

HEIDI E. PARDOE, CURRICULUM VITAE

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PHD

November 2005 – December 2009

'Spatial and temporal variation in life history traits of Atlantic cod (*Gadus morhua*) in Icelandic waters'

University of Iceland, Reykjavik

Supervisors/Committee members: Prof. Guðrún Marteinsdóttir (University of Iceland), Dr. Guðmundur Þórðarson (Marine Research Institute, Iceland), Prof. Mikko Heino (Institute of Marine Research, Bergen, Norway), Dr. Ulf Dieckmann (International Institute of Applied Systems Analysis, Laxenburg, Austria)

PUBLICATIONS AND MANUSCRIPTS

- Jakobsdóttir, K.B., **Pardoe, H.**, Magnússon, A., Björnsson, H., Pampoulie, C., Ruzzante, D.E. and Marteinsdóttir, G. 2010. Historical changes in genotypic frequencies at the *Pantophysin* locus in Atlantic cod in Icelandic waters: Evidence of fisheries-induced selection? *Evolutionary Applications*, in press.
- Pardoe, H.**, Vainikka, A., Thordarson, G., Marteinsdóttir, G. and Heino, M. (2009). Temporal trends in probabilistic maturation reaction norms and growth of Atlantic cod (*Gadus morhua* L.) on the Icelandic shelf. *Canadian Journal of Fisheries and Aquatic Sciences* 66: 1719–1733.
- Pardoe, H.** and Marteinsdóttir, G. (2009). Contrasting trends in two condition indices: bathymetric and spatial variation in autumn condition of Icelandic cod (*Gadus morhua* L.). *Journal of Fish Biology* 75: 282–289.
- Pardoe, H.**, Thordarson, G. and Marteinsdóttir, G. (2008). Spatial and temporal trends in condition of Atlantic cod (*Gadus morhua* L.) on the Icelandic shelf. *Marine Ecology Progress Series* 362: 261–277.
- Marteinsdóttir, G. and **Pardoe, H.** (2008). Effects of fishing on inter and intra stock diversity of marine resources. Memorial Book of the 5th World Fisheries Congress 'Fisheries for Global Welfare and Environmental Conservation' (plenary lecture paper), Yokohama, Japan, October 2008.
- Jørgensen, C., Enberg, K., Dunlop, E.S., Arlinghaus, R., Boukal, D.S., Brander, K., Ernande, B., Gårdmark, A., Johnston, F., Matsumura, S., **Pardoe, H.**, Raab, K., Silva, A., Vainikka, A., Dieckmann, U., Heino, M. and Rijnsdorp, A.D. (2008). The role of fisheries-induced evolution – response. *Science* 320: 48–50.
- Jørgensen, C., Enberg, K., Dunlop, E.S., Arlinghaus, R., Boukal, D.S., Brander, K., Ernande, B., Gårdmark, A., Johnston, F., Matsumura, S., **Pardoe, H.**, Raab, K., Silva, A., Vainikka, A., Dieckmann, U., Heino, M. and Rijnsdorp, A.D. (2007). Managing Evolving Fish Stocks. *Science* 318: 1247–1248.
- Devine, J.A., Wright, P.J., **Pardoe, H.** and Heino, M. Fisheries-induced rates of contemporary evolution: comparing haldanes and darwins. *In prep.*
- Heino, M., Dieckmann, U., Ernande, B., Johnston, F., Rijnsdorp, A.D., Therkildsen, N., Vainikka, A., Baulier, L., Boukal, D.S., Mollet, F. and **Pardoe, H.** Shifting reference points: the contribution of fisheries-induced evolution. *In prep.*
- Pardoe, H.**, Dunlop, E., Marteinsdóttir, G. and Dieckmann, U. Eco-genetic modelling of stock structure and the evolutionary effects of fishing: the case of Icelandic cod. *Manuscript.*

APPOINTMENTS AND AFFILIATIONS

- Postdoctoral Researcher, MARICE, Institute of Biology, University of Iceland. Funded by the Icelandic Centre for Research (Rannís). March 2010 – present.
- Appointed scientist in EU Marie-Curie Research Training Network (RTN) ‘Fisheries-Induced Adaptive Changes in Exploited Stocks’ (FishACE), November 2005 – October 2008.
- Researcher in EU Research Network ‘Fisheries-induced Evolution’ (FinE), 2007 – 2010
- Member of ICES Study Group on Fisheries-induced Adaptive Change (SGFIAC), 2007 – 2009
- Participant in Young Scientists Summer Program (YSSP) at the International Institute of Applied Systems Analysis (IIASA), Laxenburg, Austria. June – August 2007. Research project title: ‘*The influence of stock structure on fisheries-induced evolution in Icelandic cod*’
- Teaching Assistant, Institute of Biology, University of Iceland. August 2008 – June 2009
- Researcher at International Institute of Applied Systems Analysis (IIASA), Laxenburg, Austria. April & May 2009.

