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# CV Paul van den Brink



## ***Personal information***

Family name: Van den Brink  
First names: Paulus Johannes  
Date of birth: 21 June 1968  
Nationality: Dutch  
Websites: <http://www.stressecoology.eu>  
<https://www.wur.nl/en/persons/paul-prof.dr.ir.-pj-paul-van-den-brink.htm>

## ***Employer (2005 – current)***

Name: Aquatic Ecology and Water Quality Management group, Wageningen University  
Position: Full professor of chemical stress ecology  
Address: Wageningen University & Research, P.O. Box 47, 6700 AA, Wageningen, The Netherlands  
Phone: +31-317-481615  
Email: [Paul.vandenBrink@wur.nl](mailto:Paul.vandenBrink@wur.nl)

## ***Past employer (1992 – 2023)***

Name: Environmental Risk Assessment group, Wageningen Research  
Position: Senior scientist  
Address: Wageningen University & Research, P.O. Box 47, 6700 AA, Wageningen, The Netherlands

## ***Ancillary activities and volunteer work***

Institution	Position	Period
“Bergcommissie”, commission that advises Wageningen on the area of “de Wageningse berg”	Member	2022 – current
Journal “Environmental Management”	Associated editor	2019 – current
Primary school “G.J. van den Brinkschool”	Board member and treasurer	2018 – current
NORMAN network ( <a href="https://www.norman-network.net/">https://www.norman-network.net/</a> )	Steering committee member	2020 – 2023
Wageningen Institute for Environment and Climate Research (WIMEK)	Board member	2017 – 2023
South China Normal University	Visiting professor	2017 – 2021
University of York	Honorary visiting professor	2012 – 2020
Canadian River Institute	Associate fellow	2008 – 2020
Journal “Toxics”	Associated editor	2018 – 2020
SETAC, the Society of Environmental	President of the World	2011 – 2013

Toxicology and Chemistry SETAC, the Society of Environmental Toxicology and Chemistry Journal "Environmental Toxicology and Chemistry"	Council (incl. vice and past) President of the European Council (incl. vice and past) Editor	2008 – 2011 2007 – 2017
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### **Education**

Institution	Wageningen University		
From	To	Degree	Major subjects
1986	1992	MSc	Environmental Sciences
1992	1999	PhD	Agricultural and environmental sciences (ecological risk-assessment of pesticides)
	2019	University Teaching Qualification	

### **Bibliography**

Paul J. Van den Brink is a full, personal professor at the Aquatic Ecology and Water Quality Management Group of Wageningen University. At Wageningen University Paul chairs the chemical stress ecology group which currently consists of himself and 14 PhD students. He is involved in supervising and executing international projects on assessing the ecological effects of contaminants like pesticides, veterinary medicines and personal and home care products as well as those of multiple stressors, including climate change, drought, nutrients and salinization. Other research topics are the development of effect models (e.g. individual based, meta-population models and ecoinformatics, expert base models), Traits based Ecological Risk Assessment (TERA) and ecological risk assessment of chemicals in the tropics. Since 1995, Paul van den Brink has published over 280 ISI-listed papers (*h*-index = 62; SCOPUS), for three of which he won an international prize. He also co-edited five books. Paul currently coordinates the EU funded Innovative Training Network ECORISK2050 which studies the effects of global change on the emission, fate, effects and risks of chemicals in aquatic ecosystems. In 2006 Paul won the LRI-SETAC Innovative Science Award of € 100.000 and the SETAC Capacity Building Award in 2023. He also organized and took part in many international workshops and courses. He is also a past-president of SETAC (Society of Environmental Toxicology and Chemistry; [www.setac.org](http://www.setac.org)) World and Europe and a SETAC Fellow.

### **Bibliometric data**

	SCOPUS	Google Scholar
Total list of publications:	285	526
<i>h</i> -index:	62	78
Total citations:	13,180	19,430

### **Awards**

Year	Award
2000	SETAC best publication award on environmental research
2003	ECETOC Science Award, in the category 'Environmental Fate and Effects' (€ 10.000)
2006	CEFIC-LRI, SETAC Europe Innovative Science Award (€ 100.000)
2013	University Fund Wageningen and KLV Wageningen Alumni Network MSc

	thesis award in the field of environmental sciences (as supervisor)
2015	Environmental Toxicology and Chemistry 2015 Best Paper Award (as co-author)
2016	SETAC Fellows Award
2019	Environmental Toxicology and Chemistry 2018 Exceptional Paper Award (as co-author)
2023	SETAC Capacity Building Award

