

CURRICULUM VITAE – Knut Alfredsen

Name: Knut Tore Alfredsen
Born: 28.03.1965 in Ulsteinvik, Norway
Nationality: Norwegian
Present pos.: Professor
Department of Civil & Environmental Engineering, Faculty of Engineering Science, Norwegian University of Science and Technology (NTNU), Trondheim, Norway

Degrees:
1988 Master of Science (Siv.ing.) in Civil Engineering, The Norwegian Institute of Technology, The University of Trondheim.
1999 Doctor of Engineering (Dr.ing.) in Civil and Environmental Engineering, The Norwegian University of Science and Technology.

Work experience:

1990 – 1992 Research Engineer, The Norwegian Institute of Technology.
Department of Hydraulic and Environmental Engineering,
1992 – 1994 Research Scientist, The Norwegian Hydrotechnical Laboratory
1994 – 1999 Doctoral student, Norwegian University of Science and Technology,
Department of Hydraulic and Environmental Engineering.
1999 – 2000 Research Scientist, SINTEF Civil and Environmental Engineering, Department of Water Resources
2001 Research Scientist, SINTEF Energy Research
2002 - 2010 Associate Professor, Dept. of Hydraulic and Environmental Engineering, Norwegian University of Science and Technology.
2010 – Professor, Dept. of Hydraulic and Environmental Engineering, Norwegian University of Science and Technology.
2002 – 2016 Scientific Advisor, SINTEF Energy Research
2002 – 2006 Leader, Hydraulic Engineering group at the department of hydraulic and environmental engineering.
2006 – 2009 Deputy head, Department of hydraulic and environmental engineering
2014 – 2017 Leader, PhD programme in hydraulic and environmental engineering.
2015 – 2016 Leader, Hydraulic Engineering group at the department of hydraulic and environmental engineering.

Membership in academic and professional committees

International Association of Hydraulic Research. Former member of IAHR Ice Committee.
International Association of Hydrological Sciences
American Fisheries Society
American Geophysical Union
Norwegian Society of Chartered Engineers
The Committee on River Ice Processes and the Environment (CRIPE), International Member
Board member of the Norwegian Hydrological Council

Research

Project leader for FME CEDREN HydroPeak Work Packages on ice problems and hydrology,
Project leader for FME CEDREN project on Research Infrastructure, Member of the FME CEDREN Management board (2009 – 2017). Funded by Norwegian Research Council
Co-leader for Nordic Centre of Excellence CRAICC work package 2 on changes in the Cryosphere (2010 – 2016).
SFI KLIMA2050 – Centre for Research Innovation, Norwegian Research Council.
FME HydroCen – Work Package 4. Environmental Design, Norwegian Research Council.
INTPART – Hycanor, Norwegian Research Council.
HydroFlex – Increasing the value of Hydropower through increased Flexibility. EU Horizon2020
TryggElv – Identifisering og sikring av kritiske vassdrag. Norwegian Research Council.
Functional fish habitats in hydropower reservoirs (FunkyFish), Norwegian Research Council. NINA project lead.
ReAdapt - Adapting hydropower to future climate extremes. Norwegian Research Council. SINTEF Energy project lead.
Work package leader hydrology.
Project leader for several projects for management, industry and private organizations within a range of topics in hydrology, hydraulics and environmental flows.

PhD research

Main supervisor

Dr. Morten Stickler. Anchor ice formation and habitat choice of Atlantic salmon (*salmo salar* L.) parr in steep streams (2008).

Dr. Hans-Petter Fjeldstad. Migration of Atlantic salmon through barriers (2012).

Dr. Mulugeta Bereded Zelelew. Improving Runoff Estimation at Ungauged Catchments (2012).

Dr. Haregewoin Haile Chernet. Design Flood computation methods in the Presence long-term climate variability (2013).

Dr. Solomon Bogale Gebre. Climate change impacts on the winter regime of rivers and its effect on hydraulic structures (2014).

