ERIK SPERFELD

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EDUCATION AND SCIENTIFIC CAREER

10/2001 – 01/2007	Diplom in Biology, University of Potsdam, Germany
02/2007 – 06/2011	Ph.D. in Ecology (magna cum laude), University of Potsdam, Germany
07/2011 – 01/2012	Research Associate, University of Potsdam, Germany
05/2012 – 08/2013	Postdoc position, Institute of Marine Research, Bergen/Norway
09/2013 – 01/2015	Postdoc (DFG fellowship), University of Sydney, Australia
02/2015 – 05/2015	Research Associate, University of Potsdam, Germany
06/2015 – 06/2016	Postdoc position, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Department of Experimental Limnology, Germany
06/2016 – 04/2018	Researcher position, University of Oslo, Centre for Ecological and Evolutionary Synthesis (CEES), Oslo/Norway
06/2018 – 09/2019	Junior-professor in Limnology, University of Koblenz-Landau, Germany
Since 10/2019	Research Associate, University of Greifswald, Germany

AWARDS

- Potsdam Leibniz-Kolleg special award 2012 *dedicated to a young career scientist in Brandenburg and Berlin for an outstanding achievement in the topic "Ecology and global change"*
- ASLO student poster award 2011 *on the ASLO Aquatic science meeting in San Juan, Puerto Rico for the presentation of results published 2012 in Ecology Letters*
- DGL (German Society of Limnology) junior award 2010 *for an outstanding publication 2009 in the Journal of Experimental Biology: Invitation to plenary lecture on the annual DGL meeting 2010 in Bayreuth, Germany*

TEACHING

- Basics in statistics for undergraduate biology students
- Mathematics for study beginners
- Lectures in theoretical ecology, e.*g. food web structure, resource limitation theory*
- Lectures in aquatic ecology or marine biology, e.*g. Arctic Ocean food web, ocean acidification*
- Introductory courses, *'How to give a good academic talk', structural equation modelling*
- Supervision of laboratory & field courses, *e.g. ecophysiology, plankton ecology, animal ecology*
- Lecture Limnoecology
- Lecture Synecology and ecosystem theory

PEER REVIEWED PUBLICATIONS

Minguez L.*, **Sperfeld E.***, Berger S.A., Nejstgaard J.C., Gessner M.O. (2019) Changes in food characteristics reveal indirect effects of lake browning on zooplankton performance. *Limnology and Oceanography*, accepted. ***shared first authorship***

Opstad I., Mangor-Jensen A., **Sperfeld E.**, Semb Johansen I., Fransson A., Chierici M., Dalpadado P. (2018) Effects of high pCO_2 on the northern krill *Thysanoessa inermis* in relation to carbonate chemistry of its collection area, Rijpfjorden. *Marine Biology*, 165:116.

Halvorson H.M., **Sperfeld E.**, Evans-White M.A. (2017) Quantity and quality limit detritivore growth: mechanisms revealed by ecological stoichiometry and co-limitation theory, *Ecology*, 98: 2995–3002.

Sperfeld E., Mangor-Jensen A., Dalpadado P. (2017) Effects of increasing pCO_2 on life history traits and feeding of the littoral mysid *Praunus flexuosus*. *Marine Biology*, 164: 173.

Santonja M., Minguez L., Gessner M.O., **Sperfeld E.** (2017) Predator-prey interactions in a changing world: humic stress disrupts predator threat evasion in copepods. *Oecologia*, 183:887–898.

Sperfeld E., Wagner N.D., Halvorson H.M., Malishev M., Raubenheimer D. (2017) Bridging Ecological Stoichiometry and Nutritional Geometry with homeostasis concepts and integrative models of organism nutrition. *Functional Ecology*, 31: 286–296.

Kalinkat G., Cabral J.S., Darwall W., Ficetola G.F., Fisher J.L., Giling D.P., Gosselin M.-P., Grossart H.-P., Jähnig S.C., Jeschke J.M., Knopf K., Larsen S., Onandia G., Pätzig M., Saul W.-C., Singer G., **Sperfeld E.**, Jaric, I. (2017) Flagship umbrella species needed for the conservation of overlooked aquatic biodiversity. *Conservation Biology*, 31: 481–485.

Sperfeld E., Halvorson H.M., Malishev M., Clissold F.J., Wagner N.D. (2016) Woodstoich III: Integrating tools of nutritional geometry and ecological stoichiometry to advance nutrient budgeting and the prediction of consumer-driven nutrient recycling. *Oikos*, 125: 1539–1553.

Dalpadado P., Hop H., Rønning J., Pavlov, V., **Sperfeld E.**, Buchholz F., Rey A., Wold A. (2016) Distribution and abundance of euphausiids and pelagic amphipods in Kongsfjorden, Isfjorden and Rijpfjorden (Svalbard) and changes in their relative importance as key prey in a warming marine ecosystem. *Polar Biology*, 39: 1765–1784.

