

Curriculum Vitae

Jakob Brodersen

Married, one child

Department of Fish Ecology and Evolution

Center for Ecology, Evolution and Biogeochemistry

EAWAG: Swiss Federal Institute of Aquatic Science and Technology

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Employment career

April 2013 – present: Group leader (tenure track) “River Fish Ecology”, Department of Fish Ecology and Evolution, EAWAG Swiss Federal Institute of Aquatic Science and Technology, Center for Ecology, Evolution and Biogeochemistry, Kastanienbaum, Switzerland.

August 2011 – March 2013: Post doctoral associate, Department of Fish Ecology and Evolution, EAWAG Swiss Federal Institute of Aquatic Science and Technology, Center for Ecology, Evolution and Biogeochemistry, Kastanienbaum, Switzerland.

October 2010 – July 2011: Guest researcher, Department of Fish Ecology and Evolution, EAWAG Swiss Federal Institute of Aquatic Science and Technology, Center for Ecology, Evolution and Biogeochemistry, Kastanienbaum, Switzerland.

October 2010 – June 2011: Post doctoral associate at Department of Ecology//Aquatic Ecology Lund University

April 2009 – September 2010: Post doctoral fellow at Department of Ecology and Evolutionary Biology, Yale University, CT, USA

February 2008 – March 2009: Researcher at Department of Ecology//Limnology Lund University, Lund, Sweden

January 2004 - February 2008: PhD-student at Department of Ecology//Limnology, Lund University, Lund, Sweden

October 2003 - December 2003: Research assistant, Department of Ecology/Limnology, Lund University, Lund, Sweden

April 2002 – April 2003 and

August 2003 – September 2003: Research assistant, Department of Freshwater Ecology, National Environmental Research Institute, Silkeborg, Denmark

January 2002 - April 2002: Project associate, Copenhagen State Forest District, Værløse, Denmark

Education

2008: Ph.D. Lund University, Department of Ecology/Limnology

2000: M.Sc. University of Copenhagen, Faculty of Science, Department of Zoology

1998: B.Sc. in Biology, University of Copenhagen, Faculty of Science

Scholarships

2010: Swedish Research Council (VR); Repatriation grant

2008: Swedish Research Council (VR); Post doctoral fellowship
2003: Lund University; Scholarship for three month education in Fish Ecology
1999: Council for Developing Research's Travel Scholarship for Master students

Review work:

Reviewer for: *Aquatic Sciences, Behavioral Ecology, Biology Letters, Canadian Journal of Fisheries & Aquatic Sciences, Ecological Applications, Ecology, Ecology and Evolution, Ecology Letters, Ecology of Freshwater Fish, Estuaries and Coast, Evolution, Evolutionary Applications, Fish and Fisheries, Fisheries Management and Ecology, Freshwater Biology, Fundamental and Applied Limnology, Hydrobiologia, Journal of Animal Ecology, Journal of Applied Ecology, Journal of Experimental Marine Biology, Journal of Fish Biology, Limnology & Oceanography, Oecologia, Oikos*

Grant reviewer for: *National Science Foundation, USA*

Supervision and hosting

Post-doctoral fellows:

2014-16: Clemens Trautwein

2014-16: Katharina Lange

2015-17: Stephen Thomas

PhD students:

2015-: Philip Dermond, Interplay between local adaptation, migration and diversification. University of Bern & Eawag Switzerland (main supervisor: Jakob Brodersen).

2014-: Carmela Jeanne Dönz, Post-glacial diversification of *Salvelinus*. University of Bern & Eawag Switzerland (main supervisor: Ole Seehausen).

2013-: Joan Holst Hansen, Behaviour and feeding biology of lacustrine fish in relation to lake type. DTU-Aqua, Denmark (main supervisor: Christian Skov).

Master students:

2015-17: Sergio deMichelangeli, University of Bern: Life history variation between and within migratory trout populations. Co-supervised by Ole Seehausen, University of Bern.

2014-16: Jonas Walker, University of Bern: Phenotypic and ecological diversification of *Salvelinus* in South Greenland lake ecosystems. Co-supervised by Ole Seehausen, University of Bern.

