Name: Nick Robinson

Present position	Senior Scientist
Work address	Nofima Marin, Australia Office, 31 Hutchinson Avenue, Warrandyte, 3113 VIC, Australia
Telephone	+64 448984002 (south-eastern Australia time zone)
E-mail	**nick.robinson@nofima.no**

Degrees

1992	Ph.D.
1985	HONs
1984	B.Sc.

Experience

Jan 2004- Dec 2005	*Research Leader, Breeding and Genetics* at AKVAFORSK (Institute of Aquaculture Research AS), Norway.
Oct 1995- Jan 2004	*Head of the Genetics Unit* at the Victorian Institute of Animal Science, Department of Natural Resources and Environment, Victoria, Australia.
Sept 1992- Oct 1995	*Research Scientist* at the Victorian Institute of Animal Science, Agriculture Victoria, Attwood, Victoria, Australia.

Present research activities and fields of interest

Summary. Selective breeding and commercialisation of selective breeding programs. Simulation of selective breeding programs, particularly with the application of new technologies (eg. marker assisted selection, gene expression profiling) and their impact on aquaculture industries (genetic response, benefit-cost ratio, total added value etc). Particular focus on improvement of traits such as disease resistance and resistance to other stresses in the aquaculture environment. Working with species such as Atlantic salmon, Atlantic cod, abalone, carps, shrimp, barramundi and yellow-tail kingfish.

Specific project involvement

Development of a commercial abalone selective breeding entity for mainland Australia
Fisheries Research and Development Corporation Australia Tactical Response Fund 2009. Principle investigator on project.

Improved disease resistance of tiger shrimp and rohu carp farmed in India: Developing and implementing advanced molecular methods, and streamlining access to and use of genetic resources
Norwegian Research Council and Department of Biotechnology, Ministry of Science and Technology, Government of India. 2008-2011. Principle investigator on project.

Scope and economic analysis of options for a nationally unified breeding program that provides significant economic benefit to the Australian abalone aquaculture industry.
Australian Seafood CRC 2008. Principle investigator on project.

The development of a genetic management and improvement strategy for temperate marine finfish (SBT, YTK & Mulloway).
Australian Seafood CRC 2008. Co-investigator on project.

Review of available software tools that can be used to support selective breeding programs in the Seafood CRC.
Australian Seafood CRC 2007. Principle investigator on project.

Selective breeding as a tool to reduce nutrient effluent and improve profit of fish farming
Maj and Tor Nesslingin Foundation, Finland 2008, Co-investigator on project.

Scoping study for selective breeding programs in the Australian Seafood CRC.
Marine Innovation South Australia and Australian Seafood CRC 2007. Coordinator of project.

Use of SNP-chips and selective DNA pooling for identifying disease resistance markers in Atlantic salmon
Norwegian Research Council 2007-2009. Co-investigator on project.

Land based fish farming for Ngati Ranginui- a feasability study.
New Zealand Foundation for Research Science and Technology, 2006. Co-investigator on project.

Sentinal salmon transcriptomes: Use of functional genomic responses as an early warning of stress in the aquaculture environment.
Norwegian Research Council – FUGE. 2006-2009. Co-investigator on project.

Eurocarp: Disease and stress resistant common carp combining quantitative, genomic, proteomic and immunological markers to identify high performance strains, families and individuals.

European Commission under the FP6 program for Specific Targetted Research Programs, (Workpackage Leader and representative on Program Steering Committee). 2006-2009

New techniques to achieve more cost efficient selective breeding for improved consumer acceptance of aquaculture products
Norwegian Research Council- Institusjonsforankret Strategisk Prosjekt. 2006-2009. Principle Investigator on project.

Application of genomic tools and resources to selective breeding for improved disease resistance and animal welfare in fish.
Norwegian Research Council- Havbruk Forskerstyrt Program. 2006-2008. Principle Investigator on project.

Future aquaculture project. Advanced genetic and production technologies for sustainable aquaculture of high value species in Victoria.
Department of Innovation, Industry and Regional Development in Victoria (funding through Our Rural Landscape initiative), 2003-2007

Memberships in academic and professional committees/networks

April 2004-   *Member of the Board of Directors* for the Akvaforsk Genetics Centre (AFGC),
Dec 2005   Norway.

Selected publications

Peer-reviewed journals

Baranski M., Rourke M., Loughnan S., Hayes B., Austin C. and Robinson N. (2008). Detection of QTL for growth rate in the blacklip abalone (*Haliotis rubra* Leach) using selective DNA pooling. *Animal Genetics* **39**, 606-614

Robinson N. A. and Hayes B. H. (2008). Modelling the use of gene expression profiles with selective breeding for improved disease resistance in Atlantic salmon (*Salmo salar*). *Aquaculture* **285**, 38-46.

