



Prof. Dr. Björn Rost

*1971

CV

Scientific degree:

Dr. rer. nat. in Biology, University of Bremen, Germany	2003
Diploma in Biology, University of Hamburg, Germany	1999

Current position:

Professor for Phytoplankton Ecophysiology, University of Bremen	since 2019
Deputy Head of section Marine Biogeosciences, AWI	since 2015

Previous positions:

Speaker of Topic 1 within PACESII	since 2016
ERC-Group Leader (PhytoChange), AWI	2008–2013
Postdoctoral researcher, Marine Biogeosciences, AWI	2003–2007

Academic honours & services:

Lead Author of the 6th IPCC Report (AR6, WGII) Chapter 3: Ocean and coastal ecosystems and their services & Cross Chapter on Polar regions (since 2019); Member of Expert Group on Arctic Ocean Acidification within the Arctic Monitoring and Assessment Program (since 2014)

Research Topics

Phytoplankton in polar ecosystems; ocean acidification and warming; photosynthesis and carbon concentrating mechanisms; calcification; nitrogen fixation; biogeochemical cycles; stable isotope fractionation

Teaching

Marine Biogeochemistry: Multidisciplinary Oceanography for MSc students; winter semester; 2ECTS; University of Bremen.	since 2011
Marine Phytoplankton under Global Change; Advanced Studies in Marine Biology for MSc students; winter semester; 3ECTS; University of Bremen.	since 2010

Supervision

PhD students (#9): Klara Wolf (2019, University of Bremen – UB), Tim Eberlein (2017, UB); Mirja Hoins (2016, University Utrecht, NL); Dorothee Kottmeier (2015, UB); Meri Eichner (2014, UB); Clara Hoppe (2014, UB); Sebastian Rokitta (2012, UB); Sven Kranz (2010, UB); Scarlett Trimborn (2008, UB).

MSc/Diploma students (#13): Emily White (2018, University Amsterdam, NL); Benjamin Post (2018, UB); Christian Großmann (2016, University of Bayreuth), Klara Wolf (2015, UB); Laura Wischniewski (2015, Bonn-Rhein-Sieg University); Karen Brandenburg (2014, University of Utrecht, NL); Tim Eberlein (2011, Ruhr University of Bochum); Dorothee Kottmeier (2011, University of Tübingen); Clara Hoppe (2010, UB); Meri Eichner (2010, UB); Sebastian Rokitta (2008, UB); Sven Kranz (2006, University of Kaiserslautern); Scarlett Trimborn (2004, University of Hamburg).

Publications / Citations

Peer-reviewed publications (total):	87
H-Index (Google Scholar):	40
Total citation (Google Scholar, June 2020):	>8300
scholar.google.de/citations?user=IXfnN3QAAAAJ&hl=en&oi=ao	
orcid.org/0000-0001-5452-5505	

2020

Ji, X., Jolanda M. H. Verspagen, J.M.H., Van de Waal, D.B., Rost, B., Huisman, J. (2020) Phenotypic plasticity of carbon fixation stimulates cyanobacterial blooms at elevated CO₂. *Science Advances*, 6: eaax2926.

Kvernvik, A.C, Rokitta, S., Leu, E., Harms, L., Gabrielsen, T.M., Rost, B., Hoppe, C.J.M. (2020) Higher sensitivity towards light stress and ocean acidification in an Arctic sympagic compared to a pelagic diatom. *New Phytologist* 226: 1708–1724, doi:10.1111/nph.16501.

White, E., Hoppe, C.J.M, Rost, B. (2020) The Arctic picoeukaryote *Micromonas pusilla* benefits from Ocean Acidification under constant and dynamic light. *Biogeosciences*, 17: 635–647; doi:10.5194/bg-17-635-2020.