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### ***National media***

Channel	Title	Date
Spraakmakers on the National Radio 1	<a href="#">What is the quality of the surface water? (in Dutch)</a>	13-09-2023
Newspaper "de Volkskrant"	<a href="#">The water quality of the Rhine is getting worse instead of better (in Dutch)</a>	05-09-2023
Newspaper "De Gelderlander"	<a href="#">Polluted Enka Groundwater remains a problem for Ede residential areas: 'Not a pleasant idea if I lived there' (in Dutch)</a>	27-06-2023
Magazine of Wageningen University & Research	<a href="#">No ENKA pipeline, but concerns remain (in Dutch)</a>	16-03-2023
Newspaper "De Gelderlander"	<a href="#">Many question about the cancellation of the ENKA grease pipe (in Dutch)</a>	08-03-2023
Pointer Radio on the National Radio 1	<a href="#">The ENKA grease pipe (min 31, in Dutch)</a>	12-02-2023
Nieuws en Co on the National Radio 1	<a href="#">Effects of psychopharmaceuticals on aquatic ecosystems (in Dutch, min 17-21, in Dutch)</a>	30-01-2023
Magazine of Wageningen University & Research	<a href="#">A big fail for water quality (in Dutch)</a>	20-12-2022
Newspaper "De Gelderlander"	<a href="#">Experts baffled by polluted groundwater discharged from Enka factory on the Rhine (in Dutch)</a>	30-09-2022
Newspaper "de Volkskrant"	<a href="#">Water quality in the Netherlands is at the bottom of the European ranking – is it really that bad? (in Dutch)</a>	03-06-2022
Newspaper "de Volkskrant"	<a href="#">Insects retain more and longer heavy pesticides than thought (in Dutch)</a>	16-12-2021
Newspaper "de Volkskrant"	<a href="#">Water quality is below average almost everywhere in the Netherlands: new 'nitrogen-like debacle' threatens (in Dutch)</a>	18-11-2021
Investigative Journalism Platform "Follow the Money"	<a href="#">Toxicologist Tennekes was right about bee deaths all along (in Dutch)</a>	18-04-2020
Newspaper "de Volkskrant"	<a href="#">An alarming study on insect venom is 'just too late' to be able to approve the drug (in Dutch)</a>	14-05-2019
Newspaper "de Volkskrant"	<a href="#">Dutch ditches, streams and canals are a lot dirtier than we think (in Dutch)</a>	07-03-2019
Television news provided by the Dutch NOS broadcasting organisation	<a href="#">Neonicotinoids (in Dutch)</a>	09-04-2015
Newspaper "de Volkskrant"	<a href="#">Devastation by insecticides turns out to be bigger than thought (in Dutch)</a>	09-04-2015
Newspaper "NRC"	<a href="#">Poison plague: first the bees, now the birds (in Dutch)</a>	12-07-2014

Newspaper “de Volkskrant” [Dutch\)](#)  
[Insects and birds disappear because of poison](#) 10-07-2014  
[\(in Dutch\)](#)

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***Acquisition and project management (2008 - present)***

Projects with PhD students and/or PostDocs

Start year	Name project	Funder	PhD/ PostDoc
2023	Impact of agricultural chemicals on the ecology & ecosystem of the lake tana sub-basin wetlands	Schlumberger Foundation	1 PhD
2023	Effects of chemicals of emerging concern on aquatic ecosystems under climate change	LPDP	1 PhD
2023	QTOX: Quantitative extrapolation in ecotoxicology	EU	1 PhD
2022	RATION: Risk assessment innovation for low-risk pesticides	EU	1 PhD
2022	Effects of PFOS on aquatic ecosystems	PEEF	1 PhD
2021	Effects of antibiotics on aquatic ecosystems.	CSC	1 PhD
2020	PsychoPharmac' eau: Psychopharmaceutical Prevention & Pilots to Reduce Effects in the water cycle	NWO	1 PhD
2019	GetReal: Assessing spatial and temporal variability in species assemblages and potential implications for chemical risk assessments	CEFIC	1 PhD 1 PostDoc
2018	Mechanisms of toxicity of neonicotinoid insecticides towards aquatic arthropod species	CSC	1 PhD
2018	ECORISK2050: Effects of global change on the emission, fate, effects and risks of chemicals in aquatic ecosystems.	EU	2 PhD
2017	EMERCHE: Effect-directed monitoring tools to assess ecological and human health risks of chemicals of emerging concern in the water cycle.	NWO	1 PhD
2016	Influence of ecosystem complexity on the ecological effects of pesticides.	CSC	1 PhD
2016	Ecological Risk Assessment of Chemicals in a Central Ethiopian Rift Valley Lake: An Ecosystem Services Approach	NUFFIC	1 PhD
2016	Development of ecological archetypes and models for use in chemical risk assessment	Consumer goods company	1 PhD
2014	Effects of agrochemicals on aquatic ecosystem and fish biodiversity	NUFFIC	1 PhD
2013	Fate and effects of personal care ingredients in subtropical and tropical sediments	Consumer goods company	1 PhD
2012	Biological control of Schistosomiasis using molluscivorous freshwater fishes	NUFFIC	1 PhD
2012	Post-registration monitoring of pesticide-induced environmental and human health risks in Ghana.	Ghana government	1 PhD
2011	Assessing the effects of chemicals in untreated household wastewater on the ecosystems of rivers in developing regions	Consumer goods company	2 PhD 1 PostDoc
2011	Environmental Risk Assessment of Pesticides in Ethiopia	Dutch Ministry of	1 PhD

