Erik Höglund - DTU Orbit (24/12/2017)

Höglund, Erik
erh@aqua.dtu.dk

National Institute of Aquatic Resources - Visiting Researcher, Former

Publications:

**Bigger is not better: cortisol-induced cardiac growth and dysfunction in salmonids**
Publication: Research - peer-review › Journal article – Annual report year: 2017

**Coping styles in farmed fish: consequences for aquaculture**
Publication: Research - peer-review › Journal article – Annual report year: 2015

**How do individuals cope with stress? Behavioural, physiological and neuronal differences between proactive and reactive coping styles in fish**
Publication: Research - peer-review › Journal article – Annual report year: 2017

**Uncontrollable chronic stress reduces growth disparities in farmed Atlantic salmon**
Publication: Research - peer-review › Journal article – Annual report year: 2017

**A novel role for pigment genes in the stress response in rainbow trout (Oncorhynchus mykiss)**
Publication: Research - peer-review › Journal article – Annual report year: 2016

**Brain serotonergic activation in growth-stunted farmed salmon: adaption versus pathology**
Publication: Research - peer-review › Journal article – Annual report year: 2016

**Cognitive appraisal of aversive stimulus differs between individuals with contrasting stress coping styles; evidences from selected rainbow trout (Oncorhynchus mykiss) strains**
Publication: Research - peer-review › Journal article – Annual report year: 2016

**Coping with a changing environment: The effects of early life stress**
Vindas, M. A., Madaro, A., Fraser, T. W. K., Höglund, E., Olsen, R. E., Øverli, Ø. & Kristiansen, T. S. 2016 In : Royal Society Open Science. 3, 10, 160382
Publication: Research - peer-review › Journal article – Annual report year: 2016

**Effects of acute and chronic stress on telencephalic neurochemistry and gene expression in rainbow trout (Oncorhynchus mykiss)**
Publication: Research - peer-review › Journal article – Annual report year: 2017
Long-term tryptophan supplementation decreased the welfare and innate immune status of pikeperch juveniles
Mandiki, S. N. M., Redivo, B., Baekelandt, S., Douxfils, J., Lund, I., Höglund, E. & Kestemont, P. 2016 In : Fish and Shellfish Immunology. 53, p. 113-114
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2016

Effects of emergence time and early social rearing environment on behaviour of Atlantic salmon: Consequences for juvenile fitness and smolt migration
Publication: Research - peer-review › Journal article – Annual report year: 2015

Improved growth performance in rainbow trout Oncorhynchus mykiss reared at high densities is linked to increased energy retention
Publication: Research - peer-review › Journal article – Annual report year: 2015

Natural selection constrains personality and brain gene expression differences in Atlantic salmon (Salmo salar)
Publication: Research - peer-review › Journal article – Annual report year: 2015

Neuronal and neuroendocrine mechanisms of social rank and stress coping in teleost fish
Publication: Research › Conference abstract in journal – Annual report year: 2015

Stress and fear responses in the teleost pallium
Publication: Research - peer-review › Journal article – Annual report year: 2015

Coping with unpredictability: Dopaminergic and neurotrophic responses to omission of expected reward in Atlantic salmon (Salmo salar L.)
Vindas, M. A., Sørensen, C., Johansen, I., Folkedal, O., Höglund, E., Khan, U. W., Stien, L. H., Kristiansen, T., Braastad, B. O. & Øverli, O. 2014 In : PloS one.. 9, 1, p. e85543
Publication: Research - peer-review › Journal article – Annual report year: 2014

Dietary LC-PUFA deficiency early in ontogeny induces behavioural changes in pike perch (Sander lucioperca) larvae and fry
Publication: Research - peer-review › Journal article – Annual report year: 2014

Feeding motivation as a personality trait in Nile tilapia (Oreochromis niloticus): role of serotonergic neurotransmission
Publication: Research - peer-review › Journal article – Annual report year: 2014

Frustrative reward omission increases aggressive behaviour of inferior fighters
Publication: Research - peer-review › Journal article – Annual report year: 2014

Robustfish: New possibilities for growth and robustness in organic aquaculture
Publication: Research › Poster – Annual report year: 2014
Temperature and oxygen as determining factors in post-stress recovery profiles of Norwegian lobster Nephrops norvegicus
Behrens, J., Höglund, E., Larsen, B. K. & Skov, P. V. 2014
Publication: Research › Poster – Annual report year: 2014

