

Curriculum Vitae

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About

I study the cycles of elements such as oxygen and carbon to understand rates and drivers of productivity in aquatic ecosystems. Seafloor habitats are a key focus of my work, because they represent hotspots of biodiversity and productivity but they remain poorly studied. Filling in this knowledge gap requires a novel interdisciplinary approach that investigates productivity rates in combination with other factors of influence such as sunlight and nutrient availability, hydrodynamics, and biodiversity. The success of this work is tightly linked to the use of new and evolving technologies such as aquatic eddy covariance and microsensors techniques.

Ansættelse

Biologisk Institut
SDU
Odense M
24. maj 2024 → 28. feb. 2026

Lektor

Nordcee
SDU
Odense M
24. maj 2024 → 28. feb. 2026

DIAS-adjunkt

DIAS
SDU
1. jun. 2024 → present

DIAS-adjunkt

SDU Climate Cluster
SDU
10. apr. 2024 → present

Postdoctoral Researcher

University of Helsinki
Helsinki, Finland
1. feb. 2016 → 31. jan. 2018

Social media

Google Scholar: <https://scholar.google.com/citations?user=-6gnncMAAAAJ&hl=en>
Researchgate: https://www.researchgate.net/profile/Karl_Attard2
Twitter @KMAttard

Teaching

University of Southern Denmark:
BB844: MSc Field Course in Marine Biology
Guest lecturer at University of Helsinki:
BSc course in Aquatic Biogeochemistry (ENV-312)
MSc course in Advanced Sediment and Aquatic Biogeochemistry

Student supervision

MSc Ms Emma Hald Boldreel, University of Southern Denmark
MSc Ms Anna Lyssenko, University of Helsinki

I am happy to supervise students at ISA, BSc, MSc level, and I am also eager to support incoming Postdoctoral fellows. Please get in touch to discuss possibilities.

Publikationer

Structural complexity and benthic metabolism: resolving the links between carbon cycling and biodiversity in restored seagrass meadows

Kindeberg, T., Attard, K. M., Hüller, J., Müller, J., Quintana, C. O. & Infantes, E., 8. apr. 2024, I: *Biogeosciences*. 21, 7, s. 1685-1705

Seafloor primary production in a changing Arctic Ocean

Attard, K., Singh, R. K., Gattuso, J. P., Filbee-Dexter, K., Krause-Jensen, D., Kühl, M., Sejr, M. K., Archambault, P., Babin, M., Bélanger, S., Berg, P., Glud, R. N., Hancke, K., Jänicke, S., Qin, J., Rysgaard, S., Sørensen, E. B., Tachon, F., Wenzhöfer, F. & Ardyna, M., 12. mar. 2024, I: *PNAS*. 121, 11, s. e2303366121 10 s.

Implications of increased intertidal inundation on seagrass net primary production

Lohrer, A. M., MacDonald, I. T., Bulmer, R. H., Douglas, E. J., Massuger, J., Rodil, I. F., Attard, K. M., Norkko, A. & Berg, P., mar. 2024, I: *Estuarine, Coastal and Shelf Science*. 298, 12 s., 108636.

Pulses of labile carbon cause transient decoupling of fermentation and respiration in permeable sediments

Nauer, P. A., Kessler, A. J., Hall, P., Popa, M. E., ten Hietbrink, S., Hutchinson, T., Wong, W. W., Attard, K., Glud, R. N., Greening, C. & Cook, P. L. M., sep. 2023, I: *Limnology and Oceanography*. 68, 9, s. 2141-2152 12 s.

High metabolism and periodic hypoxia associated with drifting macrophyte detritus in the shallow subtidal Baltic Sea

Attard, K. M., Lyssenko, A. & Rodil, I. F., 1. maj 2023, I: *Biogeosciences*. 20, 9, s. 1713-1724 12 s.

Microbial degradation dynamics of farmed kelp deposits from *Saccharina latissima* and *Alaria esculenta*

Boldreel, E. H., Attard, K. M., Hancke, K. & Glud, R. N., apr. 2023, I: *Marine Ecology Progress Series*. 709, s. 1-15

Intracellular nitrate storage by diatoms can be an important nitrogen pool in freshwater and marine ecosystems

Stief, P., Schauburger, C., Lund, M. B., Greve, A., Abed, R. M. M., Al-Najjar, M. A. A., Attard, K., Bonaglia, S., Deutzmann, J. S., Franco-Cisterna, B., García-Robledo, E., Holtappels, M., John, U., Maciute, A., Magee, M. J., Pors, R., Santl-Temkiv, T., Scherwass, A., Sevilgen, D. S., de Beer, D., & 3 flere Glud, R. N., Schramm, A. & Kamp, A., jul. 2022, I: *Communications Earth and Environment*. 3, 1, 11 s., 154.