Wohlrab S., John, U., Klemm, K., Eberlein, T., Forsberg Grivogiannis, A.M., Krock, B., Frickenhaus, S., Bach, L.T., Rost, B., Riebesell, U., Van de Waal, D.B. (2020) Ocean acidification increases domoic acid contents during a spring to summer succession of coastal phytoplankton, *Harmful Algae*, 92: 101697; doi:10.1016/j.hal.2019.101697.

2019

Wolf, K.K.E., Romanelli, E., Rost B., John, U., Collins, S., Weigand, H., Hoppe, C.J.M. (2019) Company matters: The presence of other genotypes alters traits and intraspecific selection in an Arctic diatom under climate change. *Global Change Biology* 25: 2869-2884.

Eichner, M., Thoms, S., Rost, B., Mohr, W., Ahmerkamp, S., Ploug, H., Kuypers, M., de Beer, D. (2019) N₂ fixation in free-floating filaments of *Trichodesmium* is higher than in transiently suboxic colony microenvironments. *New Phytologist*. 222: 852–863. doi:10.1111/nph.15621

Van de Waal, D.B., Brandenburg, K.M., Keuskamp, J., Trimborn, S., Rokitta, S., Kranz, S., Rost, B. (2019) Highest plasticity of carbon concentrating mechanisms in earliest evolved phytoplankton, *Limnology and Oceanography Letters*, doi:10.1002/lol2.10102.

Kusch, S., Benthien, A., Richter, K.-U., Rost, B., Mollenhauer, G. (2019) Dead in the water: The vicious cycle of blanks during natural level of ¹⁴C manipulation of marine algal cultures. *Frontiers in Marine Science*, 6: 780. doi:10.3389/fmars.2019.00780.

Heidenreich E, Wördenweber R, Kirschhöfer F, Nusser M, Friedrich F, Fahl K, Kruse, O., Rost, B., Franzreb, M., Brenner-Weiß, G., Rokitta, S. (2019) Ocean acidification has little effect on the biochemical composition of the coccolithophore *Emiliania huxleyi*. *PLoS ONE* 14(7): e0218564. Doi:10.1371/journal.pone.0218564.

2018

Hoppe, C.J.M., Wolf, K.K.E., Schuback, N., Tortell P.D., Rost, B. (2018) Arctic phytoplankton assemblages compensate for the effects of Ocean Acidification under various environmental conditions. *Nature Climate Change*, 8: 529–533.

Hoppe, C.J.M., Flintrop, C.M., Rost, B. (2018) The Arctic picoeukaryote *Micromonas pusilla* benefits synergistically from warming and ocean acidification. *Biogeochemistry*: 15: 4353-4365. doi.org/10.5194/bg-15-4353-2018.

Eichner, M., Thoms, S., Rost, B., Mohr, W., Ahmerkamp, S., Ploug, H., Kuypers, M., de Beer, D. (2018) N₂ fixation in free-floating filaments of *Trichodesmium* is higher than in transiently suboxic colony microenvironments. *New Phytologist*. doi: 10.1111/nph.15621

Falkenberg, L.J., Jelmert, A., Mark, F.C., Rost B., Schulz, K.G., Thor, P. (2018) Biological responses to ocean acidification. In: AMAP Assessment 2018: Arctic Ocean Acidification. pp. [15-28] Arctic Monitoring and Assessment Programme (AMAP), Tromsø, Norway.

Wolf, K., Hoppe, C.J.M., Rost, B. (2018) Resilience by diversity: Large intraspecific variability in climate changes responses of an Arctic diatom. *Limnology and Oceanography*, 63: 397-411, doi: 10.1002/lno.10639.

Wördenweber, R., Rokitta, S., Heidenreich, E., Corona, E., Kirschhöfer, F., Fahl, K., Brenner-Weiß, G., Rost, B., Mussgnug J.H., Kruse, O. (2018) Phosphorus and nitrogen starvation reveal life-cycle specific responses in the metabolome of *Emiliania huxleyi* (Haptophyta), *Limnology and Oceanography*, 63: 203-226, doi: 10.1002/lno.10624.