Sperfeld E., Raubenheimer D., Wacker A. (2016) Bridging factorial and gradient concepts of resource co-limitation: towards a general framework applied to consumers. *Ecology Letters*, 19: 201–215.

Sperfeld E. and Wacker A. (2015) Maternal diet of *Daphnia magna* affects offspring growth responses to supplementation with particular polyunsaturated fatty acids. *Hydrobiologia*, 755: 267–282.

Sperfeld E., Mangor-Jensen A., Dalpadado P. (2014) Effect of increasing seawater pCO_2 on the northern Atlantic krill species *Nyctiphanes couchii*. *Marine Biology*, 161: 2359–2370.

Dalpadado P., Arrigo K.R., Hjøllo S.S., Rey F., Ingvaldsen R.B., **Sperfeld E.**, van Dijken G.L., Stige L.C., Olsen A., Ottersen G. (2014) Productivity in the Barents Sea - response to recent climate variability. *PLoS ONE*, 9(5): e95273.

Sperfeld E., Martin-Creuzburg D., Wacker A. (2012) Multiple resource limitation theory applied to herbivorous consumers: Liebig's minimum rule vs. interactive co-limitation. *Ecology Letters*, 15: 142–150. [Faculty 1000 recommended]

Sperfeld E. and Wacker A. (2012) Temperature affects the limitation of *Daphnia magna* by eicosapentaenoic acid, and the fatty acid composition of body tissue and eggs. *Freshwater Biology*, 57: 497–508.

Lukas M., **Sperfeld E.**, Wacker A. (2011) Growth Rate Hypothesis does not apply across colimiting conditions: cholesterol limitation affects phosphorus homoeostasis of an aquatic herbivore. *Functional Ecology*, 25: 1206–1214.

Sperfeld E. and Wacker A. (2011) Temperature and cholesterol induced changes in eicosapentaenoic acid limitation of *Daphnia magna* determined by a promising method to estimate growth saturation thresholds. *Limnology and Oceanography*, 56: 1273–1284.

Sperfeld E., Schmidtke A., Gaedke U., Weithoff G. (2010) Productivity, herbivory and species' traits and identity rather than diversity influence the invasibility of phytoplankton communities. *Oecologia*, 163: 997–1010.

Sperfeld E. and Wacker A. (2009) Effects of temperature and dietary sterol availability on growth and cholesterol allocation of the aquatic keystone species *Daphnia*. *Journal of Experimental Biology*, 212: 3051–3059.

Martin-Creuzburg D., **Sperfeld E.**, Wacker A. (2009) Colimitation of a freshwater herbivore by sterols and polyunsaturated fatty acids. *Proceedings of the Royal Society of London – Series B: Biological Sciences*, 276: 1805–1814.

Berghahn R., Mohr S., Feibicke M., Meinecke S., **Sperfeld E.** (2007) Endpoint 'floating leaves' of *Potamogeton natans*: A new method to evaluate the development of macrophytes in pond mesocosms. *Environmental Science and Pollution Research*, 14: 190–193.

CONFERENCE CONTRIBUTIONS AND INVITED TALKS

DGL meeting – Münster, Germany (2019) Talk: *"Indirect effects of water browning on life history and biochemical composition of Daphnia mediated by changes in food characteristics"*

DGL meeting – Kamp-Lintfort, Germany (2018) Talk: *"Humin- und Nährstoffeffekte auf Meso-zooplankton: ein Großenclosureexperiment im geschichteten nährstoffarmen Stechlinsee"*

3rd Conference of the Norwegian Ecological Society – Oslo, Norway (2017) Talk: *„Bridging frameworks in nutritional ecology: Ecological Stoichiometry and Nutritional Geometry"*

Ecological Colloquia of the Zoological Institute – Cologne, Germany (2015) invited talk: *„Theoretical and empirical aspects of consumer co-limitation"*

ASLO Aquatic Science Meeting – Granada, Spain (2015) Talk: *„Nutritional ecology: Scaling animals to ecosystems using Nutritional Geometry and Ecological Stoichiometry"*

Arctic Ocean Acidification international conference – Bergen, Norway (2013) Talk: *„How will ocean acidification affect northern krill? - Experimental investigations"*

ASLO Aquatic Science Meeting – Otsu, Lake Biwa, Japan (2012) Talk: *„Difference in maternal diet of Daphnia magna females affects food quality dependent fitness responses of its offspring"*

DGL meeting – Freising, Germany (2011) Talk: *"Eicosapentaensäure (EPA)-Limitierung von Daphnia magna: Einfluss von Temperatur und Cholesterol"*

GfÖ meeting – Oldenburg, Germany (2011) Talk: *"Multiple resource limitation theory applied to herbivores: Liebig's minimum rule?"*