2009	CREAM. Mechanistic Effect Models for Ecological Risk Assessment of Chemicals	Economic Affairs EU	1 PhD 1 PostDoc
2009	SEAT, Sustainable Ethical Aquaculture Trade	EU	1 PhD 1 PostDoc
2009	Adaptive capacity and functionality of multitrophic aquatic ecosystems	WIMEK / SENSE	1 PhD

Projects without PhD students and/or PostDocs

Start year	Name project	Funder
2022	AENEAS: Advancing the environmental risk assessment of non-target arthropods for plant protection products	EFSA
2020	PRECAUTION: Predicting the sensitivity of aquatic communities to emerging chemicals: A modelling toolbox for the cross-species extrapolation of chemical sensitivity	Consumer goods company and Dutch government
2020	ANTIVENOM: ANTIfoulants, VEterinary MediciNal Products and Organic Material can affect marine sediment organisms, but to what extent?	Norwegian Research Council
2018	Key factor toxicity: effect-based monitoring and mixture toxicity	Dutch ministry of infrastructure and water
2018	Chemicals Assessment of Risks to Ecosystem Services II	CEFIC
2018	Development of effect models for the ecological risk assessment of pesticides	Dutch ministry of Economic Affairs
2016	Tools for Assessment and Planning of Aquaculture Sustainability	EU
2015	Chemicals Assessment of Risks to Ecosystem Services	CEFIC
2015	Development of ecological archetypes and models for use in chemical risk assessment	Consumer goods company
2014 till 2015	Development of ecological scenarios for the ecological risk assessment of pesticides	Dutch ministry of Economic Affairs
2009 till 2016	Professorship Paul van den Brink	WUR
2013	AquaStress	Belgian science policy office
2013	CHIMERA: Towards more ecologically realistic assessment of chemicals in the environment	CEFIC
2013	SOLUTIONS: Solutions for present and future emerging pollutants in land and water resources management	EU
2013	Recovery and multistress	Dutch ministry of Economic Affairs
2010 and 2012	Models chemical stress	WUR
2011	Evaluation of test methods for measuring toxicity to sediment organisms	CEFIC
2010	Pesticide Risk Reduction Programme – Ethiopia	Dutch ministry of Economic Affairs
2008 till 2011	Metapopulation modelling	Chemical industry
2008	A model for integrated risk assessment of pesticide use in the Brazilian Amazon	WUR

## **PhD students**

- Banchiamlak Getnet (September 2023 – current). Impact of agricultural chemicals on the ecology & ecosystem of the lake Tana sub-basin wetlands. PhD project funded by the Schlumberger Foundation.
- Imroatushshoolikhah (September 2023 - current). Effects of Chemicals of Emerging Concern on Aquatic Ecosystems Under Climate Change. PhD project funded by Lembaga Pengelola Dana Pendidikan, or the Indonesia Endowment Fund for Education (LPDP).
- Judith Epping (March 2023 – current). Effects of low risk pesticides on aquatic ecosystems. PhD project funded by the EU.
- Lea Grenc (March 2023 – current). Eco(toxico)logical modelling of the combined effects of chemicals and climate change. PhD project funded by the EU. Based at Radboud University Nijmegen. Supervised by Jan Hendriks.
- Pierina Rivas (February 2023 – current). Extrapolation of ecotoxicological effects in a changing climate. PhD project funded by the EU.
- Vera van Santvoort (February 2023 – current). Community-wide micro-evolutionary adaptation to anthropogenic stress: context dependency and ecological implications. PhD project funded by the Netherlands Organisation for Scientific Research (NWO). Based at NIOO. Supervised by Steven Declerck.
- Ayesha Ghafoor (December 2021 – current). Effects of PFOS on aquatic ecosystems. PhD project funded by The Punjab Educational Endowment Fund (PEEF).
- Dailing Wu (March 2021 – current). Effects of antibiotics on aquatic ecosystems. PhD project funded by the China Scholarship Council (CSC).
- Kaisheng Yao (January 2021 – current). Effects of pesticides and down-the-drain chemicals on sub-tropical aquatic ecosystems. PhD project funded by the CEFIC-LRI GetReal project (ECO50).
- Elien Versteegen (September 2020 – current). Sublethal effects of psychotropics on aquatic species, populations and ecosystems, how relevant are subtle effects for real-world ecosystems? PhD project funded by the Netherlands Organisation for Scientific Research (NWO).
- Marelize Labuschagne (February 2020 – current). Adverse Outcome Pathways to assess the effects of pesticides on aquatic macroinvertebrates. PhD project funded by NUFFIC. Supervised by Victor Wepener
- Aafke Saarloos (January 2020 - current). Chemical threats en route: risks of contaminants for migratory birds. Based at sub-department of Toxicology. Supervised by Nico van den Brink.
- Shuwen Han (September 2019 – current). Facing interactive effects of multiple stressors in a changing world: possibilities and limitations of rapid microevolutionary adaptation. PhD project funded by the China Scholarship Council (CSC). Based at NIOO. Supervised by Steven Declerck.
- Annika Mangold-Döring (May 2019 – current). Modelling effects of global change induced alterations of biological community composition on vulnerability to chemicals. PhD project funded by the EU.
- Markus Hermann (March 2019 – current). Understanding the relationships between increased CO<sub>2</sub> and temperature and community effects of chemicals. PhD project funded by the EU.
- Jadipa Khatikarn (August 2011 - current). Assessing the effects of chemicals in untreated household wastewater on the ecosystems of rivers in Thailand. Unfunded PhD project.