Dr. Roser Casas Mulet. Dynamics of dewatering and flooding during hydro peaking operations (2014).

Dr. Netra Prasad Timalina. Ice problems in rivers with hydropeaking power plants (2014).

Dr. Teklu Tesfaye Hailegeorgis. Improved distributed hourly runoff computation in hydrological models (2015).

Dr. Ashenafi Seifu Gagne. Updating Hydrologic Models for Improved Inflow Forecasts into Hydropower Reservoirs. (2015).

Dr. Yisak Sultan Abdella. Quantitative Estimation of Precipitation from Radar Measurements. (2016).

Dr. Tor Haakon Bakken. Water consumption in hydro power (2016).

Dr. Ana Adeva Bustos. A framework to determine environmental flows (2019).

Dr. Marcell Szabo-Meszaros. Safe and efficient two-way migration for salmonids and European eel past hydropower structures (2019).

Dr. Kuganesan Sivasubramaniam. Evaluation and improvement of quantitative precipitation estimates for use in hydrological applications. (2019)

Dr. Aynalem Tassachew Tsegaw. Predicting flows in ungauged small rural catchments using hydrological modelling. (2019)

Dr. Håkon Sundt. Remotely sensed data for bathymetric mapping and ecohydraulics modelling in rivers . (2022)

Dr. Einar Albert Rødtang. Ice loads on bridges in steep rivers. (2023)

Jo Halvard Halleraker Ecosystem based management - development of management tools and indicators for sustainable use of water and catchments. (planned defence 2023)

Co-supervisor

Dr. D.P.Sangroula Sedimentation and sustainability of the Kulekhani reservoir. A Himalayan case. Main supervisor: H. Støle. (2006).

Dr. P. Borsanyi A classification method for scaling river biotopes for assessing hydropower regulation impacts. Main supervisor: Å. Killingtveit. (2006).

Dr. Ville Kasurinen, Linking water and carbon cycles: modeling latent heat exchange and dissolved organic carbon. University of Helsinki. Main supervisor: Frank Berninger (2016).

Dr. Emmanuel Junju Climate change impacts on hydropower in east Africa. Main supervisor: Å. Killingtveit. (2016)

Dr. Erle Kristvik “Climate-Informed Planning and Design of Urban Water Systems”. Main supervisor: Tone M. Muthanna. (2020)

Dr. Elhadi Hassan Abdalla “Developing design tools for green stormwater infrastructures in cold climates.” Main supervisor Tone M. Muthanna. (2023)

Dr. Nitesh Godara. “Hydrodynamic rainfall-runoff modelling for flash floods in small and steep catchments.” Main supervisor: O Bruland (2024)

Dr. Adina Moraru. “Optimization of hydraulic models for the visualization of flash floods in steep rivers”. Main supervisor: O Bruland (2024)

Thea Ingeborg Skrede. “The implementation and design of safe floodways as stormwater management tools in a changing climate” Main supervisor Tone M. Muthanna.

Mahmoud Kenawi. «Footprints and Impacts of Renewable Energy: Pressure on Lands Under Growth.». Planned defence 2024. Main supervisor: TH Bakken

MSc/Diploma theses

A total of 122 MSc/Diploma theses supervised since spring 2002.

Professional experience

Reviewer for research applications in Switzerland, Canada, Belgium, Sweden. Reviewer for 30+ international peer-reviewed scientific journals, Reviewer IPCC Special Report on Ocean and Cryosphere in a Changing Climate (SROCC).

2011 Northern Research Basins, member of organisation committee,
 2014 Ecohydraulics conference, member of organisation committee,
 2018 Nordic Hydrological Conference, leader of scientific committee
 2020 IAHR Ice conference, chairman of organisation committee

External reviewer, member of committee or opponent for 13 PhD's in Sweden, Finland, Italy, Canada and Norway.
Discussion leader for licentiate degree, Chalmers, KTH, University of Luleå, Sweden.

Evaluation of promotion, tenure and employment in Sweden, Norway, Canada, USA and Finland.