Robinson N. A., Skinner A., Sethuraman L., McPartlan H., Murray N. D., Knuckey I., Smith D., Hindell J. and Talman S. (2008). Gene flow of blue-eye trevalla (*Hyperoglyphe antarctica*) and the warehouse (*Seriolella brama* and *Seriolella punctata*) around south-eastern Australia and New Zealand waters. *Marine and Freshwater Research* **59**, 502-514.

Robinson N. A., Hayes B. H. and Goddard M.E. (2008). Use of gene expression data for predicting continuous phenotypes for animal production and breeding. *Animal* **2**, 1413-1420.

Mariasegaram M., Robinson N.A., Goddard M.E. (2007). Empirical evaluation of selective DNA pooling to map QTL in dairy cattle using a half-sib design by comparison to individual genotyping and interval mapping. *Genetics Selection Evolution* **39**, 267-283.

Hayes B., Baranski M. and Robinson N. (2007). Optimisation of marker assisted selection for abalone breeding programs. *Aquaculture* **265**, 61-69.

Baranski M., Loghnan S., Austin C. and Robinson N. (2006). A microsatellite linkage map for the blacklip abalone, *Haliotis rubra*. *Animal Genetics* **37**, 563-570.

Baranski M., Rourke M., Loughnan S., Austin C. and Robinson N (2006). Isolation and characterization of 126 microsatellite DNA markers in the blacklip abalone *Haliotis rubra*.

Molecular Ecology Notes **6,** 740-746.

Mariasegaram M., Robinson N. A. and Goddard M. E. (2006) Quantification of cattle DNA using quantitative competitive PCR with sheep DNA as competitor. *Molecular and Cellular Probes* **20,** 18-20.

Loughnan S., Baranski M., Robinson N.A., Jones P.F., and Burridge C.P. (2004). Microsatellite loci for studies of wild and hatchery Australian Murray cod *Maccullochella peeli peeli* (Percichthyidae). *Molecular Ecology Notes* **4**, 382-384.

Reports

Robinson N. and Li X. (2008). Scope and economic analysis of options for a nationally unified breeding program that provides significant economic benefit to the Australian abalone industry. Final report to the Australian Seafood CRC, Project No. 2008/722. South Australian Research and Development Institute.

Robinson N. (2008). Review of available software tools that can be used to support selective breeding programs in the Seafood CRC. Report to the Australian Seafood CRC. South Australian Research and Development Institute.

Knibb, W., Mair, G.C., Elizur, A., Robinson N. and Thomson, M. (2008). The development of a genetic management and improvement strategy for temperate marine finfish (SBT, YTK & Mulloway). Final report to the Australian Seafood CRC, Project No. 2008/703. Flinders University.

Robinson N., Hayes B., Goddard M., Austin C., McKinnon L., Li X. and Baranski M. (2006). Abalone aquaculture subprogram: Use of marker assisted genetic breeding to improve abalone and abalone products. Final report to the Fisheries Research and Development Corporation, Project No. 2002/202. Primary Industries Research Victoria, Attwood.

Other publications

Robinson N., Baranski M. and Hayes B. (2007). Design and evaluation of the use of MAS with selective breeding of abalone. *Aquacuture* **272**, Supplement 1, S304-305.

Baranski, M., Robinson, N., Loughnan, S., Rourke, M., Hayes, B., Austin, C. (2007). Detection of QTL for growth rate in abalone using selective DNA pooling. *Aquaculture* **272**, Supplement 1, S242-S243

Ingram, B.A., McPartlan, H., Rourke, M., Bravington, W., Robinson, N., Hayes, B. 2007. Genetic enhancement of Murray cod for aquaculture and conservation. *Aquaculture* **272**, Supplement 1, S271.

Baranski M., Rourke M., Loughnan S., Hayes B., Austin C. and Robinson N. (2004). Finding gene markers to enhance abalone aquaculture production in Australia. *European Aquaculture Society, Special Publication* **34**, 142-143.

Selected presentations

Conference papers

Robinson N. (2008) Business proposal for a selective breeding program to service mainland abalone farms. Australian Abalone Growers Association Anual General Meeting,

Brisbane, Australia.

Robinson N. (2008) Optimisation of selective breeding- benefits for the Australian abalone industry. Skretting Australasian Aquaculture, Brisbane, Australia.

