



REVIEW

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# 16th SETAC GLB (Society of Environmental Toxicology and Chemistry German Language Branch) Annual meeting held under the main theme “EcoTOXICOlogy and Environmental CHEMISTRY: crossing borders” from 18th to 20th September 2011 at Landau

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## Abstract

This report provides a brief review of the 16<sup>th</sup> annual meeting of the German Language Branch of the Society of Environmental Toxicology and Chemistry (SETAC GLB) held from September 18th to 20th 2011 at the University Koblenz-Landau at Campus Landau. The event was organized by Carsten Brühl and Ralf B. Schäfer and many members and students of the Institute for Environmental Sciences under the main theme “EcoTOXICOlogy and Environmental CHEMISTRY: Crossing borders”. Almost 300 participants enjoyed the scientific program that included 54 oral and 70 poster presentations under seven session themes. In addition, four invited keynote speakers and a plenary discussion on biodiversity with representatives from government, academia and industry provided new insights. The best oral and poster presentations of the meeting were awarded together with the annual young scientist award of SETAC GLB for the best diploma and doctoral thesis. The proceedings of the meeting (mostly in German) including the program and all abstracts is freely available as Supplemental Material.

## Zusammenfassung

Dieser Bericht gibt einen kurzen Rückblick auf die 16. Jahrestagung der Deutschsprachigen Abteilung der Society of Environmental Toxicology and Chemistry (SETAC GLB) vom 18. bis 20. September 2011 an der Universität Koblenz-Landau am Campus Landau.

Die Tagung wurde hauptverantwortlich durch Carsten Brühl und Ralf B. Schäfer mit Unterstützung von zahlreichen Mitarbeitern und Studierenden des Instituts für Umweltwissenschaften unter dem Hauptthema “: Grenzen überwinden Ökotoxikologie und Umweltchemie” organisiert.

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Fast 300 Teilnehmer genossen das wissenschaftliche Programm das 54 Vorträge und 70 Posterbeiträge in sieben Sessions beinhaltete. Darüber hinaus lieferten vier eingeladenen Hauptredner und eine Podiumsdiskussion zur Biodiversität mit Vertretern aus Behörden, Wissenschaft und Industrie neue Erkenntnisse. Die besten Vorträge und Posterbeiträge der Tagung wurden zusammen mit dem jährlichen Young Scientist Award der SETAC GLB für die beste Diplom- und Doktorarbeit ausgezeichnet. Das Tagungsprogramm mit den Kurzzusammenfassungen ist als ergänzendes Material frei verfügbar.

## Review

The 16<sup>th</sup> annual meeting of the German Language Branch of the Society of Environmental Toxicology and Chemistry (SETAC GLB) was held from 18th to 20th of September 2011 at the University Koblenz-Landau at the Campus Landau. The reader of the meeting (mostly in German) including the program and all abstracts is freely available as Additional file 1 of this article. The event was organized by Carsten Brühl and Ralf B. Schäfer and many helpers of the Institute for Environmental Sciences (<http://www.uni-koblenz-landau.de/landau/fb7/umweltwissenschaften>) under the main theme “EcoTOXICOlogy and Environmental CHEMISTRY: Crossing borders”.

The annual meeting coincided with the celebration of the 10<sup>th</sup> anniversary of the Institute for Environmental Sciences. Starting with only one professor and two academic staff positions the institute has developed very successfully and now encompasses ten full professors and more than 90 scientific and technical staff members. Moreover, the ecotoxicological orientation of the institute is indicated by the English taught master course in Ecotoxicology targeting an international audience ([www.master-ecotoxicology.de](http://www.master-ecotoxicology.de)). After 2006 this was the second time that the SETAC GLB conference was held in Landau and the remarkable development of the Institute could be witnessed by many recurring participants. The meeting program started with excursions to the ecotoxicological laboratories of BASF organised by Peter Dohmen and a guided tour by Peter Keller to the nature conservation project “Wässerwiesen” in the vicinity of Landau

After welcoming words of the host of the institute Andreas Lorke the meeting was officially opened by the president of the SETAC GLB Eric Bruns and the organisers. The keynote speech was given by Klaus Töpfer, the former Executive Director of the United Nations Environmental Program (UNEP) and former Minister of the Environment of Germany. Klaus Töpfer described the developments in the management of chemicals in the last decades. The audience gained deeper insights into the political debates and negotiations surrounding the Stockholm Convention on persistent organic pollutants as well as the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity, both originating from the Earth Summit in

Rio de Janeiro 1992. The talk highlighted the need for a soil convention as this compartment would be largely neglected. Furthermore, Klaus Töpfer was pessimistic about progress in climate change negotiations due to the current political discourse focusing primarily on the mediation of the on-going economic crisis.