Changes in regional brain monoaminergic activity and temporary down-regulation in stress response from dietary supplementation with L-tryptophan in Atlantic cod (Gadus morhua)
In: British Journal of Nutrition. 109, 12, p. 2166-2174
Publication: Research - peer-review › Journal article – Annual report year: 2012

Coupling between stress coping style and time of emergence from spawning nests in salmonid fishes: Evidence from selected rainbow trout strains (Oncorhynchus mykiss)
Andersson, M. Å., Khan, U. W., Øverli, Ø., Gjæen, H. M. & Höglund, E. 2013
In: Physiological & Behavioural. 116,117, p. 30-34
Publication: Research - peer-review › Journal article – Annual report year: 2013

Divergent stress responses and behaviour in early and late emerging Atlantic salmon (Salmo salar)
Publication: Research › Conference abstract for conference – Annual report year: 2013

High oxygen consumption rates and scale loss indicate elevated aggressive behaviour at low rearing density, while elevated brain serotonergic activity suggest chronic stress at high rearing densities in farmed rainbow trout Oncorhynchus mykiss
In: Physiology & Behaviour. 122, p. 147-154
Publication: Research - peer-review › Journal article – Annual report year: 2013

Introduction of the stress hormone cortisol through food pellets induces cardiac remodelling in rainbow trout Oncorhynchus mykiss
Publication: Research › Conference abstract for conference – Annual report year: 2013

Linking development and growth to personalities in farmed rainbow trout (Oncorhynchus mykiss)
Åberg Andersson, M., Höglund, E. & Steffensen, J. F. 2013
Publication: Research › Ph.D. thesis – Annual report year: 2013

Physiological and behavioral responses to stress in cultivated fish – Effects of selective breeding and exposure to cortisol and tryptophan
Basic, D., Krogdahl, Å. & Höglund, E. 2013
Publication: Research › Ph.D. thesis – Annual report year: 2014

Short- and long-term effects of dietary l-tryptophan supplementation on the neuroendocrine stress response in seawater-reared Atlantic salmon (Salmo salar)
In: Aquaculture. 388, p. 8-13
Publication: Research - peer-review › Journal article – Annual report year: 2013

The effect of tryptophan supplemented diets on brain serotonergic activity and plasma cortisol under undisturbed and stressed conditions in grouped-housed Nile tilapia Oreochromis niloticus
In: Aquaculture. 400-401, p. 129-134
Publication: Research - peer-review › Journal article – Annual report year: 2013

The relationship between emergence from spawning gravel and growth in farmed rainbow trout Oncorhynchus mykiss
In: Journal of Fish Biology. 83, 1, p. 214-219
Utilising spatial distribution in two-tank systems to investigate the level of aversiveness to crowding in farmed rainbow trout *Oncorhynchus mykiss*


Welfare aspects of stocking density in farmed rainbow trout, assessed by behavioural and physiological methods


Brain activation and appraisal of hypoxia in two strains of rainbow trout (*Oncorhynchus mykiss*) displaying divergent stress coping styles


Context-dependent responses to novelty in Rainbow trout (*Oncorhynchus mykiss*), selected for high and low post-stress cortisol responsiveness


Effects of stocking density and sustained aerobic exercise on growth, energetics and welfare of rainbow trout


Hormonal modulation of the heat shock response: insights from fish with divergent cortisol stress responses


Linking personality to larval energy reserves in rainbow trout (*Oncorhynchus mykiss*).


Lower brain levels of serotonin in rainbow trout larvae with a propensity for social dominance

Höglund, E. & Åberg Andersson, M. 2012

Neural plasticity is affected by stress and heritable variation in stress coping style


Omission of expected reward sensitizes the brain dopaminergic system of classically conditioned Atlantic salmon


Behavioural responses to hypoxia provide a non-invasive method for distinguishing between stress coping styles in fish

Consistent boldness behaviour in early emerging fry of domesticated Atlantic salmon (Salmo salar): Decoupling of behavioural and physiological traits of the proactive stress coping style
Publication: Research - peer-review › Journal article – Annual report year: 2011

Effects of maternal stress coping style on offspring characteristics in rainbow trout (Oncorhynchus mykiss)
Publication: Research - peer-review › Journal article – Annual report year: 2011