### ***(Co-)supervised completed PhD theses***

- Lara Schuijt (2023). Aquatic life on drugs. Assessing the ecological impacts of pharmaceuticals on aquatic ecosystems. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Anna Huang (2022). Inter- and intra-species sensitivity of aquatic arthropods to imidacloprid and flupyradifurone. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Zhao Qinghua (2021). The influence of horizontal and vertical biodiversity on the effects of stressors on aquatic ecosystems. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Lemessa Merga (2021). Impacts of anthropogenic activities on the ecology and ecosystem service delivery of Lake Ziway, Ethiopia. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Sanne van den Berg (2020). Improving cross-species extrapolation of chemical sensitivity. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Michael Onwona-Kwakye (2020). Pesticide-induced environmental risks: A field study in Ghana. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Fengjiao Peng (2018). Ecological risks of personal care ingredients for subtropical benthic communities. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Kizar Ahmed Sumon (2018). Effects of insecticides on aquatic ecosystems in Bangladesh. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Jacqueline Augusiak (2016). Improving communication and validation of ecological models - A case study on the dispersal of aquatic macroinvertebrates. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Berhan Teklu (2016). Environmental risk assessment of pesticides in Ethiopia: A case of surface water systems. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Concillia Monde (2016). Impact of natural and anthropogenic factors on the trophic interactions of molluscivores and Schistosoma host snails. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Mauricio Rocha Dimitrov (2016). Assessing the effects of chemicals on aquatic microbial ecosystems. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Noel Diepens (2015). Evaluation of test methods for measuring toxicity to sediment organisms. PhD thesis Wageningen University, Wageningen, The Netherlands. Co-supervisor
- Andreu Rico (2014). Environmental risk assessment of veterinary medicines used in Asian aquaculture. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Mazhar Iqbal Zafar (2012). Extrapolation of effects of pesticides on aquatic communities and ecosystems across different exposure patterns. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Nika Galic (2012). Assessing recovery potential of aquatic macroinvertebrate populations using ecological models. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.
- Tahla Ansara-Ross (2011). Environmental and human risk in pesticide use in Southern Africa. PhD thesis University of Johannesburg, Johannesburg, South Africa. Co-supervisor.

Mascha N. Rubach (2010). Predicting the response of aquatic invertebrates to stress using species traits and stressor mode of action. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.

Stephen J. Maund (2009). The aquatic ecotoxicology of the synthetic pyrethroids: from laboratory to landscape. PhD Thesis Wageningen University, Wageningen, The Netherlands. Supervisor.

Michiel A. Daam (2007). Influence of climatic factors and microcosm complexity on the fate and effects of pesticides. PhD Thesis Universidade de Aveiro, Aveiro, Portugal. Co-supervisor.

### ***Experience in Third countries***

Paul has a long term cooperation and/or projects with counterparts in Europe, Canada, Brazil, Ghana, South Africa, Ethiopia, Bangladesh, Thailand, Vietnam and China.

### ***Conferences, Training and Lecturing***

#### International conferences

On average 3 - 5 times a year a platform presentation at (SETAC) conferences, for which he is often invited. He also served many times as (co-)chair. He also was a member of the scientific committee of several SETAC conferences and of the local organising committee of the SETAC Europe meeting in The Hague in 2006.

#### Keynote and invited presentations

Van den Brink, P.J. (2023). The interactive effects of climate change and chemicals on aquatic ecosystems. SETA Africa meeting, Accra, Ghana.

Van den Brink, P.J. (2023). Effects of pharmaceuticals on aquatic ecosystems. 15<sup>th</sup> International Congress of the European Association for Veterinary Pharmacology and Toxicology, Bruges, Belgium.