At the following Get Together the participants enjoyed homemade local foods and the finest wines from the region sourced from the Best of Riesling competition donated by Agrosience RLP GmbH. During the evening Alexandra Lehmler and her quartet produced relaxed jazz and created a joyful atmosphere. Additionally, the entertaining program of the 10<sup>th</sup> anniversary celebration of the Institute for Environmental Sciences could be enjoyed, including the improvisation theatre Subito.

The social program continued on Monday with a meeting banquet in the nocturnal zoological garden of Landau that is situated in close proximity to the university, surrounded by gnus and wallabies. Some participants also enjoyed a personal tour through the zoo led by the director Jens-Ove Heckel. The dinner was musically accompanied by the band Happy Three with their great organ sounds and ended with spectacular fireworks from the Landau Autumn Fair. For those that felt the night is still young the party continued with dancing into the morning hours in the Club Logo.

The scientific program was at least equally exciting as the social program and featured seven sessions that ranged from classical to new topics: Terrestrial Ecotoxicology, Nanomaterials in the Environment, Aquatic Ecotoxicology, Soils, Sediments and Exposure Scenarios, Risk Assessment and Management of Chemicals, Factors influencing agricultural Biodiversity and Bioaccumulation and Metabolism. In the following we provide a brief summary of all sessions.

### Session 1

#### Terrestrial ecotoxicology

On Monday the session program started with Terrestrial Ecotoxicology chaired by Marco Candolfi where the influence of climatic stressors on pesticide effects on soil organisms, herbicide impacts on earthworms and reptiles in risk assessment were presented and discussed. Climatic stress factors, such as soil moisture and temperature, were shown to modify the reaction towards

two insecticides when two Collembola species were tested under laboratory conditions (Karau et al.). The potential effects of climate change, pesticide use and a change in soil moisture content was evaluated in a mesocosm set up (Bandow et al.) and in field-collected samples (Lorenz et al.). Soil property preferences for standard soil test organisms were studied to potentially optimize existing test systems (Märker et al.). Körner derived data from the literature to compare the risk assessment for birds and reptiles, which so far is not required. He concluded that for a specific compound the risk of reptiles was covered by the procedure in place for birds. The ecological risk for earthworms in the herbicide management strategies for sugar beet was demonstrated to be low in a detailed modelling approach by Marwitz & Ladewig.

## Session 2

### Nanomaterials in the environment

Due to their large and still increasing industrial, agricultural and medical applications, engineered nanoparticles (ENP) are expected to enter the environment via various pathways. Despite their increasing release, the processes governing ENP aging and functioning in the environment and their effects on organisms are up to now largely unknown. The session Nanomaterials in the Environment was chaired by Gabriele Schaumann and Toni Ratte and consisted of talks regarding the interaction of nanoparticles with surfaces in the environment and with various aspects of ecotoxicity. The presentation of Schauman et al. gave an overview on various modes of interaction between ENP and biological and environmental surfaces of aquatic systems. Sorption of ENPs from stable suspensions depends on intermolecular NP-surface interactions, but aggregation controls deposition and therefore toxicity effects under unstable conditions. Control of ENP stability characteristics in ecotoxicological test systems and approach to natural conditions is recommended. Seitz et al. developed a flow system to overcome the problem of instable suspensions in the test system and showed that no chronic effects of TiO<sub>2</sub> nanoparticles in concentrations between 0.02 to 2.0 mg/L were observed in *Daphnia magna*. Rosenfeldt et al. demonstrated combination effects of TiO<sub>2</sub> nanoparticles on toxicity of heavy metals to *Daphnia magna*. They found both the tendency of enhancement and a significant depression of toxicity, depending on the type of investigated heavy metal. Ciliates were found to react above a NOEC of 30 mg/L on silver nanoparticles (Leps et al.), while toxicity of iron oxide nanoparticles was shown on *Daphnia* (Baumann et al.) and on nematodes (Höss et al.), with an EC of 65–470 µmol Fe/L for nematodes. These two studies demonstrated that interactions with water constituents like phosphate (Höss et al.) as

well as synthesis residues (Baumann et al.) can significantly modify toxicity of the iron oxide nanoparticles.

