

Curriculum vitae for Eva Susanne Leu (PhD)

Personal details

- Date of birth: 29th of January 1975 in Munich, Germany
- Affiliation: Akvaplan-niva AS
CIENS, Gaustadalléen 21
0349 Oslo, Norway
- E-mail: eva.leu@akvaplan.niva.no
- Children: two daughters born in 2009 and 2012

Primary research areas

- Phytoplankton and sea ice algal ecophysiology
- Ecological implications of climate-induced changes in plankton and sympagic communities
- Grazing and energy transfer
- Trophic interactions
- Fatty acid composition and lipid biochemistry
- Ecological responses of phytoplankton communities to contaminants

Degrees

- Philosophiae Doctor (PhD), University of Oslo (Norway), 2006
- Diplom-Biologin, University of Freiburg (Germany), 2002

Positions

Since Jan 2014 Senior Scientist at Akvaplan-niva AS, Tromsø/ Oslo, Norway
2012-2013 Scientist at Alfred-Wegener-Institute, Bremerhaven, Germany
2011-2013 Guest researcher at University of Hamburg, Germany
May 2011 Lecturer at The University Centre in Svalbard (UNIS), Longyearbyen, Norway
2010-2011 Postdoctoral researcher at The University Centre in Svalbard (UNIS), Longyearbyen
2007-2010 Postdoctoral researcher at the Norwegian Polar Institute, Tromsø
2006 Research scientist at the Norwegian Polar Institute, Tromsø, Norway

Education

2002-2006 PhD-student at the University of Oslo, Norway
Thesis title: *Effects of a changing Arctic light climate on the nutritional quality of phytoplankton*
1997-2002 Study of Biology at the Universities of Konstanz, Tromsø and Freiburg
MSc (diploma) in Biology, University of Freiburg, Germany
Thesis title: *The effect of allelochemicals from submersed aquatic macrophytes on photosynthesis*

Grant capture

- FAABulous: **Future Arctic Algae Blooms – and their role in the context of climate change**; PI, 16.3 million NOK, Research Council of Norway (RCN), 2015-2020
- PEACE: **Pollution and ecosystem adaptation to changes in the environment**; co-lead, 9 million NOK, RCN, 2015-2019
- CLEOPATRA **Climate effects on planktonic food quality and trophic transfer in Arctic marginal ice zones**; lead writer, member of project managing group, 10 million NOK, RCN (2007-2009)
- Project establishment grant (insentivmidler by Fram Centre) for collaboration on zooplankton chronobiology between Norway, Germany, and UK: 225 000.-NOK, funded in April 2014

- Project establishment grant for planning future collaboration between Norway, Canada and Russia: 440 000.-NOK (Norwegian Research Council), funded in February 2009
- Ecological and Physiological Investigations about the Impact of UV Radiation on the Succession of Benthic Primary Producers on Helgoland and in the Antarctic: 91 000.- EUR; PhD grant for Katharina Zacher¹, funded by the Deutsche Forschungsgemeinschaft in 2002.

Supervision of graduate students and research fellows

2018-2019	Emilie Hernes Vereide (MSc), University of Oslo, Norway
2018-2021	Simone Rizzuto (PhD), Lancaster University, UK
2016-2019	Didier L. Baho, (postdoctoral fellow), NIVA, Norwegian Institute for Water Research
2015-2020	Zofia Smoła (PhD), Institute of Oceanology, Polish Academy of Sciences/ UNIS, Sopot, Poland
2015-2018	Ane Cecilie Kvernvik (PhD), UNIS/ University of Tromsø, Norway
2017-2018	Sander Verbiest (MSc) UNIS/ University of Utrecht, Netherlands
2015	Ida Bernhardsson (MSc) University of Uppsala, Sweden
2009	Charlotte Alexander Lassen (BSc) University of Copenhagen

Major international collaborations

- Björn Rost, Biosciences/Marine BioGeoSciences, Alfred-Wegener-Institute for Marine and Polar Research, Germany: Microalgal ecophysiology
- Marcel Nicolaus, Climate Science, Sea Ice Physics, Alfred-Wegener-Institute for Marine and Polar Research, Germany: Sea ice physics
- Dirk Notz, Sea Ice in the Earth System, University of Hamburg, Germany: Sea ice physics/modeling
- Finlo Cottier, Scottish Association for Marine Science, Oban, Scotland: Physical oceanography, moorings
- Jozef Wiktor, Institute of Oceanology, Polish Academy of Sciences, Sopot, Poland: phytoplankton and sea ice algae taxonomy
- C.J. Mundy, CEOS, University of Manitoba, Winnipeg, Canada: biological oceanography, sea ice biology
- Letizia Tedesco, Finnish Environment Institute, Marine Research Centre, Helsinki, Finland: sea ice biogeochemical modeling, phenology