Van den Brink, P.J. (2023). The interactive effects of climate change and chemicals on aquatic ecosystems. 2<sup>nd</sup> International Conference on Climate Change & Environment. Quaid-i-Azam University, Islamabad in collaboration with Pakistan EPA, Islamabad, Pakistan.

Van den Brink, P.J. (2020). Personal reflections on the top 4 research questions from the European horizon-scanning workshop. 9<sup>th</sup> Young Environmental Scientists Meeting, SETAC, Waco TX, USA.

Van den Brink, P.J. (2019). Assessing and Extrapolating of Effects of (Multiple) Stressors at Different Levels of Biological Organisation. The 6<sup>th</sup> national ecotoxicology conference, Guangzhou, China.

Van den Brink, P.J. (2019). Effects of Imidacloprid on aquatic ecosystem. 2019 International symposium on chemical risk prediction and management (ISCRPM-2019), Guangzhou, China.

Van den Brink, P.J. (2017). Towards Sustainable Environmental Quality: Priority Research Needs for Europe. SETAC Europe 2017 meeting, Brussels, Belgium.

Van den Brink, P.J. (2015). Diagnosis of field impacts of chemicals from monitoring and experimental data. SASAqS (The Southern African Society of Aquatic Scientists) 2015 Conference, Drakensberg, South Africa.

Van den Brink, P.J. (2013). Assessing aquatic population and community level risks of pesticides. SETAC Europe 2013 meeting, Glasgow, UK.

- Van den Brink, P.J. (2010). Risk assessment of effects of agrochemicals on irrigation water quality. 28<sup>th</sup> International Horticultural Congress, Lisbon, Portugal.
- Van den Brink, P.J. (2010). The effects of climate change on the pesticide sensitivity and recovery potential of aquatic ecosystems. 12<sup>th</sup> IUPAC International Congress of Pesticide Chemistry, Melbourne, Australia.
- Van den Brink, P.J. (2009). 'Putting the eco into ecotoxicology': a lesson from J. Cairns Jr. from 1988 is still contemporary in 2009. 30<sup>th</sup> annual meeting of SETAC North America, New Orleans, USA.
- Van den Brink, P.J. (2009). Ecological Risk Assessment: From Book-Keeping to Chemical Stress Ecology. 2<sup>nd</sup> CSTS (Cameroon Society for Toxicological Sciences) international conference, Dschang, Cameroon.
- Van den Brink, P.J. (2009). Trait based Ecological Risk Assessment of chemicals, does taxonomy matters? SASAQS (The Southern African Society of Aquatic Scientists) 2009 Conference, Magaliesberg, South Africa.
- Van den Brink, P.J. (2009). Patterns, socio-economic issues and effects of pesticide use in Asia, South-Africa and South-America. 19<sup>th</sup> annual meeting of SETAC Europe, Göteborg, Sweden.
- Van den Brink, P.J. (2009). Career talk at the Young Environmental Scientists Meeting of SETAC Europe. 1<sup>st</sup> SETAC Young Environmental Scientists meeting, Landau, Germany.
- Van den Brink, P.J. (2006). Assessing ecosystem health and impairment by species traits and their relation to stressors. International Conference on Pesticide Use in Developing Countries, Arusha, Tanzania.
- Van den Brink, P.J. (2002). Multivariate Techniques: an Advanced Group of Methods to Link Biological and Chemical Data. Interact2002 meeting, Sydney, Australia.
- Van den Brink, P.J. (2001). Effects of remediation on sediment contaminant composition, sediment toxicity and benthic community structure in the delta of the rivers Rhine and Meuse. 6<sup>th</sup> international conference of the Aquatic Ecosystem Health and Management Society (AEHMS), Amsterdam, The Netherlands

#### Courses and trainings lectured

Paul is the coordinator and examiner of the course "Chemical Stress Ecology and Ecotoxicology" (6 credits) and a lecturer and examiner in the "Environmental Risk Assessment of Chemicals" (6 credits) taught at Wageningen University. The "Chemical Stress Ecology and Ecotoxicology" course has been evaluated by the students as very good (4.2 out of 5) and the contribution of Paul as excellent (4.6 out of 5). Since 1998 he has taught over 30 courses mainly on the ecological risk assessment of chemicals and the use of multivariate statistical methods for the analysis of ecotoxicological data sets. Most of these courses were tailor made and were held in Europe, Canada, USA, Costa Rica, Cameroon, Tanzania, South Africa, Vietnam, Australia and New Zealand. He was also teaching for several years in the Erasmus Intensive Program "Pollution in Europe".

#### ***International workshops (2005 – present)***

- Precaution workshop "Potential new descriptors of species sensitivity, stepping away from currently existing paradigms and encouraging outside the box ideas". 13-14 March 2023. Wageningen, The Netherlands. Member of the steering committee.
- NORMAN network workshop "Ecosystem level effects of chemicals of emerging concern on aquatic ecosystems". 21-22 November 2022, Online. Member of the steering committee.