2014-15: Petra Nobs, University of Amsterdam: Ecological adaptations to altitude in brown trout (*Salmo trutta*): a case study from the upper Rhine drainage system. Co-supervised by André de Roos, University of Amsterdam.

2014-15: Alba Stamm, University of Zürich: Ecological diversification in secondary contact in Alpine trout populations. Co-supervised by Owen Petchey, University of Zürich.

2013-14: Philip Dermond, University of Zürich: Phenotypic- and ecological diversification in Alpine trout populations. Co-supervised by Owen Petchey, University of Zürich.

2013-14: Michael Häberli, University of Bern: Ecological diversification of *Cottus gobio* in a lake-stream meta-populations. Co-supervised by Ole Seehausen, University of Bern.

2012-13: Carmela Dönz, University of Bern: Diversification and speciation in *Salvelinus* in Alpine lakes. Co-supervision with Ole Seehausen, University of Bern, Catherine Wagner, Eawag.

2012-13: Jennifer Pulver, University of Bern: Perch ecotype formation and diversification. Co-supervised by Ole Seehausen, University of Bern.

- 2009: Caroline Myhre, Lund University: Genetic differences in a partial migratory cyprinid population. Co-supervised by Staffan Bensch, Lund University.
- 2005: Lynn Nilsson, Lund University: Food choice and body-condition development of juvenile pike (*Esox lucius*) in different habitats within a shallow lake. Co-supervised by P. Anders Nilsson, Lund University.

Teaching

Post-graduate courses

'Modelling human induced changes in aquatic ecosystems' March 2007, Ecology Building, Lund University

Under-graduate courses

Zoology, University of Bern, Department of Biology

Aquatic Ecology (BIO R36), Lund University, Department of Ecology

Limnology (BIO R17), Lund University, Department of Ecology

Hydrology and Aquatic Ecology (VVR111), Lund University, Faculty of Engineering

Basic Ecology (BIO C02), Lund University, Department of Ecology

Modelling of Biological Systems (CBI 405), Lund University, Department of Ecology

International symposiums

- 2015: Oral presentation at '2nd International sea trout symposium', Dundalk, Ireland.
- 2010: Oral presentation at 'ESA annual meeting' Pittsburgh, PA, USA
- 2009: Oral presentation at 'ESA annual meeting' Albuquerque, NM, USA
- 2007: Oral presentation at 'ESA annual meeting' San Jose, CA, USA
- 2007: Oral presentation at '7th Conference on Fish Telemetry in Europe' Silkeborg, Denmark
- 2007: Oral presentation at '25th annual Oikos symposium' Stockholm, Sweden
- 2006: Oral presentation at '136th American Fisheries Society Meeting' Lake Placid, NY, USA
- 2006: Poster presentation at '24th annual Oikos symposium' Kalmar, Sweden
- 2004: Oral presentation at 'Behaviour and Ecology of Freshwater Fishes' Silkeborg, Denmark
- 2002: Participation in 'Shallow Lakes Workshop', Balatonfüred, Hungary
- 2001: Poster presentation in 'Joint Spring Symposium', Danish Society for Tropical Medicine and International Health & Danish Society for Parasitology.
- 1999: Participation in 'Workshop on Medical Malacology in Africa', Harare, Zimbabwe

Invited lectures

December 2015: Swiss Ornithological Institute, Sempach, Switzerland.

March 2015: Department of Environmental Microbiology, Eawag, Dübendorf, Switzerland.

November 2013: Department of Ecology and Genetics, Uppsala University, Sweden.

March 2012: Institute of Ecology and Evolution, University of Bern, Switzerland.

June 2011: Department of Fish Ecology and Evolution, Eawag, Kastanienbaum, Switzerland

May 2011: Department of Biology/Aquatic Ecology, Lund University, Sweden

March 2011: National Institute of Aquatic Resources, Danish Technical University, Silkeborg, Denmark

February 2011: Center of Ecology, Evolution & Biogeochemistry, Eawag, Kastanienbaum, Switzerland

April 2008: Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany

List of Publications

Jakob Brodersen

By January 1st 2016, J.B. authored or co-authored 36 peer-reviewed publications listed in Google Scholar that were cited 896 times (average 24.9); h-index = 18.