Field work experience

2015-17	Leader of several field expeditions to van Mijenfjorden, Svalbard (ship-based and sea ice-based)
2016	Mesocosm experiments in three lakes in southern Norway for the PEACE project
2014/15	Marine Night campaign in Ny-Ålesund
2011	FastIce Expedition to Billefjorden
2010	EPOCA Arctic campaign in Ny-Ålesund, Svalbard
2008	Expedition leader during field work for CLEOPATRA project in Ny-Ålesund, Svalbard
2007	Co-lead: Several ICE-EDGE programme expeditions to Rijpfjorden, Svalbard
2003/2004	Expedition leader during the field work for PhD project in Ny Ålesund, Svalbard

Commissions of Trust

2005- present Reviewer for numerous scientific journals

2016-present Member of the ARCTOS secretariate (ARCTOS: Research Network and PhD school at UiT – The Arctic University of Norway)

2015-2018 Tillitsvalgt Forskerforbundet (Union representative in Akvaplan-niva)

Publications in international peer-reviewed journals

- [1] Tedesco, L., Leu, E., Macias-Fauria, M., Mundy, C.J., Notz, D., Søreide, J.E., Daase, M., Post, E. (subm) The impact of Arctic sea-ice decline on primary production. *Nature Reviews Earth & Environment*
- [2] Johnsen, G., Leu, E., Gradinger, R. (2020) Micro- and macroalgae during the Polar night. In: Polar Night Marine Ecology – Life and Light in the Dead of the Night, Berge, J., Johnsen, G., Cohen, J.H. (eds.) *Advances in Polar Ecology*
- [3] Brown, T., Rad-Menéndez, C., Ray, J.L., Skaar, K.S. Thomas, N., Ruiz-Gonzalez, C., Leu, E. (subm) Influence of nutrient availability on Arctic sea ice diatom HBI synthesis. *Organic Geochemistry*
- [4] Kvernvik, A.C., Rokitta, S., Rost, B., Gabrielsen, T., Leu, E., Hoppe, C.J.M. (subm.) Sea ice and pelagic diatoms react differently towards high light stress and ocean acidification. *New Phytologist*
- [5] McGovern, M., Pavlov, A., Leu, E., Søreide, J.E., Poste, A. (subm.) Physicochemical Response to Terrestrial Inputs in a River and Glacier -Influenced Arctic Fjord (Isfjorden, Svalbard) *Frontiers in Marine Science*
- [6] Baho, D.L., Leu, E., Pomati, F., Hessen, D.O., Norberg, J., Moe, S.J., Skjelbred, B., Nizzetto, L. (2019) Resilience of natural phytoplankton communities to combined pulse-like disturbances involving micropollutants and mixing event. *Environmental Chemistry and Toxicology*
- [7] Baho, D.L., Pomati, F., Leu, E., Hessen, D.O., Moe, J., Norberg, J., Nizzetto, L. (2019) A single pulse of diffuse contaminants alters the size distribution of natural phytoplankton communities. *Science of the Total Environment*
- [8] Pavlov, A.P., Leu, E., Hanelt, D., Bartsch, I., Karsten, U., Hudson, S.R., Gallet, J.C., Cottier, F., Cohen, J.H., Berge, J., Johnsen, G., Maturilli, M., Kowalczyk, P., Granskog, M. (2019) Underwater light climate in Kongsfjorden and its ecological implications. In: The Ecosystem of Kongsfjorden, Hop, H. & Wiencke C. (eds.), *Advances in Polar Ecology*, 137-172
- [9] Hegseth, E.N., Assmy, P., Wiktor, J.M., Wiktor, J.M.Jr, Kristiansen, S., Leu, E., Tverberg, V., Gabrielsen, T.M., Cottier, F. (2019) Phytoplankton seasonal dynamics in Kongsfjorden, Svalbard and the adjacent shelf. In: The Ecosystem of Kongsfjorden, Hop, H. & Wiencke C. (eds.), *Advances in Polar Ecology*, 173-228.
- [10] Aune, M., Aniceto, A.S., Biuw, M., Daase, M., Falk-Petersen, S., Leu, E., Ottesen, C., Sagerup, K., Camus, L. (2018) Seasonal ecology in ice-covered Arctic seas - considerations for spill response decision making. *Mar Environ Res*
- [11] Kvernvik, A.C., Hoppe, C.J.M., Lawrenz, E., Prasil, O., Wiktor, J., Greenacre, M., Leu, E. (2018) Fast reactivation of photosynthesis in Arctic phytoplankton during the Polar night. *J Phycol* 54(4): 461-470. <https://doi.org/10.1111/jpy.12750>
- [12] Leu, E., Graeve, M., Wulff, A. (2016) A (too) bright future? – Arctic diatoms under radiation stress. *Pol Biology* 39(10): 1711-1724.
- [13] Leu, E., Mundy, C.J., Campbell, K., Gabrielsen, T., Gosselin, M., Juul-Pedersen, T., Gradinger, R. (2015) Arctic spring awakening – steering principles behind the phenology of vernal ice algae blooms. *Prog Oceanogr* 139: 151-170.
- [14] Berge, J., Cottier, F., Darnis, G., Falk-Petersen, S., Gabrielsen, T., Johnsen, G., Last, K. Leu, E., Lønne, O.J., Moline, M., Nahrgang, J., Renaud, P.E., Seuthe, L., Søreide, J., Varpe, Ø., Weslawski, J.M. (2015) In the dark: a review of ecosystem processes during the Arctic polar night. *Prog Oceanogr* 139: 258-271