## Session 3

### Aquatic ecotoxicology

Aquatic Ecotoxicology was the largest session running continuously from Monday to Tuesday. On Monday morning the session was chaired by Eric Bruns and Lennart Weltje and started with a presentation on the predator-prey relationship between the amphipod *Gammarus fossarum* and larvae of the mayfly *Baetis rhodani* under thiacloprid stress, which impacted the insect much more than the amphipod (Englert et al.). This presentation was followed by a talk about a new test design that allows the assessment of combined effects (direct toxicity together with indirect food quality related effects) of antimicrobial substances on shredders (again *Gammarus fossarum*), using the fungicide tebuconazole as a model stressor (Zubrod et al.). The work of Rybicki et al. used artificial indoor streams to study subsequent pulses of the herbicide terbutryne and the insecticide lambda-cyhalothrin; revealing not only complex patterns, but also considerable variation in test system responses. A study investigating the impact of chemical stress on morphologically identical but genetically different *Gammarus fossarum* lineages (i.e. cryptic species) revealed that difference in sensitivity are most likely explained by lineages (Feckler et al.). Some promising results of the application of the SPEAR (SPECiesAtRisk) concept to oil-contaminated streams in Canada with a focus on macroinvertebrates and PAHs were presented by Gerner & Liess. Wastewater treatment options were studied in the "Strategy Micropoll" project in which various biotests showed that water quality could be improved with the appropriate techniques (Kienle et al.).

The session continued chaired by Marco Vervliet Scheebaum and Silvia Mohr with four presentations focused on the development of new macrophyte test systems and the evaluation of suitable endpoints for use in risk assessment, whereas two further talks investigated the combined effects of several stress factors to *Daphnia* sp. and *Chironomus* sp. under laboratory conditions. Test durations of 14 days in the water sediment test with *Myriophyllum* sp. may not be sufficient for some groups of herbicides to see effects at low concentrations. Depending on the test item Arts et al. proposed an extension of the test duration to 21 days. Dören et al. showed that the leaf dimorphism developed by *Myriophyllum aquaticum*, when using emergent plant parts pre-adapted to submerged conditions or unadapted plants, may lead to changes in sensitivity towards herbicides. The authors evaluated the impact of the phenomenon known as 'super growth event' for an interpretation of results in such tests. Schott et al. presented evidence

suggesting that in the risk assessment of herbicides, an additional macrophyte test with *Myriophyllum* sp. is necessary for auxin-type herbicides, while for acid synthesis inhibitors an additional grass species such as *Glyceria* sp. might be required. The outcome of the sediment free sterile *Myriophyllum spicatum* 14d test using a sucrose based medium was presented by Maletzki et al.. The test system set-up and handling proved to be feasible and showed little intra- and inter-laboratory differences. Scherer et al. investigated the effects of the fungicide pyrimethanil on *Daphnia pulex* by exposing them to contaminated water, to contaminated food and via both routes of exposure (water and food) simultaneously. By additionally varying temperature and predator pressure (via potential kairomone activity) the authors presented the complex matrix of effects observed on the *Daphnia* population in response to all stressors. In a two generation study with *Chironomus riparius* exposed to the insecticide pyriproxyfen, Tassou and Schulz demonstrated that changes in temperature had a negative effect on *C. riparius* but only in the F1 generation. Multi-generation studies are recommended by the authors as a means to deliver additional information for an evaluation of pesticide effects if standard conditions vary.