Publications in international peer-reviewed journals

2015

- Brodersen, J.**, J.G. Howeth, & D.M Post. Emergence of a novel prey life history promotes contemporary sympatric diversification in a top predator. *Nature Communications*, 6, article 8115.
- Chapman, B.B., K. Hulthén, C. Brönmark, P.A. Nilsson, C. Skov, L.-A. Hansson, & **J. Brodersen**. Shape up or ship out: migratory behaviour predicts morphology across spatial scale in a freshwater fish. *Journal of Animal Ecology*, 84, 1187-1193.
- Hulthén, K., B.B. Chapman, P.A. Nilsson, J. Vinterstare, L.-A. Hansson, C. Skov, **J. Brodersen**, H. Baktoft & C. Brönmark (2015). Escaping peril: perceived predation risk affects migratory propensity. *Biology Letters*, 11, 20150466.

2014

- Brodersen, J.**, & O. Seehausen (2014). Why evolutionary biologists should get seriously involved in ecological monitoring and applied biodiversity assessment programs. *Evolutionary Applications*, 7, 968-983.
- Brodersen, J.**, P.A. Nilsson, B.B. Chapman, C. Skov, L.-A. Hansson & C. Brönmark (2014). Fixed and flexible: coexistence of obligate and facultative migratory strategies in a freshwater fish *PLoS ONE*, 9, e90294.
- Brönmark, C., Chapman, B.B., K. Hulthén, **J. Brodersen**, C. Skov, P.A. Nilsson, L.-A. Hansson. There and back again: migration in freshwater fishes. *Canadian Journal of Zoology*, 92, 467-479.
- Hulthén, K., B.B. Chapman, P.A. Nilsson, L.-A. Hansson, C. Skov, H. Baktoft, **J. Brodersen** & C. Brönmark (2014). Sex identification and pit-tagging: tools and prospects for studying intersexual differences in freshwater fish. *Journal of Fish Biology*, 84, 503-512.

2013

- Howeth, J.G., J.J. Weis, **J. Brodersen**, E. Hatton, & D.M. Post (2013). Intraspecific phenotypic variation in a fish predator affects multi-trophic lake metacommunity structure. *Ecology & Evolution*, 3: 5031-5044.
- Skov, C., B.B. Chapman, H. Baktoft, **J. Brodersen**, C. Brönmark, L.-A. Hansson, K. Hulthén, P.A. Nilsson (2013). Migration confer survival benefits against avian predators for partially migratory freshwater fish. *Biology Letters*, 9: 20121178.
- Chapman, B.B., A. Eriksen, H. Baktoft, **J. Brodersen**, P.A. Nilsson, K. Hulthén, C. Brönmark, L.-A. Hansson, P. Grønkjær, & C. Skov. A foraging cost of migration for a partially migratory cyprinid fish. *PLoS ONE*, 8: e61233.
- Hansson, L.-A., **J. Brodersen**, B.B. Chapman, M. Ekvall, A. Hargeby, K. Hulthén, P.A. Nilsson, C. Skov, & C. Brönmark (2013). A lake as a microcosm: reflections on developments in aquatic ecology. *Aquatic Ecology*, 47: 125-137.

Siesing, P.C., J.P. Alva-Jørgensen, **J. Brodersen**, M. Arpi, P.E. Jensen (2013). Rising incidence of *Enterococcus* species in microbiological specimens from orthopedic patients correlates to increased use of cefuroxime. Special focus on tissue samples. *Acta Orthopaedica*, 84: 319-322.

2012

Brodersen, J., P.A. Nilsson, B.B. Chapman, C. Skov, L.-A. Hansson, & C. Brönmark (2012). Variable individual consistency in timing and destination of winter migrating fish. *Biology Letters*, 8: 21-23.

Brodersen, J., F. Landkildehus, T.L. Lauridsen, H.J. Malmquist, S.L. Amsinck, R. Bjerring, M. Søndergaard, L.S. Johansson & E. Jeppesen (2012). Short- and long term niche segregation and individual specialization of brown trout (*Salmo trutta*) in species poor Faroese lakes. *Environmental Biology of Fishes*, 93: 305-318.

Chapman, B.B., K. Hulthen, **J. Brodersen**, C. Skov, P.A. Nilsson, L.-A. Hansson & C. Brönmark. Partial migration in fishes: causes and consequences. *Journal of Fish Biology*, 81: 456-478.