Associate editor for Journal of Ecohydraulics and Journal of Hydrology: Regional Studies
Past guest editor of special issues of Water, Sustainability and Hydrology Research

Member of expert group on fish migration, Appointed by the Norwegian Environmental Agency

Awards

2013-14 Best paper award, Journal of Cold Regions Engineering, Gebre et al. (2014) Ice Effects on Hydropower Systems - A Review

2019 Gerard Medal from the Committee of River Ice Processes and the Environment, with B. Turcotte, S. Beltaos and B. Burrell.

Reviewed journal publications

- Shamsaliei, S., Gundersen, OE., Alfredsen, KT., Halleraker JH (2024) Highlighting Challenges of State-of-the-Art Semantic Segmentation with HAIR-A Dataset of Historical Aerial Images. Journal of Data-centric Machine Learning Research
- Godara, N., Bruland, O., Alfredsen, KT. (2024) Comparison of two hydrodynamic models for their rain-on-grid technique to simulate flash floods in steep catchment. Frontiers in water
- Abdalla, EMH., Alfredsen, KT., Muthanna, TM. (2024) Impacts of slope and length on the hydrological performance of green roof drainage mats. Journal of Hydrology
- Kenawi, MSR., Alfredsen, KT., Stürzer, LS., Sandercock, BK., Bakken, TH. (2023) High-resolution mapping of land use changes in Norwegian hydropower systems. Renewable and Sustainable Energy Reviews, 188(113798).
- Skrede, TL., Tørudstad, V., Pons, VJ-MT., Alfredsen, KT., Muthanna, TM. (2023) From flood paths to floodways, an efficient method to map, identify and evaluate suitable floodways: A case study from Trondheim, Norway. Journal of Environmental Management, 346(118672)
- Rødtang, EA., John, J., Alfredsen, KT., Høyland, KV. (2023) In-situ ice strength distribution of anchor ice dams. Cold Regions Science and Technology, 215(103982)
- Alfredsen, KT., Stickler, M., Alne, IS., Brekke, I., Skeie, L., Adeva Bustos, A., Juarez Gomez, A., Sundt, H., Awadallah, MOM., Dønnum, BO. (2023) Erfaringar med bruk av batymetrisk LiDAR for modellering av vassdrag. Vann. volum 57 (04/2022).
- Godara, N., Bruland, O., Alfredsen, KT. (2023) Simulation of flash flood peaks in a small and steep catchment using rain-on-grid technique. Journal of Flood Risk Management.
- Godara, N., Bruland, O., Alfredsen, KT.. (2023) Modelling Flash Floods Driven by Rain-on-Snow Events Using Rain-on-Grid Technique in the Hydrodynamic Model TELEMAT-2D. Water
- Hailemariam, SF., Alfredsen, KT. (2023) Quantitative Flood Risk Assessment in Drammenselva River, Norway. Water. volum 15 (5).
- Halleraker, JH., Natvik, EV., Vaskinn, KA., L'Abbée-Lund, JH., Alfredsen, KT. (2023) By-pass valves in hydropower plants: An ecologically important measure to mitigate stranding in rivers due to emergency turbine flow shutdown. Rivers Research and Applications: an international journal devoted to river research and management. volum 39 (3).
- Hedger, RD., Sundt-Hansen, LineEB., Juarez-Gomez, A., Alfredsen, KT., Foldvik, A. (2023) Exploring sensitivities to hydropeaking in Atlantic salmon parr using individual-based modelling. Ecohydrology.
- Pons, VJ-MT., Abdalla, EMH., Tscheikner-Gratl, F., Alfredsen, KT., Sivertsen, E., Bertrand-Krajewski, J-Luc., Muthanna, TM. (2023) Practice makes the model: a critical review of stormwater green infrastructure modelling practice. Water Research.
- Rødtang, EA., Alfredsen, KT, Høyland, KV, Lia, L (2023) Review of river ice force calculation methods. Cold Regions Science and Technology. volum 209.
- Awadallah, MOM., Malmquist, C., Stickler, M., Alfredsen, K. (2023) Quantitative Evaluation of Bathymetric LiDAR Sensors and Acquisition Approaches in Lærdal River in Norway. Remote Sensing. vol.15
- Hassan Abdalla, EM., Alfredsen, K., Muthanna, TM. (2023) On the use of multi-objective optimization for multi-site calibration of extensive green roofs. Journal of Environmental Management. vol. 326
- Hassan Abdalla, EM., Muthanna, TM., Alfredsen, K., Sivertsen, E. (2022) Towards improving the hydrologic design of permeable pavements. Blue-Green Systems v. 4(2)
- Alfredsen, K., Juarez Gomez, A., Kenawi, MS., Graf, MS., Saha, SK. (2022) Mitigation of environmental effects of frequent flow ramping scenarios in a regulated river. Frontiers in Environmental Science. v.10
- Awadallah, Mahmoud Omer Mahmoud; Juarez Gomez, Ana; Alfredsen, Knut. (2022) Comparison between Topographic and Bathymetric LiDAR Terrain Models in Flood Inundation Estimations. Remote Sensing. vol. 14 (1)
- Marttila, H., Laudon, H., Tallaksen, LM., Jaramillo, F., Alfredsen, K., Ronkanen, A-K., Kronvang, B.; Lotsari, E., Kämäri, M; Ala-Aho, P., Nousu, J; Silander, J; Koivusalo, H; Kløve, B. (2022) Nordic hydrological frontier in the 21st century. Hydrology Research. vol. 53 (5).
- Le Floch, NGY., Pons, V., Hassan Abdalla, EM., Alfredsen, K. (2022) Catchment scale effects of low impact development implementation scenarios at different urbanization densities. Journal of Hydrology. vol. 612 (B)
- Halleraker, JH., Kenawi, MS., L'Abbe-Lund, JH., Bakken, TH., Alfredsen, K. (2022) Assessment of flow ramping in water bodies impacted by hydropower operation in Norway – Is hydropower with environmental restrictions more sustainable?. Science of the Total Environment. vol. 832.