On Tuesday the session was chaired by Inge Werner and Frauke Stock and continued with molecular and biochemical tools in zebrafish embryos. Special emphasis was given to the question of how biomarkers and gene expression in zebrafish could be used as indicators of chronic pollutant effects. Kais et al. showed that the quantification of EROD (ethoxyresorufin-o-deethylase) activity in embryos can be improved by shortening the exposure duration. EROD activity has been widely used as a measure of Ah (aryl-hydrocarbon) receptor activation and activity of P450 monooxygenases including aromatase in liver tissue. Peddighaus et al. investigated the application of this biomarker in zebrafish embryos exposed to contaminated sediments, and was able to measure an increase in EROD activity with increasing sediment contamination. Gene expression analysis in transgenic fish cell lines using microarrays allowed the detection of endocrine disruption and identification of effect pathways in zebrafish embryos (Fenske et al.). These techniques may allow the selection of promising marker genes, which could be used to measure chronic contaminant effects and identify causative substances based on their mechanisms of action. Vorberg et al. showed that individual chemicals elicited differential gene expression patterns at concentrations that correspond to the lowest observed effect concentration in standard fish early life stage tests. Last but not least, Wigh et al. reported the results of a study on the molecular basis of imposex in the snail species *Nassarius reticulatus*, following exposure to tributyltin. Results

indicate that activation of the androgen receptor rather than the retinoid X receptor is involved in the development of this effect.

#### Session 4

##### Soils, sediments and exposure scenarios

The session soils, sediments and exposure scenarios chaired by Henner Hollert and Dominic Kaiser contained six platform presentations and seven poster presentations, giving a comprehensive overview on recent developments in terms of new methodologies and case studies. Kathrin Eichbaum started with a talk addressing dioxin like effects of sediments from the river Elbe and surrounding wetlands (Eichbaum et al.). The session continued with a presentation on uptake and effects of particle bound polynuclear aromatic hydrocarbons (PAH) of spiked sediment suspensions in rainbow trout (Brinkmann et al.). Subsequently, Christian Staffa talked about volatilization of <sup>14</sup>C marked lindane from soil and plant surfaces in a closed lab system (Staffa et al.). The estimation and regional construction of the dimension of copper concentrations in vineyard soils due to historical use of copper containing plant protection products and the development of a methodology for a model region in Germany was presented by Thomas et al.. After a talk on the dynamic of wetting properties of soils and their importance for environmental processes (Diehl et al.) the last presentation focussed on exposure scenarios for the use of veterinary drugs in aquacultures (Schlechtriem et al.).

#### Session 5

##### Risk assessment and management of chemicals

The session on risk assessment and management of chemicals was chaired by Peter C. von der Ohe. In order to guarantee a safe use for human health and the environment, the registration of chemicals requires stringent risk assessments, which generally consist of separate exposure and hazard assessments. Guidance on the use of existing data and certain scenarios in risk assessments are given in the respective technical guidance documents (TGD), which differ for the various Directives. This hampers an integrated risk assessment of compounds that are submitted under different Directives or for various uses as Habekost et al. showed. For example, it is still unclear how aquatic higher tier studies for active ingredients of PPP (Plant Protection Products) could be used for the registration of biocides, some of which are presumed to have a continuous input, compared to the intermittent release of PPP. In order to reduce this uncertainty, Habekost et al. suggested some aspects on how to use aquatic higher tier studies for the derivation of PNECs (predicted no effect concentration) under Directive 98/8/EC. Another aspect of risk

assessment was addressed by Burkhardt et al. focusing on the cumulative exposure assessment under REACH. Single substances could generally be used by different producers or importers and may also have various uses for the same producer, resulting in higher exposure risks to the environment compared to single risk assessments. According to Burkhardt et al., this fact is only insufficiently addressed in the current guidance documents. Therefore, guidance on how the cumulative risks could be addressed is given by the Federal Environment Agency of German.

Despite their expected safe use, chemicals are frequently found in the environment at levels, which might be harmful for aquatic life. Hence, the European Union has established a list of 33 priority substances, which are considered for the chemical status of streams and rivers. A study of Schäfer et al. on 332 organic chemicals, measured between 1994 and 2004, revealed that especially several pesticides, which are not in the list of priority substances, were responsible for the predicted effects to aquatic biota in the four largest rivers of North Germany. Given that these compounds are currently not considered as priority substances in the European Union Schäfer et al. discussed the relevance of these findings for a sustainable management of river basins. Besides pesticides, other problematic compounds are released into the environment. One example is the personal care product (PCP)-ingredient triclosan, a multi-purpose biocide, which exceeded the suggested environmental threshold at 76% of the sampling sites analysed in the state of Saxony, Germany. Considering the world-wide application of PCPs containing triclosan, von der Ohe et al. suggested its inclusion in routine monitoring programs and the consideration as candidate for prioritization at the European scale.