CONFERENCES, PRESENTATIONS AND MEETINGS

- Co-organiser of seminar ‘*Atlantic cod: Intra-stock diversity and the implications for management*’, University of Iceland, December 10, 2010
- **H. Pardoe**. Spatial and temporal variation in life-history traits of Atlantic cod (*Gadus morhua*) in Icelandic waters. Invited presentation by Dr. C.T. Marshall, School of Biological Sciences, University of Aberdeen, UK, November 11, 2009.
- **H. Pardoe**, A. Vainikka, G. Þórðarson, G. Marteinsdóttir and M. Heino. Trends in probabilistic maturation reaction norms of Icelandic cod. ‘*Ocean and Marine Biota in Iceland*’, Marine Research Institute Conference, Reykjavik, Iceland, February 20 – 21, 2009.
- **H. Pardoe**, E.S. Dunlop, A. Vainikka, M. Heino, G. Þórðarson, U. Dieckmann and G. Marteinsdóttir. Evolutionary effects of fishing on age and size at maturation of Icelandic cod: what role has stock structure played? 5th World Fisheries Congress ‘*Fisheries for Global Welfare and Environmental Conservation*’, Yokohama, Japan, October 20 – 24, 2008
- **H. Pardoe**, E.S. Dunlop, A. Vainikka, M. Heino, G. Þórðarson, U. Dieckmann and G. Marteinsdóttir. Fisheries-induced evolution in maturation of Icelandic cod, and the influence of stock structure. Symposium on ‘*Evolving Fish, Changing Fisheries*’ at the American Fisheries Society annual meeting, Ottawa, Canada, August 17 – 21, 2008
- **H. Pardoe**, G. Þórðarson and G. Marteinsdóttir. Spatial and temporal trends in condition of Icelandic cod. ‘*Cod in Icelandic Waters*’, Marine Research Institute Conference, Reykjavik, Iceland, January 25 – 26, 2008
- **H. Pardoe**, E.S. Dunlop, G. Marteinsdóttir and U. Dieckmann. Modelling stock structure in Icelandic cod and its influence of fisheries-induced evolution. PICES/ICES/NAFO Symposium on ‘*Reproductive and Recruitment Processes in Exploited Marine Fish Stocks*’, Lisbon, Portugal, October 1 – 3, 2007
- **H. Pardoe**, E.S. Dunlop, G. Marteinsdóttir and U. Dieckmann. Modelling stock structure in Icelandic cod: Development and application of an individual-based eco-genetic model. YSSP Late Summer Workshop, IIASA, Austria, August 23 – 24, 2007
- **H. Pardoe**, G. Þórðarson and G. Marteinsdóttir. Spatial, temporal and seasonal trends in condition of Icelandic cod. FishACE Task Workshop on Icelandic cod, Hólar, Iceland, July 20, 2006
- Opening meeting of the European RN FinE, Bergen Norway, September 25 – 27, 2007 and FinE Cod and Sole Case Study Synthesis Workshop, Leuven Belgium, March 9 – 11, 2010.
- Annual meetings of the European RTN FishACE: Hólar Iceland, July 22 – 25, 2006; Port-en-Bessin France, May 8 – 11, 2007; Bergen Norway, July 21 – 27, 2008.
- ICES Study Group on Fisheries-Induced Adaptive Change: Portuguese Research Institute for Agriculture and Fisheries, Lisbon Portugal, February 26 – March 2, 2007; ICES Headquarters, Copenhagen Denmark, January 21 – 25, 2008.

WORKSHOPS AND TRAINING COURSES

- Workshop of the European RN FinE on *Fisheries-induced evolution in North Sea sole and Northeast Arctic cod; a synthesis*, Leuven, Belgium. March 8 – 12, 2010
- Workshop of the European RTN FishACE on *Evolutionarily enlightened fisheries management*, Maastricht, The Netherlands. March 25 – 28, 2008
- Workshop of the Appointed Scientists of the European RTN FishACE on *Fish biology, fish physiology, modelling & statistics* (co-organiser), ICES Headquarters, Copenhagen, Denmark. December 11 – 14, 2006
- *Multivariate Analysis for Marine Biologists*, Prof. Michael Greenacre (Uni. of Pompeu Fabra, Barcelona) and Prof. Raul Primicerio (Norwegian College of Fishery Science, Tromsø), Marine Research Institute, Reykjavik, Iceland. September 11 – 15, 2006
- Workshop of the European RTN FishACE on *Exploitation, management, biology & ecology of Icelandic cod and Arctic charr* (co-organiser), Hólar, Iceland. July 20 – 21, 2006
- Methods Course of the European RTN FishACE on *Applied statistics, fisheries biology, and management*, Hólar University College, Hólar, Iceland July 18 – 19, 2006
- Workshop of the European RTN FishACE on *Eco-genetic models and Evolutionary energy allocation models*, Deia, Spain. May 3 – 5, 2006
- Methods Course of the European RTN FishACE on *Evolutionary modelling methods*, Deia, Spain. May 2 – 3, 2006