ASLO Aquatic Science Meeting – San Juan, Puerto Rico (2011) Poster: *„Simultaneous limitation of Daphnia by two essential lipids: Different types of co-limitation"*

DGL meeting – Bayreuth, Germany (2010) DGL junior award Plenary Talk: *"Effekte von Temperatur und Ernährung auf das Wachstum und die Cholesterolallokation bei Daphnien"* AND Talk: *"Der Einfluss von Temperatur und in der Nahrung verfügbarer Eicosapentaensäure (EPA) auf Fitness-parameter und den EPA-Gehalt von Daphnia magna"*

SIL meeting – Cape Town, South Africa (2010) Talk: *"Effects of temperature and dietary eicosapentaenoic acid (EPA) availability on fitness parameters and EPA allocation of Daphnia"*

ASLO Aquatic Science Meeting – Nice, France (2009) Poster: *„Temperature dependent influence of dietary cholesterol content on growth, reproduction, and cholesterol content of Daphnia magna"*

DGL-Tagung – Constance, Germany (2008) Talk: *"Der Einfluss von in der Nahrung verfügbarem Cholesterol auf das Wachstum und den Cholesterolgehalt von Daphnia magna bei unterschiedlichen Temperaturen"*

GfÖ meeting – Marburg, Germany (2007) Talk: *"The influence of productivity and diversity on the invasibility of a phytoplankton community"*

ESA annual meeting – San Jose, USA (2007) Talk: *"The influence of productivity and diversity on the invasibility of a phytoplankton community"*

GRANTS AND FELLOWSHIPS

- Scholarship for early carrier scientists, University of Potsdam
- Conference travel grant, German Academic Exchange Service
- ASLO Early Career Travel Grant
- Postdoctoral Research Fellowship, German Research Foundation
- ASLO Early Career Travel Grant
- Fellowship grant, German Research Foundation
- IGB fellowship, Institute of Freshwater Ecology and Inland Fisheries

PROFESSIONAL ACTIVITIES

- Internship in the German Federal Environment Agency - Artificial stream & pond system, Berlin
  Preparation of mesocosm experiments, makrozoobenthos determination
- Field work at the Leibniz-Institute of Freshwater Ecology & Inland Fisheries, Berlin, Germany
  Sampling and sorting of makrozoobenthos in lakes of north-east Germany
- Special training in data analysis and modelling in aquatic ecology
  University of Potsdam, Supervisor: Prof. Ursula Gaedke
- Participation in a graduate initiative for PhD students, University of Potsdam
  Graduate Initiative on Ecological Modelling (UPGradE)
- Participation in the graduate course 'Marine evolution under Climate Change'
  November 2012, University of Gothenburg, Sweden, Course coordinator: Dr. Sam Dupont
- Co-organization and participation as group leader in the 3rd Woodstoich workshop
  August 2014, Sydney, Australia, co-organizers: Prof. Robert Sterner & Prof. David Raubenheimer
- Participation in a large-scale mesocosm experiment in 2015 at the Leibniz-Institute of Freshwater Ecology & Inland Fisheries, Stechlin, Germany *within the EU-Project: MARS – Managing aquatic ecosystems & water resources under multiple stress*
- Research stay in the group of Prof. Dieter Ebert at the University of Basel, Switzerland
  March-April 2017, Experiment investigating the effects of parasite and predator threat exposure
- Memberships: *Association for the Sciences of Limnology and Oceanography (ASLO), Deutsche Gesellschaft für Limnologie (DGL)*
- Peer reviews for *Ecology Letters, Ecology, Ecological Monographs, American Naturalist, Functional Ecology, Oikos, Oecologia, Limnology and Oceanography, Journal of Plankton Research, Comparative Biochemistry and Physiology, Peerage of Science, NSF grant proposal*

QUALIFICATIONS/SKILLS

- Profound knowledge in statistics, data analysis, and designing of multi-factorial experiments
- Experienced in laboratory work and analytical methods, *e.g. lipid (fatty acid and sterol) analysis using gas chromatography, microscope analyses (automatic image analysis, fluorescence microscopy), chemical analyses (determination of carbon, phosphorus, nitrogen), cultivation of plankton organisms (phytoplankton, rotifers, crustaceans including Daphnia), preparation of food supplements, manipulation of seawater pCO_2, analysis of seawater carbonate chemistry*
- Preparation and planning of mesocosm experiments, field sampling of plankton organisms
- Development and construction of laboratory facilities for culturing zooplankton
- Knowledge in phytoplankton, zooplankton, and macrozoobenthos taxonomy
- Knowledge in modelling & programming, *R (advanced), MATLAB (basic), C++ (basic), HTML (basic)*
- Knowledge in Geographic Information System (GIS) software, *ArcView/ArcGIS 9.3*
- Supervision of bachelor and master students, and co-supervision of Ph.D. students