Another group of compounds that are potentially released via wastewater treatment plants (WWTP) are fragrances. However, up to now, little is known about their chemical identity, the use pattern or their potential toxic effects. Klaschka et al. analysed sixteen of the most used fragrances in wastewater, surface water, biosolids and biota in order to investigate their environmental fate. Only galaxolid (HHCB), OTNE and benzophenon were found in the receiving waters, whereas the other substances were eliminated within the WWTP. Besides, OTNE was also found in the muscle and bile of exposed fish. Therefore, Klaschka et al. raised the question of labelling these compounds in consumer products. With regard to risk reduction measures for point sources, such as WWTP, Stang et al. showed that triclosan and its competitor triclocarban, as well as the fungicides imazalil, thiabendazole and propiconazol were significantly reduced in vegetated compared to non-vegetated mesocosms. Therefore, it was suggested to use vegetated

treatment systems to reduce the risk of organic pollutants to aquatic environments via point and non-point sources.

## Session 6

### Factors influencing agricultural biodiversity

With biodiversity being a recognized legal protection goal under the new EU pesticide guidance the session chaired by Carsten Brühl covered a wide variety of subjects from aquatic to terrestrial off crop communities and positions from industry and the authorities. Effects of insecticides were recorded in the field in various streams and ranged from enhancing drift in macroinvertebrates to the complete absence of specific species (Bereswil et al.). Biodiversity indicators were established from literature surveys for 12 different European regions in conjunction with management indicators and surrogate indicators were proposed with a focus on the relation between direct (species and habitat diversity) indicators and indirect (farm management) parameters (Herzog et al.). Sublethal effects on flowering were recorded in the common buttercup (*Ranunculus acris*) in a plant community study that was exposed to realistic herbicide inputs in field margins (Schmitz & Brühl). Lower flower density is not only expected to reduce the seed production but is also likely to affect the frequency of pollinating insects and therefore the biodiversity in field margins. Various masking effects that hinder the detection of effects on aquatic biodiversity were explained by Matthias Liess. The necessity for food production for a growing global community and its challenges for biodiversity protection were discussed by Richard Schmuck from an industry perspective. Jörn Wogram presented thoughts of the Federal Environment Agency of Germany (UBA) on the subject and outlined strategies on how to achieve this ambitious goal.

### Plenary discussion on biodiversity

This topic was taken up in a plenary discussion during the concluding ceremony on the new protection goal of biodiversity in the pesticide registration process according to the EU Regulation 1107/ 2009. To guarantee a protection of biodiversity and only acceptable impacts of pesticides thereon it is important to understand and define this protection goal. Therefore it is crucial to identify relevant groups of organisms in different habitat types and deduce manageable endpoints for the registration process. These and other aspects were discussed by Jörn Wogram (Fachgruppe Pflanzenschutzmittel, Umweltbundesamt), Matthias Liess (System-Ökotoxikologie, UFZ - Helmholtz-Zentrum für Umweltforschung GmbH), Richard Schmuck (Environmental Safety, Bayer Cropscience) and Tomas Brückmann (Pestizide und Biodiversität, BUND). The discussion was moderated by

Marcus Bloser (IKU – Die Dialoggestalter). There was a general agreement among the participants of the discussion that pesticides have a negative impact on local biodiversity in the agricultural landscape, although the extent of this impact was discussed controversially. Richard Schmuck claimed a positive impact of pesticides on global biodiversity based on a potential land sparing effect of an enhanced productivity. For a comprehensive impact evaluation, it seems especially important to include not only direct lethal effects in risk assessments but also to consider the various indirect effects that pesticides can have on the food web and trophic structure in animal and plant communities in the agricultural landscape. Additionally landscape structure seems to play a significant role and improvement of structural features might be a way to mediate negative impacts of pesticides on local biodiversity.

## Session 7

### Bioaccumulation and metabolism

Bioaccumulation and metabolism was the theme of a session chaired by Christian Schlechtriem and Philipp Egeler. In this session, studies for the further development of guidelines and tests which are used in the regulation of pesticides and chemicals as well as work conducted to elaborate alternative indicators of accumulation for field studies were presented.