SETAC Pellston workshop “Integrating Global Climate Change (GCC) into Ecological Risk Assessment”. 20-23 June 2022, Oscarsborg, Norway.

ECORISK2050 workshop “Chemical Risk in the Future”. 30 March – 2 April 2020, Wageningen, The Netherlands.

CARES (Chemicals: Assessment of Risks to Ecosystem Services) II workshop. 21-22 January 2020, Brussels, Belgium. Member of the steering committee.

DEBtox modelling workshop. 2-3 December 2019, Wageningen, The Netherlands

Understanding the environmental and non-therapeutic health risks of increasing access to medicines in low- and middle-income countries. 8-11 September 2019, Nairobi, Kenya.

SETAC Special Science Symposium on “Extrapolation of Effects Across Biological Levels: Challenges to Implement Scientific Approaches in Regulation” 23–24 October 2018, Brussels, Belgium. Chair of the organising committee.

CARES (Chemicals: Assessment of Risks to Ecosystem Services) II workshop. 12 October 2018 Brussels, Belgium. Member of the steering committee.

StressNet – Scientific workshop for the advancement of multiple stressor models and databases. 13-15 September 2018, Landau, Germany.

Workshop on Terrestrial Environmental Risk Assessment of Plant Protection Products: Non-target Arthropods (NTAs) and Soil Invertebrates. 12 – 14 February 2018, Barcelona, Spain. Workshop rapporteur.

Multiple Stressor Workshop 2 (MSW2): Making Aquatic Ecosystems Great Again (MAEGA)! 18 – 21 September 2017, Wageningen, The Netherlands. Member of the steering committee.

FAO Working group on ground- and surface water risk assessment. 8 – 10 December 2015, Rome, Italy.

CARES (Chemicals: Assessment of Risks to Ecosystem Services) workshops. 15 – 16 July 2015, 3 – 4 May 2016, 24 – 15 November 2016 Brussels, Belgium. Member of the steering committee.

SETAC Global Horizon Scanning workshop. 6-7 May 2015, Barcelona, Spain. Member of the steering committee.

Ecotoxicology for B-EF research: designing novel multi-trophic B-EF experiments (sEcoToxDiv) sDiv Workshop 2.11. 15 – 18 December 2014, Leipzig, Germany. Member of the steering committee.

New diagnostics for multiply-stressed marine and freshwater ecosystems: integrating models, ecoinformatics and Big Data. 10 – 12 September 2014, Sydney, Australia. Member of the steering committee.

FAO Working group on pesticide registration by analogy. 26 – 28 March 2014, Rome, Italy.

IUPAC workshop on Nanopesticides. 17 – 18 May 2013, York, UK.

EU Workshop on how to use ecological effect models to link ecotoxicological tests to protection goals (second MODELINK workshop). 22 – 25 April 2013, Monschau, Germany.

EcoFINDERS traits workshop. 17 – 18 February 2013, Flörsheim, Germany.

EU Workshop on how to use ecological effect models to link ecotoxicological tests to protection goals (first MODELINK workshop). 22 - 25 October 2012, Le Croisic, France.

Latin American Aquatic Risk Assessment of Pesticides (LATARAP). 10 – 13 October 2012, Buenos Aires, Argentina. Member of the steering committee.

Environmental Contaminants and Long-Term Change in Tropical Forests. 24 – 26 February 2012, La Selva Biological Station, Costa Rica.

Influence of global climate change on the scientific foundation and application of environmental toxicology and chemistry. 16 – 21 July 2011, Racine, USA.

Pesticides, rice and wetlands. Ramsar Convention. 3 - 4 March 2011, Singapore.

Environmental assessment of down-the-drain chemicals in China. Unilever. 14 – 15 December 2010, Shanghai, China.

Future Impacts of Agricultural Contaminants on Ecosystem Services in South Asia. 22 – 25 November 2010, TERI, New Delhi, India.

TERA workshop: Trait-based Ecological Risk Assessment (TERA): Realising the potential of ecoinformatics approaches in ecotoxicology. 7 – 11 September 2009, Burlington, Ontario, Canada. Member of the steering committee.

PERAS workshop: Semi-field Methods for the Environmental Risk Assessment of Pesticides in Soil. 8 – 10 October 2007, Coimbra, Portugal. Workshop rapporteur.

2<sup>nd</sup> ELINK-Workshop Linking Aquatic Exposure and Effects in the Registration Procedure of Plant Protection Products. 19 – 21 September 2007. Wageningen, The Netherlands.

LEMTOX workshop: Ecological models in support of regulatory risk assessments of pesticides: Developing a strategy for the future. 9 – 12 September 2007, Leipzig, Germany. Member of the steering committee.

