



Project no. N°501984

Project acronym: **WEALTH**

Project title: **Welfare and health in sustainable aquaculture**

Instrument: Specific Targeted Research or Innovation Projects

Thematic Priority: SIXTH FRAMEWORK PROGRAMME  
PRIORITY 8.1

Policy oriented research

## Dissemination activities

Date of preparation: 17/04/08  
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Duration: 42 months

Project coordinator name: Geir Lasse Taranger  
Project coordinator organisation name: Institute of Marine Research, Norway  
Project web-site: <http://wealth.imr.no/>

Revision: Final

### Actual dissemination from Wealth by April 2008

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
September 2004	Juell, J. E., Oppedal, F., Johansson, D., Kelly, M., Stiansen, J.E., & Fosseidengen, J.E., 2004. Behavioural indicators of welfare in fish production cages. In: Book of Abstracts. AqEng "Engineering the future". Leuven, Belgium	Research, Industry	Scientific community worldwide		1
December 2004	Oppedal, F., Juell, J-E., Johansson, D., 2004. Oppdrettsmiljø og fiskevelferd. Animal welfare in fisheries and aquaculture Workshop, Bergen	Research, Industry	Norway		1
September 2004	Juell, J. E., Oppedal, F., Johansson, D., Kelly, M., Stiansen, J.E., & Fosseidengen, J.E., 2004. Behavioural indicators of welfare in fish production cages. In: Book of Abstracts. AqEng 2004 "Engineering the future". Leuven, Belgium, 12-16 September 2004. pp. 594-595.	Research, Industry and Commission	Scientific community worldwide		1
October 20- 23, 2004.	Evensen Ø, Glette J, Sundell K, Taranger GL, 2004. Welfare and health in sustainable aquaculture – Wealth. EAS Barcelona, Oral presentation.	Research, Industry and Commission	Scientific community worldwide		1, 6, 7
December 2004	Oppedal, F., Juell, J-E., Johansson, D., 2004. Oppdrettsmiljø og fiskevelferd. Animal welfare in fisheries and aquaculture Workshop, Bergen Aquarium,	Public	Norway		1
2004	Johansson, D., Juell, J.E., Oppedal, F. Stiansen, J.E. og Fosseidengen, J. E., 2004. Oksygen i laksemerder: Har du tett luftfilter? <i>Norsk Fiskeoppdrett</i> 8, 52-55.	Public	Norway		1
2004	Johansson, D., Juell, J.-E., Oppedal, F., Stiansen J.E. and Fosseidengen, J.E., 2004. Merd-miljø og fiskevelferd i lakseproduksjon på kyst- og fjordlokalteter på Vestlandet. <i>Fisken og Havet, Havforskningsinstituttet</i> , Bergen, Norway, No14-2006: 55 pp.	Public	Norway		1
April 2005	Juell JE, Oppedal F and Johansson D, 2005. Hva kan atferdstudier lære oss om fiskevelferd i oppdrettsmerder. Akvaveterinærenes Forening,	Research	Norway		1
May 2005	Juell, JE, 2005. The 3 R's and behavioural studies in aquaculture: Trade-off between possible animal suffering and relevance. International conference on the harmonization of use and care of fish in research. Gardermoen,	Research, Industry	Scientific community worldwide		1
June 2005	Kristiansen, T.S., Juell, J.E., Oppedal, F., Johansson, D., Fosseidengen, J.E. 2005. Overvåkning av fisk og miljø i merd. - Er dagens FoU teknologi morgendagens produksjonsteknologi? SINTEF- Nordisk Work Shop om Fiskevelferd og oppdrettsteknologi, Rica Nidelven Hotell, Trondheim, 21-22 juni 2005. (In Norwegian)	Research, Industry	Norway		1
August 2005	Santos, G.A., Lupatsch, I., van Anholt, R.D., Schrama J.W. and Verreth., J.A.J. 2005.	Research,	European		11

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
	The effect of stocking density on acute stress response in European sea bass ( <i>Dicentrarchus labrax</i> L.). Aquaculture Europe, Trondheim, Norway.	Industry	countries		
August 2005	T. Ellis, T., James, J.D. & Scott, A.P. (2005). Branchial release of free cortisol and melatonin by rainbow trout. J. Fish Biol. 67 535-540.	Research	Scientific community worldwide		3
April 2005	Juell, JE, 2005 Atferd hos oppdrettsfisk og konsekvenser for medisinforing. Næringsseminar om medisinforing, Schering Plough. Trondheim	Research, Industry	Norway		1
September 2005	Gadan K, Fridell F, Glette J and Evensen Ø, 2005. Effect of overcrowding on the susceptibility of Atlantic salmon ( <i>Salmo salar</i> L.) to experimental challenge of IPN virus. EAAP conference Copenhagen	Research	Scientific community worldwide		1, 7
September 2005	Gadan K, Fridell F, Glette J and Evensen Ø, 2005. Effect of hyperoxygenation on the susceptibility of Atlantic salmon ( <i>Salmo salar</i> L.) to experimental challenge of IPN virus. EAAP conference in Copenhagen, Denmark (poster).	Research	Scientific community worldwide		1, 7
September 2005	Juell JE, Behavioural studies and fish welfare in aquaculture: What questions are we asking? Scandinavian Society for Laboratory Animal Science. Mini symposium on Fish, Oslo,	Research	Scandinavian countries		1
November 2005	Conference: EAS Meeting, Trondheim (Poster presentation)	Research	European countries		11
2005	Juell, J.E and Kristiansen, T. 2005 Fiskevelferd - et positivt eller negativt perspektiv for næringen? In: Boxaspen K. et al. (eds.). Kyst og Havbruk 2005. Fisken og havet, Særnr. 2, 75-77.	Public	Norway		1
January 2006	Juell JE, 2006. Feeding behaviour of farmed fish. Workshop on oral medication, 11-12.01.2006, Inverness, Scotland.	Research	Scientific community worldwide		1
January 2006	Flyer on Welfare and Health in sustainable Aquaculture	Public	Worldwide		1, 6, 7
February 2006	Juell JE, Kristiansen, T, Fosseidengen, J.E, Johannson, D. & Oppedal, F., 2006. Utfordringer i merdmiljøet. Oppdrett av torsk-utfordringer for videre vekst! Nasjonalt Torskenettverksmøte	Research	Norway		1
March 2006	Gadan K, Fridell F, Taranger GL, Santi N, Mercy IS and Evensen Ø, 2006. Effekt av hypoxi på laksemakrofagers cytokinproduksjon etter Poly-I:C stimulering. HAVBRUK 2006, Bergen, 29-31 March 2006. Poster. (In Norwegian)	Research	Scientific community worldwide		1. 7
March 2006	Petochi, T. P. Di Marco, A. Priori, G. Marino. Chemical-clinical welfare indicators in farmed fish. (IZS Government Veterinary Institute, Legnaro, Italy. Oral presentation	Research	Italy		12
March 2006	Oppedal, F., Juell, J-E., Fosseidengen, J.E. og Johannson, D., 2006. Temperatur- og	Research	Norway		1