Chapman, B.B., C. Skov, K. Hulthen, **J. Brodersen**, P.A. Nilsson, L.-A. Hansson & C. Brönmark. Partial migration in fishes: definitions, methodologies and taxonomic distribution. *Journal of Fish Biology*, 81: 479-499.

2011

Brodersen, J., A. Nicolle, P.A. Nilsson, C. Skov, C. Brönmark, and L.-A. Hansson (2011). Interplay between temperature, fish partial migration and trophic dynamics. *Oikos*, 120: 1838-1846.

Chapman, B.B., K. Hulthén, D.R. Blomqvist, L.-A. Hansson, J.-Å. Nilsson, **J. Brodersen**, P.A. Nilsson, C. Skov, & C. Brönmark (2011). To boldly go: Individual differences in boldness influence migration. *Ecology Letters*, 14:871-876.

Brodersen, J., J.L. Rodríguez-Gil, M. Jönsson, L.-A. Hansson, C. Brönmark, P.A. Nilsson & O. Berglund (2011). Temperature and resource availability may interactively affect over-wintering success of juvenile fish in a changing climate. *PLoS ONE*, 6: e24022.

Skov, C., H. Baktoft, **J. Brodersen**, C. Brönmark, B.B. Chapman, L.-A. Hansson, & P.A. Nilsson (2011). Sizing up your enemy: individual predation vulnerability predicts migratory probability. *Proceedings of the Royal Society B, Biological Series*, 278: 1414-1418

Nicolle, A., L.-A. Hansson, **J. Brodersen** & C. Brönmark (2011). Interactions between predation and resources shape zooplankton population dynamics, *PLoS ONE*, 6: e16534.

2010

Skov, C., K. Aarestrup, H. Baktoft, **J. Brodersen**, C. Brönmark, L.-A. Hansson, E.E. Nielsen, T. Nielsen & P.A. Nilsson (2010). Influences of environmental cues and familiarity, and migration history on partial migration in roach. *Behavioural Ecology*, 21: 1140-1146.

Brönmark, C., **J. Brodersen**, B. Chapman, A. Nicolle, P.A. Nilsson, C. Skov & L.-A. Hansson (2010). Regime shifts in shallow lakes: the importance of seasonal fish migrations. *Hydrobiologia*, 646: 91-100.

2008

Brodersen, J., P.A. Nilsson, L.-A. Hansson, C. Skov & C. Brönmark (2008). Condition-dependent individual decision-making determines cyprinid partial migration. *Ecology*, 89: 1195-1200.

Brodersen, J., E. Ådahl, C. Brönmark & L.-A. Hansson (2008). Ecosystem effects of partial fish migrations in lakes. *Oikos*, 117: 40-46.

Domenici, P., H. Turesson, **J. Brodersen** & C. Brönmark (2008). Predator-induced morphology enhances escape locomotion in crucian carp. *Proceedings of the Royal Society London, Series B*, **275**: 195-201.

Brodersen, J., P.A. Nilsson, J. Ammitzbøll, L.-A. Hansson, C. Skov & C. Brönmark (2008). Optimal swimming speed in head currents and effects on distance movement of winter-migrating fish. *PLoS ONE*, **3**: e2156.

Brönmark, C., C. Skov, **J. Brodersen**, P.A. Nilsson & L.-A. Hansson (2008). Seasonal migration determined by a trade-off between predator avoidance and growth. *PLoS ONE*, **3**: e1957.

Skov, C., **J. Brodersen**, P.A. Nilsson, L.-A. Hansson & C. Brönmark (2008). Inter- and size-specific patterns of fish seasonal migration between a shallow lake and its streams. *Ecology of Freshwater Fish*, **17**:406-415.

2007

Hansson, L.-A., A. Nicolle, **J. Brodersen**, P. Romare, P.A. Nilsson, C. Brönmark & C. Skov (2007). Consequences of fish predation, migration and juvenile ontogeny on zooplankton spring dynamics. *Limnology & Oceanography*, **52**: 696-706.