- Awadallah, MOM., Juarez A., Alfredsen, K.. (2022) Comparison between Topographic and Bathymetric LiDAR Terrain Models in Flood Inundation Estimations. *Remote Sensing*. vol. 14 (1).
- Halleraker, JH., Kenawi, MS., L'Abbe-Lund, JH., Bakken, TH., Alfredsen, K. (2022) Assessment of flow ramping in water bodies impacted by hydropower operation in Norway – Is hydropower with environmental restrictions more sustainable?. *Science of the Total Environment*, 832,
- Hassan Abdalla, EM., Alfredsen, K., Muthanna, TM. (2022) Towards improving the calibration practice of conceptual hydrological models of extensive green roofs. *Journal of Hydrology*. vol. 607.
- Alfredsen, K.; Amundsen, P.-A.; Hahn, L.; Harrison, P.M.; Helland, Ingeborg Palm; Martins, E.G.; Twardek, W.M.; Power, M.. (2021) A synoptic history of the development, production and environmental oversight of hydropower in Brazil, Canada, and Norway. *Hydrobiologia*. vol. 849.
- Bakken, TH., Harby, A., Forseth, T., Ugedal, O., Sauterleute, JF., Halleraker, JH, Alfredsen, K. (2021) Classification of hydropeaking impacts on Atlantic salmon populations in regulated rivers. *Rivers Research and Applications*
- Alfredsen, K., Dalsgård, As., Shamsaliei, S., Halleraker, JH., Gundersen, OE. (2021) Towards an automatic characterization of riverscape development by deep learning. *Rivers Research and Applications: an international journal devoted to river research and management*.
- Alfredsen, Knut; Helland, Ingeborg Palm; Martins, Eduardo G.; Power, Michael. (2021) Perspectives on the environmental implications of sustainable hydro-power: comparing countries, problems and approaches. *Hydrobiologia* 2021 ;Volum 849. s. 261-268
- Hassan Abdalla, EM., Selseth, I., Muthanna, TM., Helness, H., Alfredsen, K., Gaarden, T., Sivertsen, E. (2021) Hydrological performance of lined permeable pavements in Norway. *Blue-Green Systems*. vol. 3 (1).
- Hassan Abdalla, EM., Pons, V., Stovin, V., De-Ville, S., Fassman-Beck, E., Alfredsen, K., Muthanna, TM. (2021) Evaluating different machine learning methods to simulate runoff from extensive green roofs. *Hydrology and Earth System Sciences*. vol. 25 (11).
- Sundt, H., Alfredsen, K., Harby, A. (2021) Regionalized linear models for river depth retrieval using 3-band multispectral imagery and green lidar data. *Remote Sensing*. vol. 13 (19).
- Alfredsen, K.; Urke, HA.; Kristensen, T.; Kvakland, M.; Grønningsæter, Å.; Hagen, AG.; Alfredsen, JA. (2021) An acoustic sensor transmitter for in situ assessment of water quality and fish behaviour during chemical treatment of a parasite-infected river system: tag design and practical use. *Animal Biotelemetry*. vol. 9 (7)
- Heggenes, J.; Stickler, M.; Alfredsen, K.; Brittain, JE.; Adeva Bustos, A.; Huusko, A. (2021) Hydropower-driven thermal changes, biological responses and mitigating measures in northern river systems. *Rivers Research and Applications: an international journal devoted to river research and management*. vol. 37 (5)
- Juarez, A.; Alfredsen, K.; Stickler, M.; Adeva Bustos, A.; Suarez, R.; Seguin García, S.; Hansen, BKT. (2021) A conflict between traditional flood measures and maintaining river ecosystems? A case study based upon the river Lærdal, Norway. *Water*. vol. 13 (14)
- Killingtveit, Å.; Alfredsen, K.; Rinde, T.; Østhus, N.; Røhr, PC. (2021) Flood-forecasting and flood management for the Skienelva river system in Norway. *International journal on hydropower and dams*. vol. 28 (2)