Positive contribution of macrofaunal biodiversity to secondary production and seagrass carbon metabolism

Rodil, I. F., Lohrer, A. M., Attard, K. M., Thrush, S. F. & Norkko, A., apr. 2022, I: *Ecology*. 103, 4, 13 s., e3648.

Aquatic Eddy Covariance: The Method and Its Contributions to Defining Oxygen and Carbon Fluxes in Marine Environments

Berg, P., Huettel, M., Glud, R. N., Reimers, C. E. & Attard, K. M., jan. 2022, I: *Annual Review of Marine Science*. 14, s. 431-455

Benthic O₂ uptake by coral gardens at the Condor seamount (Azores)

Rovelli, L., Carreiro-Silva, M., Attard, K. M., Rakka, M., Dominguez-Carrió, C., Bilan, M., Blackbird, S., Morato, T., Wolff, G. A. & Glud, R. N., 2022, I: *Marine Ecology Progress Series*. 688, s. 19-31

Macrofauna communities across a seascape of seagrass meadows: environmental drivers, biodiversity patterns and conservation implications

Rodil, I. F., Lohrer, A. M., Attard, K. M., Hewitt, J. E., Thrush, S. F. & Norkko, A., sep. 2021, I: Biodiversity and Conservation. 30, 11, s. 3023-3043

Variable contributions of seafloor communities to ecosystem metabolism across a gradient of habitat-forming species

Rodil, I. F., Attard, K. M., Gustafsson, C. & Norkko, A., maj 2021, I: Marine Environmental Research. 167, 10 s., 105321.

Resolving community metabolism of eelgrass *Zostera marina* meadows by benthic flume-chambers and eddy covariance in dynamic coastal environments

Camillini, N., Attard, K. M., Eyre, B. D. & Glud, R. N., 4. mar. 2021, I: Marine Ecology Progress Series. 661, s. 97-114 18 s.

Technical Note: Estimating light-use efficiency of benthic habitats using underwater O₂ eddy covariance

M. Attard, K. & N. Glud, R., 28. aug. 2020, I: Biogeosciences. 17, 16, s. 4343-4353

Metabolism of a subtidal rocky mussel reef in a high-temperate setting: Pathways of organic C flow

Attard, K. M., Rodil, I. F., Berg, P., Mogg, A. O. M., Westerbom, M., Norkko, A. & Glud, R. N., 9. jul. 2020, I: Marine Ecology Progress Series. 645, s. 41-54

Estimating Respiration Rates and Secondary Production of Macrobenthic Communities Across Coastal Habitats with Contrasting Structural Biodiversity

Rodil, I. F., Attard, K. M., Norkko, J., Glud, R. N. & Norkko, A., 2020, I: Ecosystems. 23, s. 630-647

Benthic primary production and respiration of shallow rocky habitats: a case study from South Bay (Doumer Island, Western Antarctic Peninsula)

Rovelli, L., Attard, K. M., Cárdenas, C. A. & Glud, R. N., aug. 2019, I: Polar Biology. 42, 8, s. 1459-1474

Seasonal ecosystem metabolism across shallow benthic habitats measured by aquatic eddy covariance

Attard, K. M., Rodil, I. F., Glud, R. N., Berg, P., Norkko, J. & Norkko, A., 16. jun. 2019, I: Limnology and Oceanography Letters. 4, 3, s. 79-86 8 s.

Seasonal metabolism and carbon export potential of a key coastal habitat: the perennial canopy-forming macroalga *Fucus vesiculosus*

Attard, K., Rodil, I., Berg, P., Norkko, J., Norkko, A. & Glud, R. N., 24. jan. 2019, I: Limnology and Oceanography. 64, 1, s. 149-164

Towards a sampling design for characterizing habitat-specific benthic biodiversity related to oxygen flux dynamics using Aquatic Eddy Covariance

Rodil, I. F., Attard, K. M., Norkko, J., Glud, R. N. & Norkko, A., 2019, I: PLOS ONE. 14, 2, 21 s., e0211673.