2006

Nilsson, E., P. Hertonsen, M. Stenberg, **J. Brodersen**, K. Olsson, P. Stenroth, T. Lakowitz, C. Brönmark, P. Nyström & A.R. McIntosh (2006). Facilitation and interference among three predators affect consumption of a stream-dwelling mayfly. *Freshwater Biology*, **51**: 1507-1514.

2005

Skov, C., **J. Brodersen**, C. Brönmark, P. Hertonsen, L.-A. Hansson & P.-A. Nilsson (2005). Evaluation of PIT-tagging in cyprinids. *Journal of Fish Biology*, **67**: 1195-1201

2003

Brodersen, J. & H. Madsen (2003). The effect of calcium concentration on the crushing resistance, weight and size of *Biomphalaria sudanica* (Gastropoda: Planorbidae). *Hydrobiologia*, **490**: 181-186.

Brodersen, J., M.J. Chimbari & H. Madsen (2003). Prosobranch mollusc species- and size preference of *Sargochromis codringtonii* (Cichlidae) in Lake Kariba, Zimbabwe. *African Journal of Aquatic Science*, **28**: 179-182

2002

Brodersen, J., M.J. Chimbari & H. Madsen (2002). An enclosure study to evaluate the effect of *Sargochromis codringtoni* on snail populations in an irrigation canal. *African Zoology*, **37**: 255-258.

Brodersen, J., M.J. Chimbari & H. Madsen (2002). Laboratory experiments on the snail-size selection by a cichlid snail predator, *Sargochromis codringtoni* (Pisces: Cichlidae). *Journal of Molluscan Studies*, **68**: 194-196.

Submitted manuscripts

Sørensen, M.B., **J. Brodersen**, A. Koed & D.M. Post. Life history change in alewife promotes ontogenetic change in largemouth bass. *Submitted to Oikos*.

Hulthén, K., B.B. Chapman, P.A. Nilsson, J. Vinterstare, L.-A. Hansson, C. Skov, **J. Brodersen** & C. Brönmark. Escaping peril: Perceived predation risk affects migratory propensity. *Submitted to Biology Letters*.

Manuscripts in preparation (to be submitted 2015)

Brodersen, J., D.M. Post & O. Seehausen. Upwards adaptive radiation cascades in food web evolution. *To be submitted to Trends in Ecology & Evolution*.

Brodersen, J. G. Nobbe & C.J. Schubert. Using compound specific stable isotope analyses for distinguishing individual spatial and trophic ecology.

Brodersen, J., E. Schielke, J.G. Howeth, E. O'Donnell & D.M. Post. Top-predator community changes in response to life history change in alewife. *To be submitted to Ecology*.

Brodersen, J., M. Huss, J. Howeth & D.M. Post. Predictable diversification in yellow perch (*Perca flavescens*) in presence and absence of a dominant competitor.

Dermond, P. & **J. Brodersen**. Ecosystem stability affects phenotypic and ecological diversification in Alpine trout populations. Manuscript in prep.

Pulver, J., Seehausen, O. & **Brodersen, J.** Density-dependent ecological and morphological differentiation in pre-alpine perch (*Perca fluviatilis*) populations. Manuscript in prep.

Häberli, M. & **Brodersen, J.** Local adaptation and phenotypic parallel diversification in lake-stream bullhead (*Cottus gobio*). Manuscript in prep.

Dönz, C., Wagner, C., **Brodersen, J.**, Seehausen, O. Overdispersion in gill raker number among sympatric whitefish and charr from pre-alpine lakes: a case of ecological character displacement. Manuscript in prep.

Dönz, C., Wagner, C., **Brodersen, J.**, Seehausen, O. Morphological and ecological variation of Alpine charr (*Salvelinus* spp.) in a pre-alpine lake: Evidence for an endemic species flock? Manuscript in prep.

Hulthén, K., B.B. Chapman, P.A. Nilsson, L.-A. Hansson, C. Skov, **J. Brodersen** & C. Brönmark. Selection on animal personalities from altered predation pressure. Manuscript in prep.

PhD Thesis

Brodersen, J. (2008). Seasonal partial migration of cyprinids – Causes and consequences. Ph.D. thesis, Department of Ecology/Limnology, Lund University.