- Sundt, H.; Alfredsen, K.; Museth, J.; Forseth, T. (2021) Combining green LiDAR bathymetry, aerial images and telemetry data to derive mesoscale habitat characteristics for European grayling and brown trout in a Norwegian river. *Hydrobiologia*
- Szabo-Meszaros, M.; Silva, AT.; Bærum, KM.; Baktoft, H.; Alfredsen, K.; Hedger, RD.; Økland, F.; Gjelland, Karl Ø.; Fjeldstad, H-P; Calles, O.; Forseth, T. (2021) Validation of a Swimming Direction Model for the Downstream Migration of Atlantic Salmon Smolts. *Water*. vol. 13 (9)
- Baktoft, H., Gjelland, KØ., Szabo-Meszaros, M., Silva, AT., Riha, M., Økland, F., Alfredsen, K., Forseth, T. (2020) Can Energy Depletion of Wild Atlantic Salmon Kelts Negotiating Hydropower Facilities Lead to Reduced Survival?. *Sustainability*. vol. 12 (18).
- Tsegaw, AT, M. Pontoppidan, E. Kristvik, K. Alfredsen, and TM. Muthanna (2020) Hydrological impacts of climate change on small ungauged catchments-results from a GCM-RCM-hydrologic model chain. *Nat. Hazards Earth Syst. Sci.* vol.20.
- Hernes, R., Abdalla, EMH, Gragne, AS, Braskerud, BC, Alfredsen, K. and Muthanna, TM. (2020) Assessing the effects of four SUDS scenarios on Combined Sewer Overflows in Oslo, Norway: Evaluating the low-impact development module of the Mike Urban model. *Hydrology Research (Accepted)*
- Skrede, TI., Muthanna, TM., Alfredsen, K. (2020) Applicability of urban streets as temporary open floodways. *Hydrology Research (accepted)*
- Sivasubramaniam, K. Alfredsen, K., Rinde, T, Sæther, B. (2020) Can model-based data products replace gauge data as input to the hydrological model?. *Hydrology Research*. vol. 51 (2).
- Engeland, Kolbjørn; Alfredsen, Knut. (2020) Hydrology and water resources management in a changing world. *Hydrology Research*.vol. 51 (2).
- Barton, DN., Sundt, H., Adeva Bustos, A., Fjeldstad, H-P., Hedger, RD., Forseth, T., Kshler, B., Aas, Ø., Alfredsen, K., Madsen, AL. (2020) Multi-criteria decision analysis in Bayesian networks - diagnosing ecosystem service trade-offs in a hydropower regulated river. *Environmental Modelling & Software* 124. 104604
- Parasiewicz, P., Prus, P., Theodoropoulos, C., Alfredsen, K., Adamczyk, M., Comoglio, C., Vezza, P. (2019) Environmental Flows Determination and Monitoring with Hydraulic Habitat Models-Pushing the Boundaries of Habitat Models Application. *Water* 11(9) 1950
- Tsegaw, Aynalem Tassachew; Skaugen, Thomas; Alfredsen, Knut; Muthanna, Tone Merete. (2019) A dynamic river network method for the prediction of floods using a parsimonious rainfall-runoff model. *Hydrology Research* vol.51(2)
- Sivasubramaniam, K., Sharma, A., Alfredsen, K. (2019). Merging Radar and Gauge information within a Dynamical Model combination framework for precipitation estimation in cold climates. *Environmental Modelling and Software (accepted)*
- Szabo-Meszaros, M., Forseth, T., Baktoft, H., Fjeldstad, H-P., Silva, AT., Gjelland, KØ., Økland, F., Uglem, I., Alfredsen, K. (2019) Modelling mitigation measures for smolt migration at dammed river sections. *Ecohydrology (accepted)*
- Adeva Bustos, A., Hedger, RD., Fjeldstad, H-P., Stickler, M., Alfredsen, K. (2019) Identification of salmon population bottlenecks from low flows in a hydro-regulated river. *Environmental Modelling & Software* vol 120:
- Tsegaw, AT, Alfredsen, K., Skaugen, T., Muthanna, T.(2019). Predicting hourly flows at ungauged small rural catchments using a parsimonious hydrological model. *Journal of Hydrology*, vol 573:855-871

