Sustainable Development on Bachelor Level – an Immersive Programme in Sustainable Development

Project Leaders: **Holm, P.**, Krysiak, F.C., Burger, P.

Duration: June 2013 – December 2016

Financed by: Swiss Academies of Arts and Sciences

Amount: CHF 98'068

Title: Sustainable Development at Universities Programme: Summer School

Project Leaders: Burger, P., Krysiak, F.C., **Holm, P.**

Duration: June 2013 – December 2016

Financed by: Swiss Academies of Arts and Sciences

Amount: CHF 99'860

Title: Invasive Species

Project Leaders: **Holm, P.**, Kalchhauser I., Hirsch, P.

Duration: January 2013 – December 2016

Financed by: Federal Office for the Environment FOEN, Bern; Amt für Umwelt und Energie Basel-Stadt; Lotteriefonds Solothurn; Swisslos Fonds Aarau; Swisslosfonds Baselland;

Amount: CHF 489'068

Title: Invasive Species – pre-project

Project Leaders: **Holm, P.**, Kalchhauser I., Hirsch, P.

Duration: September 2012 – December 2012

Financed by: Canton of Aargau; Federal Office for the Environment FOEN

Amount: CHF 20'000

Title: Research Center for Sustainable Energy and Water Supply

Project Leaders: Burger, P., **Holm, P.**, Krysiak, F.

Duration: August 2011 – July 2016

Financed by: Different funding sources

Amount: CHF 1'753'585

Title: Methodologies to measure and characterize fine sediment input to alpine rivers and their effects on health and reproduction of gravel spawning brown trout (*Salmo trutta*)

Project Leaders: **Holm, P.**, Alewell, C., Huggenberger, P.

Duration: September 2011 – August 2012

Financed by: Swiss National Science Foundation, CoRe

Amount: CHF 129'268

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**PUBLICATIONS**  
WILL BE FOUND ON SEPARATE LIST

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