- [15] Cohen JH, Berge J, Moline MA, Sørensen AJ, Last K, Falk-Petersen S, Renaud, P.E., Leu, E. et al. (2015) Is ambient light during the high Arctic polar night sufficient to act as a visual cue for zooplankton? *PLoS ONE* 10 (6): e0126247. doi:10.1371/journal.pone.0126247
- [16] Berge J, Daase M, Renaud PE, Ambrose WG, Darnis G, Last KS, Leu, E. et al. (2015) Unexpected levels of biological activity during the polar night offer new perspectives on a warming Arctic. *Current Biology* 25(12): 2555-2561.
- [17] Huntington, H.P., Carmack, E., Wassmann, P., Wiese, F., Leu, E., Gradinger, R. (2015) A new perspective on changing Arctic marine ecosystems: Panarchy adaptive cycles in pan-Arctic spatial and temporal scales, in: *Sustainable Oceans in the Twenty-First Century*, Arico, S. (ed.), UNU-UNESCO.
- [18] Daase, M., Falk-Petersen, S., Varpe, Ø., Darnis, G., Søreide, J.E., Wold, A., Leu, E., Berge, J., Philippe, B., Fortier, L. (2013) Plasticity in timing of reproductive events in *Calanus glacialis*: a Pan-Arctic perspective. *Can J Fish Aquat Sci* 70(6): 871-884
- [19] Weydmann, A., Søreide, J.E., Kwasniewski, S., Leu, E., Falk-Petersen, S., Berge, J. (2013) Ice-related seasonality in zooplankton community composition in a high arctic fjord. *J Plankt Res* 35(4): 831-842
- [20] Leu, E., Daase, M., Schulz, K.G., Stuhr, A., Riebesell, U. (2013) Effect of ocean acidification on the fatty acid composition of a natural plankton community. *Biogeosciences* 10: 1143-1153
- [21] Kwasniewski, S., Walkusz, W., Cottier, F., Leu, E. (2013) Mesozooplankton dynamics in relation to food availability during spring and early summer in a high latitude glaciated fjord (Kongsfjorden), with focus on *Calanus*. *J Mar Sys* 111-112: 83-96.
- [22] Hessen, D.O., Frigstad, H., Færøvig, P.J., Wojewodzic, M.W., Leu, E. (2012) UV radiation and its effect on P-uptake in Arctic diatoms. *J Exp Mar Biol Ecol* 411:45-51.
- [23] Wold, A., Darnis, G., Søreide, J.E., Leu, E., Philippe, B., Fortier, L., Poulin, M., Kattner, G., Graeve, M., Falk-Petersen, S. (2011) Life strategy and diet of *Calanus glacialis* during the winter-spring transition in Amundsen Gulf, southeastern Beaufort Sea. *Polar Biol* 34 (12): 1929-1946
- [24] Leu, E., Søreide, J.E., Hessen, D.O., Falk-Petersen, S., Berge, J. (2011) Consequences of changing sea ice cover for primary and secondary producers in European Arctic shelf seas: timing, quantity and quality. *Prog Oceanogr* 90: 18-32.
- [25] Søreide, J.E., Leu, E., Berge, J., Graeve M., Falk-Petersen, S. (2010) Timing of blooms, algal food quality and *Calanus glacialis* reproduction and growth in a changing Arctic. *Global Change Biol* 16(11): 3154-3163.
- [26] Leu, E., Wiktor, J., Søreide, J.E., Berge, J., Falk-Petersen, S. (2010) Increased irradiance reduces food quality of sea ice algae. *Mar Ecol Prog Ser* 411: 49-60
- [27] Berge, J., Cottier, F., Last, K., Varpe, Ø., Leu, E., Søreide, J., Eiane, K., Falk-Petersen, S., Willis, K., Nygård, H., Vogedes, D., Griffiths, C., Johnsen, G., Lorentzen, D., Brierley, A. (2009) Towards a new understanding of Arctic marine ecosystems during the polar night. *Biology Letters* 5(1): 69-72.
- [28] Hessen, D.O., Leu, E., Færøvig, P., Falk-Petersen, S. (2008) Light and spectral properties as determinants of C:N:P ratios in phytoplankton *Deep Sea Res II* 55: 2169-2175.
- [29] Falk-Petersen, S., Leu, E., Berge, J., Kwasniewski, S., Nygård, H., Røstad, A., Keskinen, E., Thormar, J., von Quillfeldt, C., Wold, A., Gulliksen, B. (2008) Vertical migration in high Arctic waters during autumn 2004 *Deep Sea Res II* 55: 2275-2284.
- [30] Leu, E., Falk-Petersen S., Hessen, D.O. (2007) Ultraviolet radiation negatively affects growth but not food quality of Arctic diatoms. *Limnol Oceanogr* 52(2): 787-797.
- [31] Wold, A., Leu, E., Walkusz, W., Falk-Petersen, S. (2007) Lipids in copepodite stages of *Calanus glacialis*. *Polar Biol* 30: 655-658.
- [32] Leu, E., Wängberg, S.Å., Wulff, A., Ørbæk, J.B., Falk-Petersen, S., Hessen, D.O. (2006) Effects of changes in ambient PAR and UV radiation on the nutritional quality of an Arctic diatom (*Thalassiosira antarctica* var. *borealis*). *J Exp Mar Biol Ecol* 337: 65-81.