UNIVERSITY EDUCATION

University of Iceland (Háskoli Íslands), Reykjavik November 2005 – December 2009

Dept. of Biology (Líffræðistofnun)

PhD

Fish Ecology, 4 credits (8 ECTS) Mark: 90%

Fish Population Dynamics, 3 credits (6 ECTS) Mark: 90%

Biometry II, 3 credits (6 ECTS) Mark: 85%

University of Southampton, UK September 2002 – July 2005

National Oceanography Centre

BSc Marine Biology and Oceanography

Awarded First-Class Degree and John Raymont Prize for highest final mark (77% Average)

Year 1: Introductory courses in Chemical, Physical, Mathematical and Biological Oceanography with emphasis on Marine Ecology, Invertebrate Phylogeny and Biology.

Year 2: Courses in Marine Vertebrate Phylogeny and Physiology, Physical, Chemical and Biological aspects of Estuaries, Environmental Pollution, Statistical Analysis, Phytoplankton Primary Production and Benthic Ecology. Practical Oceanography, including boat and laboratory work, in preparation for two week estuarine and offshore ‘water column’ focused field course.

Year 3: Courses in Fisheries and Aquaculture, Environmental Physiology of Marine Organisms, Larval Development and Zooplankton Ecology, Education module involving school-based science teaching, Marine Molecular Biology, Independent Research Project (dissertation) investigating ‘The Impact of the Manila clam Fishery on the Infauna of Poole Harbour, UK’.

SCHOOL EDUCATION

Dauntsey’s School, Devizes, Wiltshire

September 1998 – June 2000

A-levels (final school exams)

Biology, Chemistry and Geography: All at Grade A

St. Johns School, Marlborough, Wiltshire

September 1993 – June 1998

GCSEs (Age 16 exams)

4 Subjects at Grade A, 5 Subjects at Grade A*

EXPERIENCE

Marine Research Institute/University of Iceland
Various locations, Iceland

2006 – present

- Land-based biological sampling of cod (length, weights, otoliths, sex, maturity status, tissue samples, photographing for morphometric analyses)
- Cod tagging with DST tags onboard fishing vessel Glófaxi (4 days)
- Cod larvae rearing, sampling, photographing, measuring and weighing (during common-garden growth experiment)

Institute of Ocean Sciences, Department of Fisheries and Oceans
Vancouver Island, B.C.

July – Sept. 2004

This provided me with an invaluable insight in to leading oceanographic and biological research. Areas in which I gained experience include:

- Laboratory work: zooplankton identification, biomass analysis
- Interpolation work: analysis of spatial and temporal distributions of zooplankton species using the extensive database and Surfer
- Fieldwork: 2-week sardine stock assessment on-board W.E. Ricker, sampling of all fish species caught, measuring and recording data such as sex and maturity, otolith and vertebrae sampling, plankton sampling using Bongo nets, analysis of the water column with CTD.

RELEVANT SKILLS

- Microsoft Office Software (Word, Excel, Powerpoint)
- Statistical/Programming/Interpolation Software (C, R, S-Plus, PRIMER, Surfer)
- Emergency First Response (First Aid)
- BSAC Sports Diver and PADI Divemaster
- UK Full Driving License

OTHER ACHIEVEMENTS

- Icelandic Research Council and Marine Research Institute student (FS) grant (Total: 1.8 million ISK), 2008/2009
- FSBI Travel Grant Award (£1000), March 2008
- Position on Young Scientists Summer Program, IIASA, Austria. June – September 2007
- John Raymont Prize for highest BSc grade in School of Ocean and Earth Science, 2005
- Inclusion on Dean's List, School of Ocean and Earth Science, University of Southampton (2003, 2004, 2005)
- Dauntsey's School Prize for Geography, 2000
- Dauntsey's School Prefect, 2000
- Brecon Beacons Triathlon, 1999

REFEREES

Academic:

BSc Tutors

Dr. Antony Jensen and Prof. Paul Tyler
School of Ocean and Earth Science
University of Southampton
National Oceanography Centre
European Way
Southampton, UK
SO14 3ZH
Tel. (+44) 02380 593428/592557
E-mail: acj1@noc.soton.ac.uk
pat8@noc.soton.ac.uk

PhD Supervisor

Prof. Guðrún Marteinsdóttir
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University of Iceland
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101 Reykjavik
Iceland

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Academic/Professional:

PhD committee

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