- Adeva Bustos, A., Alfredsen, K., Fjeldstad, H.-P., Ottoson, K. (2019). Ecohydraulic Modelling to Support Fish Habitat Restoration Measures. *Sustainability*, 11(5), 1500
- Adera, A.G., Alfredsen, K. (2019) Climate Change and Hydrological Analysis of Tekeze River Basin Ethiopia: Implication for potential hydropower production, *Journal of Water and Climate Change* (accepted)
- Juarez, A., Adeva Bustos, A., Alfredsen, K., Dønnum, BO. (2019) Performance of A Two-Dimensional Hydraulic Model for the Evaluation of Stranding Areas and Characterization of Rapid Fluctuations in Hydropeaking Rivers. *Water* 2019 ;Vol 11.
- Sivasubramaniam, K., Sharma, A., Alfredsen, K. (2018) Estimating radar precipitation in cold climates: the role of air temperature within a non-parametric framework. *Hydrology and Earth System Sciences*.vol. 22.
- Ashraf, Faisal; Haghighi, Ali Torabi; Riml, Joakim; Alfredsen, Knut; Koskela, Jarkko; Kløve, Bjørn; Marttila, Hannu. (2018) Changes in short term river flow regulation and hydropeaking in Nordic rivers. *Scientific Reports*. vol. 8 (17232).
- Sundt-Hansen, L.E., Hedger, R.D. Ugedal, O., Diserud O.H., Finstad, A., Sauterleute J.F., Tøfte, L., Alfredsen, K., Forseth, T. (2018) MODELLING CLIMATE CHANGE EFFECTS ON ATLANTIC SALMON: IMPLICATIONS FOR MITIGATION IN REGULATED RIVERS. *Science of the Total Environment* vol 631-632
- Szabo-Meszaros, M., Navaratnam, C.U., Aberle, J., Silva, A. T.; Forseth, T., Calles, O., Fjeldstad, H-P., Alfredsen, K. (2018) Experimental hydraulics on fish-friendly trash-racks: an ecological approach. *Ecological Engineering: The Journal of Ecotechnology*. vol. 113:11-20
- Hailegeorgis, T.T., Alfredsen, K. (2018) High spatial-temporal resolution and integrated surface and subsurface Precipitation-Runoff modelling for a small stormwater catchment. *Journal of Hydrology*. vol. 557:613-630.
- Alfredsen, K., Haas, C., Tuthan, J., Zinke, P. (2018) Brief Communication: Mapping river ice using drones and structure from motion. *The Cryosphere*. vol. 12:627-633
- Kristvik, E., Muthanna, T., Alfredsen, K. (2018) Assessment of future water availability under climate change, considering scenarios for population growth and ageing infrastructure. *Journal of Water and Climate Change*.
- Heggenes, J., Alfredsen, K., Adeva Bustos, A., Huusko, A., Stickler, M. (2017) Be cool: A review of hydro-physical changes and fish responses in winter in hydropower-regulated northern streams. *Environmental Biology of Fishes*.
- Alfredsen, K. (2017) An Assessment of Ice Effects on Indices for Hydrological Alteration in Flow Regimes. *Water*, vol. 9.
- Casas-Mulet, R., Alfredsen, K., McCluskey, A., Stewardson, MJ. Key hydraulic drivers and patterns of fine sediment accumulation in gravel streambeds: a conceptual model and a case study from the Kiewa River, Australia. *Geomorphology (Accepted)*
- Heggenes, J., Alfredsen, K., Bustos, A.A., Huusko, A., Stickler, M. Be Cool: A review of hydro-physical changes and fish responses in winter in hydropower-regulated northern streams. *Environmental Biology of Fishes (Accepted)*
- Bakken, TH., Killingtveit, Å., Alfredsen, K. (2017) The Water Footprint of Hydropower Production - State of the Art and Methodological Challenges. *Global Challenges*. vol 1(5).
- Adeva Bustos, A. Hedger, RD, Fjeldstad, H-P, Alfredsen, K, Sundt, H, Barton, DN. (2017) Modeling the effects of alternative mitigation measures on Atlantic salmon production in a regulated river. *Water Resources and Economics (accepted)*.