A laboratory study at Gießen University (Böhm et al.) examined the influence of different methods of extraction on the determination of concentrations of the substance to be tested in water in the context of bioconcentration tests. The results of the liquid-liquid extraction (LLE) and the solid phase microextraction (SPME) in presence of different organic substances in the water phase were compared. The results will contribute an important input to the current revision of the regulations regarding the procedure of bioconcentration tests with fish (OECD 305). Göritz and co-workers examined the biomagnification of perfluorinated compounds (PFC) in rainbow trout. The study provides important evidence that high concentrations of PFC as often observed in the tissue of fish in field studies can be explained as caused by bioconcentration processes rather than the ingestion of food. Due to the use of high numbers of vertebrate test animals (fish) in bioaccumulation studies, the question for suitable alternative invertebrate organisms was posed. Josefine Gottwald presented results from a study about bioconcentration of octocrylen, an environmentally relevant UV-substance, in benthic invertebrates (Gottwald et al.). The assessment of the accumulation of pesticide residues from fish food in aquaculture products is the topic of a new guideline, which is developed under the direction of the Federal Office of Consumer Protection and Food Safety (Bundesamt für Verbraucherschutz

und Lebensmittelsicherheit). Christian Schlechtriem presented pilot studies regarding the procedure of fish metabolism studies conducted with rainbow trout and carp (Schlechtriem et al.). The results suggested that metabolism studies with fish can provide important indication of the potential consumer's risk of pesticide residues in fish food. The influence of intestinal parasites in fish on the accumulation of metals was the topic of two contributions of the university Duisburg-Essen. Milen Nachev described the potential of fish parasites as accumulation indicators for metals and revealed that the metal concentrations in the parasite (*Pomphorhynchus laevis*) reflected the concentrations in the environment (Nachev et al.). The impact of intestinal parasites on the intake of platinum (Pt) by the European chub was examined by Nadine Ruchter. Her study showed that European chub infected with the parasite *Pomphorhynchus tereticollis* had significantly lower Pt-concentrations in intestine and liver tissue than not infected chub (Ruchter et al.).

### Keynote lectures

During the meeting three further keynote lectures were given on selected timely topics in ecotoxicology and environmental chemistry. Martin Elsner (Institute of Groundwater Ecology at the Helmholtz Centre in Munich) started with a plenary lecture on current challenges in isotope studies of environmental contaminants. He showed how multi-element isotope analysis and investigations can be used for the determination of micropollutants as well as studies on the transformation and degradation of pollutants. The talk emphasised that such insights cannot be gained from single isotope studies and displayed recent advances for application to pesticides, which have been rarely analysed in isotope monitoring studies.

The second plenary lecture on a conceptual framework integrating ecology and ecotoxicology was given by Dr Mark Gessner from the Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB) and the Berlin Institute of Technology (TU Berlin). Mark Gessner highlighted the widespread importance of chemicals for the state of ecosystems but stressed that ecotoxicology has to mature to gain field-relevance. Here, ecological concepts could aid in making ecotoxicological predictions for natural ecosystems. In detail, Mark Gessner mentioned indirect effects of chemicals from inter- and intraspecific interactions, also across multiple trophic levels in food webs and the relationship between toxicants and ecosystem functioning as central topics in need of further consideration in ecotoxicological research.

The third lecture was given by Martin Entling from the Institute for Environmental Sciences of the University Koblenz-Landau. In this keynote lecture, Martin Entling

outlined the interactions between agriculture and biodiversity. While agriculture relies on ecosystem functions such as pollination and pest control, the industrialisation and land use change endanger the provisioning of such services by the reduction of the related species. Fertilization, agricultural toxicants and habitat destruction have all lead to a decrease in agricultural biodiversity and are influencing the biodiversity in other landscapes as well. Martin Entling suggested that these factors should be considered when targeting to preserve biodiversity and ecosystem services in agriculturally dominated landscapes.

### Scientific awards

During the meeting the SETAC GLB young scientist awards was awarded. The best Ph.D. thesis was awarded to

Wibke Busch (UFZ – Helmholtz Centre for Environmental Research/ University Halle-Wittenberg) for her work on the *in vitro* toxicity of technical nanoparticles in vertebrate cells. Nadia Moos (University Basel/Alfred-Wegener Institute Bremerhaven) and Michael Maier (University Bayreuth) were awarded for their diploma theses on the histopathological and cytochemical analysis of ingested polyethylene powder in the digestive gland of the blue mussel, *Mytilus edulis* (L.) and the evaluation of degradation kinetics and identification of transformation products of pharmaceuticals using a sediment water test system, respectively.