AMPERE workshop: Aquatic Mesocosms in Pesticide Registration in Europe: Recent Experiences. 24 – 25 April 2007, Leipzig, Germany.

1<sup>st</sup> ELINK-Workshop Linking Aquatic Exposure and Effects in the Registration Procedure of Plant Protection Products. 14– 16 March 2007. Bari, Italy.

Integrated analysis of the health, ecological and economic impacts of current pesticide use and management in the Red River Delta of Vietnam. WOTRO Workshop. 19 and 20 December 2005. Hanoi, Vietnam. Member of the steering committee.

New Improvements in the Aquatic Ecological Risk Assessment of Fungicidal Pesticides and Biocides. SETAC - ESF LESC Exploratory Workshop. 6 – 9 November 2005. Wageningen, The Netherlands. Member of the steering committee.

Towards a European framework for probabilistic assessment of the ecological risks of plant protection products. First end-user workshop of the EUFRAM project. 7 – 10 March 2005. Brussels, Belgium.

### **Models**

ERA-AQUA ([www.era-aqua.wur.nl](http://www.era-aqua.wur.nl)) is a decision support system that is developed to estimate risks of veterinary medicinal products applied in pond aquaculture for the targeted produce, surrounding aquatic ecosystems, consumers and trade. The ERA-AQUA can be used to perform risk assessments in a wide range of aquaculture scenarios based on information on environmental characteristics, aquaculture management practices and physico-chemical and toxicological properties of the compound under study.

PERPEST ([www.perpest.wur.nl](http://www.perpest.wur.nl)) is an information model designed to Predict the Ecological Risks of PESTicides. The underlying concept of this is Case-Based Reasoning. In the model, the Case-Base comprises results from microcosm and mesocosm experiments. Previous experiences (results of field experiments) have been stored in the memory and used to predict direct effects in new situations or with other compounds. The model output shows the direct effects of eight groups of endpoints simultaneously.

PRIMET ([www.primet.wur.nl](http://www.primet.wur.nl)) is a decision support system for assessing Pesticide Risks in the tropics to Man, Environment and Trade that is based on risk assessment procedures used in the European Union. The DSS is able to estimate the risks of pesticide application to 1) aquatic life, 2) terrestrial life, 3) the use of groundwater as drinking water and 4) dietary exposure via the consumption of groundwater, vegetables, fish and macrophytes. The risks are assessed at the household level, i.e. actual pesticide application data on a farmer's level

is needed as input parameters. The risk assessment is expressed in Exposure Toxicity Ratio's which are calculated by dividing the exposure by the safe concentration.

MASTEP ([www.mastep.wur.nl](http://www.mastep.wur.nl)) is a Metapopulation model for Assessing Spatial and Temporal Effects of Pesticides and describes the decline and subsequent recovery of invertebrate populations after a periodic exposure to pesticides. The modelled landscape for MASTEP is represented as a lattice of connected cells, which have a dimension of 1 by 1 metre. The MASTEP model is an Individual Based Model (IBM) that includes processes of natural mortality, pesticide induced mortality, reproduction and movement between cells. It takes into account density dependence in population regulation and, in case of the stream scenario, medium-distance transport of invertebrates due to water flow. The model is currently parameterised for aquatic populations of *Asellus aquaticus*, *Gammarus pulex*, *Chironomus* sp. and univoltine and multivoltine mayflies, but more species will be added.

### **Key Publications**

- Van den Brink, P.J. (2008). Ecological risk assessment: from book-keeping to chemical stress ecology. *Environ. Sci. Technol.* 42: 8999 – 9004.
- Van den Brink, P.J., S.A. Bracewell, A. Bush, A. Chariton, C.B. Choung, Z.G. Compson, K.A. Dafforn, K. Korbelt, M. Mayer-Pinto, W.A. Monk, A. L. O'Brien, N.K. Rideout, R.B. Schäfer, K.A. Sumon, R.C.M. Verdonschot and D.J. Baird (2019). Towards a general framework for the assessment of interactive effects of multiple stressors on aquatic ecosystems: Results from the Making Aquatic Ecosystems Great Again (MAEGA) workshop. *Science of the Total Environment.* 684: 722-726.
- Van den Brink, P.J., A.B.A. Boxall, L. Maltby, B.W. Brooks, M.A. Rudd, T. Backhaus, D. Spurgeon, V. Verougstraete, C. Ajao, G.T. Ankley, S.E. Apitz, K. Arnold, T. Brodin, M. Cañedo-Argüelles, J. Chapman, J. Corrales, M-A. Coutellec, T.F. Fernandes, J. Fick, A.T. Ford, G. Giménez Papiol, K.J. Groh, T.H. Hutchinson, H. Kruger, J.V.K. Kukkonen, S. Loutseti, S. Marshall, D. Muir, M.E. Ortiz-Santaliestra, K.B. Paul, A. Rico, I. Rodea-Palomares, J. Römbke, T. Rydberg, H. Segner, M. Smit, C.A.M. van Gestel, M. Vighi, I. Werner, E.I. Zimmer and J. van Wensem (2018). Towards sustainable environmental quality: priority research questions for Europe. *Environ. Toxicol. Chem.* 37: 2281-2295
- Van den Brink, P.J. and C.J.F. Ter Braak (1999). Principal Response Curves: analysis of time-dependent multivariate responses of a biological community to stress. *Environ. Toxicol. Chem.* 18: 138-148. Won the SETAC best publication award on environmental research for the year 2000.
- Schuijt, L.M., F-J. Peng, S.J.P. van den Berg, M.M.L. Dingemans and P.J. Van den Brink (2021). Ecotoxicological tests for assessing impacts of chemical stress to aquatic ecosystems: facts, challenges, and future. *Science of the Total Environment.* 795: 148776.