- [33] [Leu, E.](#), Falk-Petersen S., Kwasniewski S., Wulff A., Edvardsen K., Hessen D.O. (2006) Fatty acid dynamics during the spring bloom in a high Arctic fjord: importance of abiotic factors vs. community changes. *Can J Fish Aquat Sci.* 63: 2660-2779.
- [34] [Leu, E.](#), Færøvig, P., Hessen, D.O. (2006) UV effects on the nutritional quality of *Selenastrum capricornutum* and their consequences for *Daphnia magna*. *Freshw Biol* 51: 2296-2308.
- [35] Hessen, D.O., [Leu, E.](#) (2006) Trophic transfer and trophic modification of fatty acids in arctic lakes. *Freshw Biol.* 51: 1987-1998
- [36] [Leu, E.](#), Krieger-Liszkay, A., Goussias, C. & Gross, E. (2002) Polyphenolic allelochemicals from the aquatic angiosperm *Myriophyllum spicatum* L. inhibit photosystem II. *Plant Physiol* 130(4): 2011-2018.

Theses

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| 2006 | <i>Effects of a changing Arctic light climate on the nutritional quality of phytoplankton</i> (PhD thesis, University of Oslo, Norway, 194 pp.) |
| 2002 | <i>The effect of allelochemicals from submersed aquatic macrophytes on photosynthesis</i> (MSc thesis, University of Freiburg, Germany) |

Invited talks (selection)

- [Leu, E.](#) (2015) From eternal dark to high light stress: Microalgae in the high Arctic and the challenge of different extremes. 6th European Phycological Congress in London, England.
- [Leu, E.](#) (2015) Sea ice algae – a key link mediating climate change to Polar marine systems. Invited talk at Symposium: Biogeochemistry of sea ice, with a focus on the Arctic, Gothenburg, Sweden.
- [Leu, E.](#) (2011) Sea ice algae – the overlooked link? Opening talk at the foundation meeting for the International Centre of Marine Ecology (BreMarE) at the University of Bremen, Bremen, Germany
- [Leu, E.](#) and Søreide, J. (2009) Consequences of changing sea ice cover for primary and secondary producers in the Arctic: timing, quantity and quality. Invited plenary talk. Arctic Frontiers Conference, Tromsø, Norway
- [Leu, E.](#) (2008) The origin of omega 3: Lipids in Polar marine ecosystems. Invited seminary. ISMER, University of Quebec, Canada
- [Leu, E.](#) (2008) Effects of a changing Arctic light climate on the nutritional quality of phytoplankton. Invited seminary. University of Groningen, Ocean Ecosystems, Groningen, The Netherlands
- [Leu, E.](#) (2008) Climate effects of planktonic food quality and trophic transfer in Arctic marginal ice zones. Invited seminary. Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, Germany

Outreach and popular science publications (selection)

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| 2017 | Svalbardposten, Når isen smelter under føttene til forskerne |
| 2017 | Presentation for schoolchildren: What does a Polar Researcher do? |
| 2014 | Aftenposten, På jakt etter havets mørke mysterier i Polarnatten |
| 2012 | Lecture for schoolchildren (grammar school) in Hamburg: The Arctic – Ecosystem under climate change |
| 2009 | NRK, Schrødingers Katt: Klimaforandringens konsekvenser for næringsgrunnlaget i Polhavet |
| 2008 | Presentation about CLEOPATRA project for Ny Ålesund inhabitants and scientists |