To promote early career scientists and students, best poster and platform presentation awards were presented based on the evaluation of three randomly drawn reviewers from senior scientists. The best poster award of the SETAC meeting went to

Isabelle Zunker (Institute for Environmental Chemistry, University Lüneburg) for her work on the impact of fungicides on ectomycorrhiza and Lena Reiber (University Potsdam) who presented results on the influence of attachment to particles of PBT (persistent-bioaccumulative-toxic) compounds on abiotic degradation processes. Also awarded was Martin Geisthardt (Institute for Environmental Science, University Koblenz-Landau) for his poster on effects of different herbicides on host plant quality for phytophagous insects.

The best platform presentation was awarded to:

Juliane Schmitz (Institute for Environmental Science, University Koblenz-Landau). She presented some results of her Ph.D. research in a talk on effects of herbicide input in field margins on the common buttercup *Ranunculus acris*.

Renja Bereswill (Institute for Environmental Science, University Koblenz-Landau) was awarded for her presentation on effects of pesticide input on the communities in small streams in agricultural areas and Markus Brinkmann (Institute for Environmental Research, RWTH Aachen) on his talk on the uptake from sediment suspensions and effects of particle-bound polycyclic aromatic hydrocarbons

(PAHs) in rainbow trout. Finally Britta Kais (Aquatic Ecology and Toxicology, University Heidelberg) received an award for the presentation of her study on ethoxyresorufin-O-deethylase (EROD) as an early warning biomarker in the embryo of the zebrafish *Danio rerio*.

The organisers of the meeting aimed for a climate neutral meeting and therefore the carbon footprint of the event was calculated using the CO<sub>2</sub>EVENT-calculator of the GCB German Convention Bureau. Based on the participants, estimated distances travelled and typical CO<sub>2</sub> emission during large events (building, catering, etc.) a total of 23.4 t of CO<sub>2</sub> were emitted and had to be compensated for. A calculated amount of 585 € was therefore given to the Katala foundation in the Philippines, where it is used in a reforestation and conservation project in Palawan that is running in joint cooperation with the Zoo Landau and city of Landau ([www.philippinecockatoo.org](http://www.philippinecockatoo.org)). Additionally local foods that were also in some cases connected to local conservation organisations (e.g. pear juice from local mixed traditional orchards) were selected.

The organisers were very happy with the positive response of the participants who enjoyed the exhaustive scientific and social program. A meeting is only as good as its contributions and therefore it is a pleasure to thank all contributors that prepared oral and poster presentations which is always a challenging additional task in the daily work load.

### Additional file

**Additional file 1: Proceedings of the meeting, Tagungsband.**

### Competing interests

The authors declare that they have no competing interests.

### Authors' contribution

RBS and CB developed the concept of this article. RS, FM, PS, EB, MC, PE, HH, DK, SM, TR, GES, CS, FS, MVS, PvdO, LW, IW contributed equally to the content of the article and gave their final approval. All authors read and approved the final manuscript.

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To organise, manage and finally host an event such as this meeting requires the contribution of many people. This meeting was a true team effort, however we would like to emphasise the contribution of a few people. Jone Kammerer and Melanie Hahn were always present in the meeting office and helped with the registration process and book keeping. Therese Bürgi organised the infrastructure for the social events and Iris Brandenburger prepared the delicious food together with many students. Katahrina Peters managed the evening dinner at the Zoo Landau where we also would like to thank Jens-Ove Heckel for the great hospitality and support of his staff. Tobias Reich was in charge of the technical equipment and together with his team made sure that all presentations ran smoothly and that the time lines were kept. Thanks are also due to the sponsors of this event, namely Syngenta, Ibacon, Knoell Group, SCC, RLP Agrosience, Umweltbundesamt, Ökotoxzentrum, symrise, Bayer Cropscience, BASF and the University of Koblenz-Landau for their support. Finally we want to thank all the scientific staff and students at Landau who helped in many different ways from serving wine to decorating rooms or putting up posters, namely Koffi Tassou, Anne Schrimpf, Christoph Stang, Andre Dabrunz, Juliane Schmitz, Sebastian Stele, Matthias Hundt, Martin Geisthardt, Annalena Schotthöfer,

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