- Hailegeorgis, TT, Alfredsen, K. (2017) Regional flood frequency analysis and prediction in ungauged basins including estimation of major uncertainties for mid-Norway. *Journal of Hydrology Regional Studies*. vol. 9.
- Hailegeorgis, TT, Alfredsen, K. (2017) Analyses of extreme precipitation and runoff events including uncertainties and reliability in design and management of urban water infrastructure. *Journal of Hydrology*. vol. 544.
- Lind, L, Alfredsen, K, Kuglerova, L, Nilsson, C. (2016) "Hydrological and thermal controls of ice formation in 25 boreal stream reaches". *Journal of Hydrology* vol 540.
- Bakken, T H, King, T, Alfredsen, K. (2016) "Simulation of river water temperatures during various hydro-peaking regimes." *Journal of Applied Water Engineering and Research* vol. 4(1)
- Kasurinen, Ville; Alfredsen, Knut; Ojala, A; Pumpanen, J; Weyhenmeyer, Gesa A; Futter, Martyn N.; Laudon, Hjalmar; Berninger, Frank. (2016) "Modeling nonlinear responses of DOC transport in boreal catchments in Sweden." *Water Resources Research* vol.52(7)
- Hailegeorgis, Teklu Tesfaye; Alfredsen, Knut; Abdella, Yisak Sultan; Kolberg, Sjur. (2016) "Evaluation of storage discharge relationships and recession analysis-based distributed hourly runoff simulation in large-scale, mountainous and snow- influenced catchment." *Hydrological Sciences Journal (in press)*.
- Bakken, Tor Haakon; Almestad, C; Rugelbak, JM; Escobar, M; Micko, S; Alfredsen, Knut. (2016) Climate Change and Increased Irrigation Demands: What Is Left for Hydropower Generation? Results from Two Semi-Arid Basins. *Energies*. vol. 9 (3)
- Weber, C., H. Scheuber, C. Nilsson and K. Alfredsen "Detection and apparent survival of PIT-tagged stream fish in winter" (2016) *Ecology and Evolution* vol 6(8)
- Hailegeorgis, T. and Alfredsen, K. "Regional Statistical And Precipitation-Runoff Modelling For Ecological Applications: Prediction Of Hourly Streamflow In Regulated Rivers And Ungauged Basins". *River Research and Applications (in press)*
- Hailegeorgis, T. and Alfredsen, K. "Multi-basin and regional calibration based identification of distributed Precipitation-Runoff models for hourly runoff simulation: Calibration and transfer of full and partial parameters". *Hydrology Research (in press)*
- Timalsina, NP. Beckers, F. and Alfredsen, K. (2016) "Modelling winter operational strategies of a hydropower system." *Cold Regions Science and Technology*. 122:1-9.
- Casas-Mulet, R., Alfredsen, K., Saltveit, SJ. and Brabrand, Å. (2016) "Hydropower operations in groundwater-influenced rivers: implications for Atlantic salmon (*Salmo salar*) early-life stages development and survival" *Fisheries Ecology and Management (in press)*
- Gragne, AS., Sharma, A., Mehrota, R. and Alfredsen, K. Recursively updating the error forecasting scheme of a complementary modelling framework for improved reservoir inflow forecasts. *Journal of Hydrology* 527
- Carolli, M., Vanzo, D., Zolezzi, G, Siviglia, A., Bruno, MC. and Alfredsen, K. A simple procedure for the assessment of hydropeaking flow alterations applied to several European streams. *Aquatic Sciences* 77(4)
- Bakken, TH., Johnsen, F., Killingtveit, Å. and Alfredsen, K. (2015) "Are Reservoirs Water Consumers or Water Collectors? Reflections on the Water Footprint Concept Applied on Reservoirs." *Water resources management*, 29(14):4919-4926
- Rial, NH and Alfredsen, K. (2015) "Environmental Flows in Nepal - An Evaluation of Current Practices and an Analysis of the Upper Trishuli-I Hydroelectric Project." *Hydro Nepal: Journal of Water, Energy and Environment*, 17:8-17.