Is batch variability in hatching time related to size heterogeneity and cannibalism in pikeperch (Sander lucioperca)?
Publication: Research - peer-review › Journal article – Annual report year: 2010

Linking fearfulness and coping styles in fish
Publication: Research - peer-review › Journal article – Annual report year: 2011

Manipulation of the stress responsiveness through dietary tryptophan in Atlantic salmon (Salmo salar) smolt: Consequences on skin pigmentation and behaviour
Basic, D., Höglund, E., Winberg, S., Hillestad, M., Mayer, I. & Krogdahl, Å. 2011
Publication: Research › Poster – Annual report year: 2011

Response to environmental change in rainbow trout selected for divergent stress coping styles
Publication: Research - peer-review › Journal article – Annual report year: 2010

The two-choice system is a non-invasive method for identifying socially dominant individuals from a group of fish
Publication: Research › Poster – Annual report year: 2011

Yolk reserves predicts social status in rainbow trout (Oncorhynchus mykiss) larvae
Åberg Andersson, M. & Höglund, E. 2011
Publication: Research › Conference abstract for conference – Annual report year: 2011

Avoidance behaviour of rainbow trout (Oncorhynchus mykiss) to hypoxia: a non-invasive method for sorting fish according to stress coping style
Publication: Research › Poster – Annual report year: 2010

Differences in growth and behaviour between early and late swim-up salmon
Publication: Research › Conference abstract in proceedings – Annual report year: 2011

Differences in post hatch metabolic rate and developmental rate in Atlantic salmon (Salmo salar L.): Evidence for compensatory growth?
Publication: Research › Poster – Annual report year: 2011

Relation between stress coping style, larval development and time to emergence in rainbow trout (Oncorhynchus mykiss)
Åberg, M., Khan, U. W., Øverli, Ø., Gjøen, H. M., Steffensen, J. F. & Höglund, E. 2010
Publication: Research › Poster – Annual report year: 2010
Stress coping styles in farmed tilapia (Oreochromis niloticus): Consistent individual behavioral differences and response to conspecific alarm cues
Publication: Research › Poster – Annual report year: 2010

Stress responsiveness, energetics and life history traits in salmonid fish
Publication: Research › Conference abstract in proceedings – Annual report year: 2011

Effects of stocking density on the energetics and welfare of rainbow trout
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2009

Larval developmental rate, metabolic rate and future growth performance in Atlantic salmon
Publication: Research - peer-review › Conference abstract in journal – Annual report year: 2009

Behavioral plasticity in rainbow trout (Oncorhynchus mykiss) with divergent coping styles: When doves become hawks
Publication: Research - peer-review › Journal article – Annual report year: 2008

Effects of antalarmin, a CRF receptor 1 antagonist, on fright reaction and endocrine stress response in crucian carp (Carassius carassius)
Lastein, S., Höglund, E., Overli, O. & Doving, K. B. 2008 In: Journal of Comparative Physiology A. Sensory, neural, and behavioral physiology. 194, 12, p. 1007-1012
Publication: Research - peer-review › Journal article – Annual report year: 2008

Female crucian carp, Carassius carassius, lose predator avoidance behavior when getting ready to mate
Publication: Research - peer-review › Journal article – Annual report year: 2008

Larval developmental rate, stress responsiveness and life history traits in salmonids
Publication: Research - peer-review › Journal article – Annual report year: 2008

Parental stress-coping styles affect the behaviour of rainbow trout Oncorhynchus mykiss at early developmental stages
Höglund, E., Gjoen, H-M., Pottinger, T. G. & Overli, O. 2008 In: Journal of Fish Biology. 73, 7, p. 1764-1769
Publication: Research - peer-review › Journal article – Annual report year: 2008

Attenuation of stress-induced anorexia in brown trout (Salmo trutta) by pre-treatment with dietary L-tryptophan
Publication: Research - peer-review › Journal article – Annual report year: 2007

Differences in oxygen consumption, yolk adsorption and behaviour in early life stages of rainbow trout strains selected for high or low stress responsiveness
Höglund, E., Gjøen, H. M. & Øverli, Ø. 2007
Publication: Research › Poster – Annual report year: 2007

Effect of dietary bacterial protein or L-tryptophan supplementation on welfare and growth performance in silverfox
Publication: Research - peer-review › Journal article – Annual report year: 2007
Memory of opponents is more potent than visual sign stimuli after social hierarchy has been established
Publication: Research - peer-review › Journal article – Annual report year: 2007