Headwater gas exchange quantified from O₂ mass balances at the reach scale

Rovelli, L., Attard, K. M., Heppell, C. M., Binley, A., Trimmer, M. & Glud, R. N., okt. 2018, I: Limnology and Oceanography: Methods. 16, 10, s. 696-709

Oxygen fluxes beneath Arctic land-fast ice and pack ice: towards estimates of ice productivity

Attard, K. M., Sogaard, D., Piontek, J., Lange, B. A., Katlein, C., Sørensen, H. L., McGinnis, D. F., Rovelli, L., Rysgaard, S., Wenzhöfer, F. & Glud, R. N., okt. 2018, I: Polar Biology. 41, 10, s. 2119-2134

Reach-scale river metabolism across contrasting sub-catchment geologies: Effect of light and hydrology

Rovelli, L., Attard, K., Binley, A., Heppell, C. M., Stahl, H., Trimmer, M. & Glud, R. N., 2017, I: Limnology and Oceanography. 62, Suppl. 1, s. S381-S399

The influence of coring method on the preservation of sedimentary and biogeochemical features when sampling soft-bottom, shallow coastal environments

Mogg, A. O. M., Attard, K. M., Stahl, H., Brand, T., Turnewitsch, R. & Sayer, M. D. J., 2017, I: *Limnology and Oceanography: Methods*. 15, 11, s. 905-915

Benthic primary production and mineralization in a High Arctic fjord: in situ assessments by aquatic eddy covariance

Attard, K., Hancke, K., Sejr, M. K. & Glud, R. N., 28. jul. 2016, I: *Marine Ecology - Progress Series*. 554, s. 35-50

Benthic oxygen exchange in a live coralline algal bed and an adjacent sandy habitat: an eddy covariance study

Attard, K., Stahl, H., Kamenos, N., Turner, G., Burdett, H. & Glud, R. N., 15. sep. 2015, I: *Marine Ecology - Progress Series*. 535, s. 99-115

Under-ice eddy covariance flux measurements of heat, salt, momentum, and dissolved oxygen in an artificial sea ice pool

Else, B., Rysgaard, S., Attard, K., Campbell, K., Crabeck, O., Galley, R. J., Geilfus, N-X., Lemes, M., Lueck, R., Papakyriakou, T. & Wang, F., sep. 2015, I: *Cold Regions Science and Technology*. 119, s. 158-169

Benthic O₂ uptake of two cold-water coral communities estimated with the non-invasive eddy correlation technique

Rovelli, L., Attard, K., Bryant, L. D., Flögel, S., Stahl, H., Murray Roberts, J., Linke, P. & Glud, R. N., 9. apr. 2015, I: *Marine Ecology - Progress Series*. 525, s. 97-104

Seasonal rates of benthic primary production in a Greenland fjord measured by aquatic eddy correlation

Attard, K., Glud, R. N., McGinnis, D. F. & Rysgaard, S., sep. 2014, I: *Limnology and Oceanography*. 59, 5, s. 1555-1569

Ikaite crystal distribution in winter sea ice and implications for CO₂ system dynamics

Rysgaard, S., Søgaard, D. H., Cooper, M., Pucko, M., Lennert, K., Papakyriakou, T. N., Wang, F., Geilfus, N. X., Glud, R. N., Ehn, J., McGinnis, D. F., Attard, K., Sievers, J., Deming, J. W. & Barber, D., 2013, I: *Cryosphere*. 7, s. 707-718

Maintaining turbidity and current flow in laboratory aquarium studies, a case study using *Sabellaria spinulosa*

Davies, A. J., S. Last, K., Attard, K. & Hendrick, V. J., 2009, I: *Journal of Experimental Marine Biology and Ecology*. 370, 1-2, s. 35-40

Other academic merits

Steering committee member for the FINMARI benthic lander working group, Finland

Steering committee member for EU ASSEMBLE+ scientific diving work package (JRA5)

Board member for scientific diving committee, University of Southern Denmark

Referee for scholarly journals and funding agencies: *Marine Ecology Progress Series*, *Limnology and Oceanography*, *Limnology and Oceanography Methods*, *Polar Biology*, *Biogeosciences*, *Frontiers in Marine Science*, *Estuarine Coastal and Shelf Science*, US National Science Foundation.

Awards

Postdoctoral scholarship (2016-2018), Walter and Andrée de Nottbeck Foundation, Finland (~€ 85.000)

SAMS Award for Overall Achievement (period 2006-2010)

SAMS Student of the Year 2009 2009

Jane Foster Bursary for Practical Marine Geochemistry, UK (€ 2.200)

Nuffield Foundation Undergraduate Bursary, UK (€ 2.000)