- Timalsina, NP., Alfredsen, K. and Killingtveit, Å. "Impact of climate change on ice regime in a river regulated for hydropower" *Canadian Journal of Civil Engineering* 41: p 1-11.
- Hailegeorgis, T., Alfredsen, K., Abdella, YS. and Kolberg, S. "Evaluation of different parameterizations of the spatial heterogeneity of subsurface storage capacity for hourly runoff simulation in boreal mountainous watershed" *Journal of Hydrology*, 522:522-533, DOI:10.1016/j.jhydrol.2014.12.061
- Casas-Mulet, R. K. Alfredsen, Å. Brabrand and S.J. Saltveit (2015) "Survival of eggs of Atlantic salmon (*Salmo salar*) in a drawdown zone of a regulated river influenced by groundwater". *Hydrobiologia* 743(1):269-284
- Casas-Mulet, R. K. Alfredsen and Å. Killingtveit. (2014) "Modelling of environmental flow options for optimal Atlantic salmon (*Salmo salar*) embryo survival during hydropowering". *Fisheries Management and Ecology* 21(6):480-490
- Hailegeorgis, T. and Alfredsen, K. "Comparative evaluation of performances of different conceptualizations of distributed HBV runoff response routines for prediction of hourly streamflow in boreal mountainous catchments" *Hydrology Research* (accepted)
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