Antalarmin inhibits alarm reaction in crucian carp (Carassius carassius)
Publication: Research › Conference abstract in proceedings – Annual report year: 2006

A review on the chemical and physiological basis of alarm reactions in cyprinids
Publication: Research - peer-review › Book chapter – Annual report year: 2004

Avoidance behavior and brain monoamines in fish
Publication: Research - peer-review › Journal article – Annual report year: 2005

Does serotonin influence aggression? Comparing regional activity before and during social interaction
Publication: Research - peer-review › Conference article – Annual report year: 2005

Effects of L-DOPA on aggressive behavior and central monoaminergic activity in the lizard Anolis carolinensis, using a new method for drug delivery
Publication: Research - peer-review › Journal article – Annual report year: 2005

Suppression of aggressive behavior in juvenile Atlantic cod (Gadus morhua), by L-tryptophan supplementation
Publication: Research - peer-review › Journal article – Annual report year: 2005

Visual sympathetic signals influence behavior and catecholaminergic response in previously established social hierarchies
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2004

Behavior in established social hierarchies are influenced by visual sympathetic signals
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2003

Behavioural and neuroendocrine effects of environmental background colour and social interaction in Arctic charr (Salvelinus alpinus)
Publication: Research - peer-review › Journal article – Annual report year: 2002

Stimulatory and inhibitory effects of 5-HT1A receptors on adrenocorticotropic hormone and cortisol secretion in a teleost fish, the Arctic charr (Salvelinus alpinus)
Publication: Research - peer-review › Journal article – Annual report year: 2002
Stress-induced changes in brain serotonergic activity, plasma cortisol and aggressive behavior in Arctic charr (Salvelinus alpinus) is counteracted by L-DOPA
Höglund, E., Kolm, N. & Winberg, S. 2001 In : Physiology & Behavior. 74, 3, p. 381-389
Publication: Research - peer-review › Journal article – Annual report year: 2001

Skin darkening, a potential social signal in subordinate Arctic charr (Salvelinus alpinus): The regulatory role of brain monoamines and pro-opiomelanocortin-derived peptides
Publication: Research - peer-review › Journal article – Annual report year: 2000

Feeding behaviour, brain serotonergic activity levels, and energy reserves of Arctic char (Salvelinus alpinus) within a dominance hierarchy
Publication: Research - peer-review › Journal article – Annual report year: 1998

Spatial and temporal distribution of brown trout redds in a small temperate stream
Publication: Research - peer-review › Journal article – Annual report year: 1998

Projects:

Development of filtering technologies for microalgae and sustainable high quality feed for fry (FIMAFY) (39115)
Lund, I. & Höglund, E.
01/10/2013 → 31/03/2017
Project

Stress coping Styles' effect on fitness and life history choice in wild salmonids
Larsen, M. H., Aarestrup, K., Höglund, E., Skov, C., Koed, A., Lucas, M. & Thorstad, E.
01/12/2011 → 02/09/2015
Project: PhD

Fish welfare aspects of individual variation in cognition, physiology and behavior
Moltesen, M. & Höglund, E.
01/11/2011 → 01/05/2015
Project: PhD

Fish welfare aspects of individual variation in cognition, physiology and behaviour (Cope Well) (38813)
Höglund, E. & Moltesen, M.
01/01/2011 → 31/12/2015
Project

Welfare in farmed rainbow trout, social and environmental preferences
01/03/2010 → 03/07/2013
Project: PhD

Integrative Fish Behavioural Neuroscience Network (BIFINE) (38812)
Höglund, E.
01/01/2010 → 31/12/2012
Project
Individual variation in developmental rate in rainbow trout larvae; implications for welfare and production aspects in modern aquaculture
Åberg Andersson, M., Höglund, E., Steffensen, J. F., Skov, P. V., Metcalfe, N. B. & Winberg, S.
01/02/2009 → 28/02/2013
Project: PhD

Animal welfare: social and environmental preferences of reared rainbow trout (38697)
Höglund, E. & Laursen, D. C.
01/01/2009 → 31/03/2013
Project

Strategies to improve health and welfare in rainbow trout farming (38193)
Jokumsen, A., Höglund, E., Larsen, B. K., Skov, P. V. & McKenzie, D. D.
01/01/2007 → 31/12/2010
Project