## **Publications (extended list)**

### **PhD Thesis**

Van den Brink, P.J. (1999). Ecological and statistical evaluation of effects of pesticides in freshwater model ecosystems. PhD Thesis Wageningen University, Wageningen, The Netherlands.

### **Peer reviewed papers**

- 280 Huang, A., P.J. Van den Brink, N.W. Van den Brink and J. Baas (Submitted). A dynamic energy budget (DEB) model to assess the sublethal effects of imidacloprid toward *Gammarus pulex* at different temperatures.
- 279 Schuijt, L.M., C.K.E. van Drimmelen, L.L. Buijse, J. van Smeden, D. Wu, M-C. Boerwinkel, D.J.M. Belgers, A.M. Matser, I. Roessink, K.K. Beentjes, K.B. Trimbos, H. Smidt and P.J. Van den Brink (Submitted). Assessing ecological responses to antibiotic exposure in freshwater mesocosms.
- 278 Schuijt, L.M., J. van Smeden, C.K.E. van Drimmelen, L.L. Buijse, D. Wu, M-C. Boerwinkel, D.J.M. Belgers, A.M. Matser, I. Roessink, I. Heikamp-de Jong, K.K. Beentjes, K.B. Trimbos, H. Smidt and P.J. Van den Brink (Submitted). Effects of antidepressant exposure on aquatic communities assessed by a combination of morphological identification, functional measurements, environmental DNA metabarcoding and bioassays.
- 277 Mentzel, S., R. Nathan, P. Noyes, S.J. Moe, K. Brix, J. Rohr, J. Verheyen, P.J. Van den Brink and J. Stauber (Submitted). Evaluating the effects of climate change and chemical, physical and biological stressors on nearshore coral reefs: A case study in the Great Barrier Reef, Australia.
- 276 Mangold-Döring, A., J. Baas, A. Focks, P.J. Van den Brink and E. Van Nes (Submitted). A toxicokinetic-toxicodynamic model to assess effects of temperatures.
- 275 Hermann, M., F. Polazzo, L. Cherta, M. Crettaz-Minaglia, A. García-Astillero, E.T.H.M. Peeters, A. Rico, and P.J. Van den Brink (Submitted). Combined stress of an insecticide and heatwaves or elevated temperature induce community and food web effects in a Mediterranean freshwater ecosystem.
- 274 Mentzel, S., C. Martínez-Megías, M. Grung, A. Rico, K.E. Tollefsen, P.J. Van den Brink and S. J. Moe (Accepted). Using a Bayesian network model to predict effects of pesticides on aquatic community endpoints in a rice field – A southern European case study. *Environmental Toxicology and Chemistry*
- 273 Cabecinha, E., M.Â. Pardal, J.A. Cabral, S.M. Monteiro, R. Cortes, M.J. Saveedra, S. Varandas and P.J. Van den Brink (Accepted). Assessing the ecological potential of reservoirs: a principal response curve (PRC) analysis approach. *Hydrobiologia*
- 272 Zhao, Q., P.J. Van den Brink, C. Xu, S. Wang, A.T. Clack, C. Karakoç, G. Sugihara, C.E. Widdicombe, A. Atkinson, S. Matsuzaki, R. Shinohara, S. He, Y.X.G. Wang and F. De Laender (2023). Relationships of temperature and biodiversity with stability of natural aquatic food webs. *Nature Communications* 14: 3507.
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- 270 Schuijt, L.M., O. Olusoji, A. Dubey, P. Rodríguez-Sánchez, R. Osman, P.J. Van den Brink and S.J.P. van den Berg (2023). Effects of the antidepressant fluoxetine on the swimming behaviour of the amphipod *Gammarus pulex*: comparison of short-term and long-term toxicity in the laboratory and the semi-field. *Science of the Total Environment*. 872: 162173.
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