2017

Hoppe, C.J.M., Schuback, N., Semeniuk, D., Giesbrecht, K., Mol, J., Thomas, H., Maldonado M.T., B. Rost, Varela, D.E., Tortell P.D. (2017) Resistance of Arctic phytoplankton to ocean acidification and high irradiance, *Polar Biology*, doi:10.1007/s00300-017-2186-0.

Hoppe, C.J.M., Schuback, N., Semeniuk, D., Maldonado M.T., Rost, B. (2017) Functional redundancy facilitates resilience of Subarctic phytoplankton assemblages towards ocean acidification and high irradiance. *Frontiers in Marine Science*, 4:229. doi: 10.3389/fmars.2017.00229.

Hoppe, C.J.M., Klaas, C., Ossebaar, S., Soppa, M.A., Cheah, W., Laglera, L.M., Santos-Echeandia, J., Rost, B., Wolf-Gladrow, D.A., Bracher, A., Hoppema, M., Strass, V., and Trimborn, S. (2017). Controls of primary production in two phytoplankton blooms in the Antarctic Circumpolar Current. *Deep Sea Research Part II: Topical Studies in Oceanography*, 138. 63-73.

Eberlein, T., Wohlrab, S., Rost, B., John, U., Bach, L.T., Riebesell, U., Van de Waal, D. (2017) Effects of ocean acidification on primary production in a coastal North Sea phytoplankton community. *PLoS ONE* 12(3): e0172594.

2016

Eberlein, T., Van de Waal, D.B., Brandenburg, K.M., John, U., Voss, M., Achterberg, E.P., Rost, B. (2016): Interactive effects of ocean acidification and nitrogen limitation on two bloom-forming Dinoflagellate species. *Marine Ecology Progress Series*, 543. 127-140.

Rokitta, S. D., von Dassow, P., Rost, B., John, U. (2016). P- and N-depletion trigger similar cellular responses to promote senescence in eukaryotic phytoplankton. *Frontiers in Marine Science*, 3. doi:10.3389/fmars.2016.00109.

Hoins, M., Eberlein, T., Großmann C.H., Brandenburg K., Reichart G.J., Rost, B., Sluijs, A., van de Waal, D.B. (2016) Combined Effects of Ocean Acidification and Light or Nitrogen Availabilities on ¹³C Fractionation in Marine Dinoflagellates, *PLoS one* 11 (5), e0154370.

Hoins, M., Eberlein, T., van de Waal, D.B., Sluijs, A., Reichart G.J., Rost, B. (2016) CO₂-dependent carbon isotope fractionation in dinoflagellates relates to their inorganic carbon fluxes, *Journal of Experimental Marine Biology and Ecology*, 481: 9–14.

Hellmer, H. H., Rhein, M., Heinemann, G., Abalichin, J., Abouchami, W., Baars, O., Rost, B., ... , Wolf-Gladrow, D. (2016). Meteorology and oceanography of the Atlantic sector of the Southern Ocean - a review of German achievements from the last decade. *Ocean Dynamics*, 66(11), 1379-1413.

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2015

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2014

Collins, S., Rost, B., Ryneerson, T.A. (2014). Evolutionary potential of marine phytoplankton under ocean acidification, *Evolutionary Applications*, 7(1): 140-155.

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Eichner, M., Kranz, S.A., Rost, B. (2014). Combined effects of different CO₂ levels and N sources on the diazotrophic cyanobacterium *Trichodesmium*, *Physiologia Plantarum*, 152: 316–330.

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Kottmeier, D.M., Rokitta, S.D., Tortell, P.D., Rost, B. (2014). Strong shift from HCO₃⁻ to CO₂ uptake in *Emiliana huxleyi* with acidification: new approach unravels acclimation versus short-term pH effects, *Photosynthesis Research*, 121:265–275.