Robinson N. and Hayes B. (2008). Use of modelling for optimising the genetic response and economic impact of selective breeding programs and for the effective integration of new technologies. Skretting Australasian Aquaculture, Brisbane, Australia.

Robinson N. And Hayes B. (2008). Use of gene expression profiles with selective breeding for improved disease resistance. Meeting on the realization of the Eurocarp project and Workshop on Molecular Genetic Methods in Aquaculture, Moscow, Russia.

Robinson N. (2008). Software tools for selective breeding programs. Leader of a working group sessionfor the development of the Seafood CRC Genetics Theme Business Plan, Melbourne, Australia.

Robinson N. (2008). Workshop to scope a national selective breeding program for the Australian abalone industry. Melbourne, Australia.

Robinson N. (2008). Modelling selective breeding programs. Trait prioritisation, cost, benefits and profit. Workshop for Clean Seas Tuna, Port Lincoln, South Australia.

Robinson N. (2007). Development and commercialisation of a selective breeding company for abalone. Workshop for the Australian Abalone Growers Association, Adelaide.

Robinson N., Goddard M. And Hayes B. (2007). Can phenotype be predicted from gene expression data? Fish Breeders Round Table, Alesund, Norway.

Robinson N., Ingram B., Walker T., Hayes B. and Gooley G. (2006). Seafood biotech futures- II Biotechnology for genetic improvement. Agricultural Biotechnology International Conference, Melbourne.

Robinson N. (2006). Recent advances in molecular techniques for enhancing breeding programs. Australasia Aquaculture Symposium, Adelaide.

Robinson N., Baranski M., Austin C. and Hayes B. (2006). Application of marker assisted selection for genetic improvement of abalone. Australasia Aquaculture symposium, Adelaide.

Hayes B., Baranski M. and Robinson N. (2006). New technologies in aquaculture breeding programs. Havbruk Conference 2006, Norway

B. A. Ingram[*], H. McPartlan, M. Rourke, W. Bravington, N. Robinson, J. Nheu, H King Ho and B. Hayes (2006) Use of genetic and reproduction technologies to conserve and exploit valuable fish resources: A case study featuring Murray cod. Australasia Aquaculture Symposium

Robinson N., Baranski M. and Hayes B. (2006). Design and evaluation of the use of MAS with selective breeding of abalone. International Symposium of Genetics in Aquaculture IX, June 2006, Montpellier, France.

Baranski M., Robinson N., Loughnan S., Rourke M., Hayes B. and Austin C. (2006). Detection of QTL for growth rate in abalone using selective DNA pooling. International Symposium of Genetics in Aquaculture IX, June 2006, Montpellier, France.

Ingram B., Hayes B., McPartlan H., Rourke M., Bravington W. and Robinson N. (2006). Genetic enhancement of Murray cod for aquaculture and conservation. International Symposium of Genetics in Aquaculture IX, June 2006, Montpellier, France.

Moen, T., Berg, P., Hayes B., Lien, S., Omholt, S., Robinson, N. & Våge D.I. (2005). Atlantic Salmon Research within the Centre of Integrative Genetics - CIGENE. International

Marine Biotechnology Conference 2005, juni 5-12, St. John's, Canada

Robinson N. (2005). Application of functional genomics knowledge and tools to selective breeding. Talk presented to an INRA/ AKVAFORSK workshop, Paris.

Våge, D.I., Berg, P., Hayes, B., Høyheim, B., Lien. S., Moen, T., Robinson, N. & Omholt, S. 2005. CIGENEs rolle i genomforskningen på laks. Husdyrforsøksmøtet, Quality Hotel Sarpsborg, Sarpsborg, 7-8 februar, 101-103.

Robinson N. A. (2004). The effective use of new technologies for genetic improvement- the Norway experience. **Keynote Invited Speaker**, Australasian Aquaculture, Sydney.

Ingram B. A., Lade J., Rourke M. and Robinson N. (2004). Genetic enhancement of Australian finfish for aquaculture and conservation: Murray Cod. Australasian Aquaculture, Sydney.

Rourke M., Robinson N., Taylor A., Lade J. and Ingram B. (2004). Use of microsatellite tests to evaluate genetic diversity in wild and captive Murray cod *Maccullochella peelii peelii*. Australasian Aquaculture, Sydney.

Ingram B., Rourke M., Lade J. and Robinson N. (2004). Genetic enhancement of Australian finfish for aquaculture and conservation. Australasian Aquaculture, Sydney.

Robinson N. A. (2004). Use of gene expression profiles as a tool for selective breeding. Fish Breeders Round Table, Håholmen, Norway.