Master Thesis

Brodersen, J. (2000). Biological control of schistosome intermediate host snails using *Sargochromis codringtoni*. M.Sc. Thesis, Danish Bilharziasis Laboratory, Charlottenlund, Denmark and Blair Research Laboratory, Harare, Zimbabwe.

Reports

Brodersen, J. (2005). Seasonal patterns of predator-induced spatial distribution of fish in shallow lakes. Introductory paper No. 175. ISSN 1100-1844

Conference abstracts

Brodersen, J., P.A. Nilsson, L.-A. Hansson, B.B. Chapman, C. Skov & C. Brönmark. Individual life histories in seasonal partial migration of cyprinid fish. 'ESA annual meeting', Pittsburgh, PA, USA, 2010.

Brodersen, J., C. Brönmark, P.A. Nilsson, A. Nicolle, C. Skov, and L.-A. Hansson. Feed-back loops between seasonal fish migration and ecosystem dynamics. 'ESA annual meeting', Albuquerque, NM, USA 2009

- Brodersen, J.,** C. Brönmark, C. Skov, P.A. Nilsson, L.-A. Hansson. Seasonal migration in cyprinid fish: causes and consequences. 'ESA annual meeting' San Jose, CA, 2007.
- Nilsson, L., **J. Brodersen,** A. Nilsson. Habitat choice can be considered as a trade-off between food availability and risk of predation. 'ESA annual meeting' San Jose, CA, 2007.
- Brodersen, J.** Movement strategies in migrating roach: compromises between distance movement and energy conservation. '25th annual Oikos symposium' Stockholm, Sweden, 2007.
- Nilsson et al Individual behaviours and higher-order processes: a pike approach. '25th annual Oikos symposium' Stockholm, Sweden, 2007.
- Brodersen, J.,** A. Nilsson, C. Brönmark, C. Skov & L.-A. Hansson. Behavioural compromises between distance movement and energy use in migrating roach: head currents determine travel speed and distance. '7th conference on Fish Telemetry in Europe', Silkeborg, Denmark, 2007.
- Brönmark, C., **J. Brodersen,** A. Nilsson, C. Skov & L.-A. Hansson. Seasonal migration in cyprinid fish: causes and consequences. '7th conference on Fish Telemetry in Europe', Silkeborg, Denmark, 2007.
- Nilsson, P.A., **J. Brodersen,** C. Skov, M. Lindegren & C. Brönmark. Spatial behaviour of ambush cannibals: size-determined patterns in pike. '7th conference on Fish Telemetry in Europe', Silkeborg, Denmark, 2007.
- Brodersen, J.,** L. Nilsson, A. Nilsson. Food choice and development of juvenile pike in different habitats within a lake. '136th American Fisheries Society Meeting' Lake Placid, NY, 2006.
- Brönmark, C., **J. Brodersen,** C. Skov, A. Nilsson, L.-A. Hansson. Seasonal migration in cyprinid fish: a trade-off between mortality risk and growth. '136th American Fisheries Society Meeting' Lake Placid, NY, 2006.
- Brodersen, J.,** C. Skov, C. Brönmark & L.-A. Hansson. Winter migration of fish between eutrophic Lake Krankesjön and connected streams. 'Behaviour and Ecology of Freshwater Fishes' Silkeborg, Denmark, 2004.

Popular scientific articles

- Skov, C. & **J. Brodersen** (2008). Fredfisk på vinterferie. *Sportfiskeren*, **9**: 24-25 (in Danish).
- Scheidegger, C., Weber, C., Schleiss, A., Vetsch, D., Boes, R., **Brodersen, J.,** Doering, M., Franca, M.F., Nadyeina, O., Pfister, M., Robinson, C., Weitbrecht, V. & Werth, S. (2014) Forschungsprogramm "Wasserbau und Ökologie": Geschiebe- und Habitatsdynamik. *Inside*, 14, 20-24 (in German).
- Schleiss, A. J., Boes, R., **Brodersen, J.,** Doering, M., Franca, M. J., Nadyeina, O., Pfister, M., Robinson, C., Scheidegger, C., Vetsch, D., Weitbrecht, V., Weber, C., Werth, S. (2014): Geschiebe- und Habitatsdynamik – Forschungsprogramm „Wasserbau und Ökologie“. *Wasser Energie Luft*, 106: 117-122 (in German).