Pörtner, H.O., Karl, D.M., Boyd, P.W., ..., Rost, B., Sarmiento, J.L., Sedlacek, J., Storch, D., Wiencke, C., Wittmann, A.C. (2014) Ocean Systems, *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, Cambridge University Press.

Petrou, K., Trimborn, S., Rost, B., Ralph, P.J., Hassler, C.S. (2014). The impact of iron limitation on the physiology of the Antarctic diatom *Chaetoceros simplex*. *Marine Biology*, 161: 925-937.

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Trimborn, S., Thoms, S., Petrou, K., Kranz, S.A., Rost, B. (2014). Photophysiological responses of Southern Ocean phytoplankton to changes in CO₂ concentrations: short-term versus acclimation effects, *Journal of Experimental Marine Biology and Ecology*, 451:44-54.

Van de Waal, D., Eberlein, T., John, U., Wohlrab, S., Rost, B. (2014). Impact of elevated pCO₂ on paralytic shellfish poisoning toxin content and composition in *Alexandrium tamarense*, *Toxicon*, 78: 58-67.

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Wolf-Gladrow, D.A., Rost, B. (2014). Ocean Acidification and Oceanic Carbon Cycling. In: *Handbook of Global Environmental Change*, Freedman B. (Ed.), pp. 1-8.

2013

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Trimborn, S., Brenneis, T., Sweet, E., Rost, B. (2013). Sensitivity of Antarctic phytoplankton to ocean acidification: growth, carbon acquisition and species interactions. *Limnology and Oceanography*, 58: 97-107.

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Van de Waal, D.B., Tillmann, U., Zhu, M., Koch, B., Rost, B., John, U. (2013). Nutrient pulse induces dynamic changes in cellular C:N:P, amino acids, and paralytic shellfish poisoning toxins in *Alexandrium tamarense*, *Marine Ecology Progress Series*, 493: 57–69.

2012

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Rokitta, S.D., John, U., Rost, B. (2012). Ocean Acidification Affects Redox-Balance and Ion-Homeostasis in the Life-Cycle Stages of *Emiliana huxleyi*. *PLoS ONE* 8(12): e52212

2011

Beaufort, L., Probert, I., de Garidel-Thoron, T., Bendif, E.M., Ruiz-Pino, D., Metzl, N., Goyet, C., Buchet, N., Coupel, P., Grelaud, M., Rost, B., Rickaby, R.E.M., de Vargas, C. (2011). Sensitivity of coccolithophores to carbonate chemistry and ocean acidification. *Nature*, 476(7358): 80-83.

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Kranz, S.A., Eichner, M., Rost, B. (2011). Interactions between CCM and N₂ fixation in *Trichodesmium*. *Photosynthesis Research*, 109: 73-84.

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2010

Engel, A., Barcelos e Ramos, J., Geider, R., Hutchins, D. A., Lee, C., Rost, B., Röttgers, R., Thingstad, F. (2010). Production and export of organic matter. In: *Guide for Best Practices in Ocean Acidification Research*, Riebesell U., Fabry V.J., Hansson L., Gattuso J.-P. (Eds.), pp. 181-200.

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Kranz, S.A., Nehrke, G., Langer, G., Wolf-Gladrow, D., Rost, B. (2010). Calcium carbonate precipitation induced by the growth of the cyanobacterium *Trichodesmium*. *Limnology and Oceanography*, 55(6): 2563-2569.

Kranz, S.A., Levitan, O., Richter, K.-U., Prášil, O., Berman-Frank, I., Rost, B. (2010). Combined effects of CO₂ and light on the N₂ fixing cyanobacterium *Trichodesmium* IMS101: Physiological responses. *Plant Physiology*, 154: 334-345.

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Kranz, S.A., Sültemeyer, D., Richter, K.-U., Rost, B. (2009). Carbon acquisition in *Trichodesmium*: diurnal variation and effect of pCO₂. *Limnology and Oceanography*, 54: 548-559.

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