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
	lysregulerende atferd hos laks i merd: konsekvenser for fiskevelferd? Programkonferanse Havbruk 2006, Sandsli, 29-31				
May 2006	Abstract and talk at international conference, Aqua 2006, Florence, Italy T. Ellis, J. James & A.P. Scott “A non-invasive cortisol assay for seawater Atlantic salmon.”	Research	Scientific community worldwide		3
May 2006	Fridell F, Gadan K, Sundh H, Taranger GL, Glette J, Sundell K and Evensen Ø, 2006. Effect of hyper-oxygenation and low water flow on primary stress response and the susceptibility of Atlantic salmon <i>Salmo salar</i> L. to experimental challenge of IPN virus. WAS/EAS meeting, Aqua 2006, Firenze, Italy, 9-13 May 2006 (oral presentation).	Research	Scientific community worldwide		1, 6, 7
May 2006	Taranger GL, Sundell K, Evensen Ø, Blancheton JP, Ellis T, Alexis, M, Meseguer J, Ellis T, Kotoulas G, Novoa B, Verreth J, Marino G and Glette, J., 2006. WEALTH - Welfare and health in sustainable aquaculture”, welfare session. WAS/EAS meeting, Aqua 2006, Firenze, Italy, 9-13 May 2006. Oral presentation.	Research	Scientific community worldwide		1, 6, 7
May 2006	Taranger GL, Fridell F, Oppedal F, Kvamme BO, Johansson D, Juell JE, Olsen RE, Sundell K, Gadan K, Evensen Ø and Glette J, 2006. Operational husbandry protocols to ensure welfare and health in farmed fish; Welfare and health in sustainable aquaculture – WEALTH. Finfish Health session, WAS/EAS meeting, Aqua 2006, Firenze, Italy, 9-13 May 2006. Oral presentation.	Research	Scientific community worldwide		1, 6, 7
May 2006	Oppedal, F., Johansson, D. og Juell, J-E., 2006. Swimming depth and schooling density of caged Atlantic salmon in vertical temperature and light gradients. AQUA 2006 conference 9-13 May, Firenze, Italy.	Research	Scientific community worldwide		1, 6, 7
May 2006	Sundh H, Fridell F, Gadan K, Evensen Ø, Glette J, Taranger GL and Sundell K. Intensive husbandry conditions and IPN virus affects the intestinal primary barrier in Atlantic salmon ( <i>Salmo salar</i> ). Proceedings to: AQUA 2006, Florence, Italy.	Research	Scientific community worldwide		1, 6, 7
May 2006	Santos, G.A., Schrama, J.W., Verreth, J.A.J., 2006. The effect of stocking density on energy metabolism, behaviour and stress responses of European sea bass ( <i>Dicentrarchus labrax</i> L.). AQUA 2006. 9-13 May, Florence, Italy.	Research	Scientific community worldwide		11
May 2006	Marino, G., P. Di Marco, A. Priori, T. Petochi, A. Massari, A. Mandich, M.G. Finoia, N. Romano. Effects of environmental hypercapnia in sea bass <i>Dicentrarchus labrax</i> : blood gas and acid-base status, stress and immune response to acute and chronic exposure. EAS, AQUA 2006. 9-13 May, Florence, Italy. Abstract and oral presentation	Research and Industry	Scientific community worldwide		12
May 2006	Di Marco, P., A. Priori, T. Petochi, A. Massari, A. Mandich, M.G. Finoia, G. Marino. Physiological and oxidative stress responses in sea bass <i>Dicentrarchus labrax</i> ,	Research and Industry	Scientific community		12

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
	exposed to environmental hypercapnia. EAS, AQUA 2006. 9-13 May, Florence, Italy. Abstract and poster presentation		worldwide		
May 2006	Marino, G., P. Di Marco, T. Petochi, A. Priori, M.G. Finoia. Blood gas and acide-base status in sea bass exposed to environmental hypercapnia. EAS, AQUA 2006. 9-13 May, Florence, Italy. Abstract and poster presentation	Research and Industry	Scientific community worldwide		12
May 2006	Petochi, T., A. Priori, P. Di Marco, M.G. Finoia, G. Marino. Effects of long-term exposure to hypercapnia on innate immune response of sea bass EAS, AQUA 2006. 9-13 May, Florence, Italy. Abstract and poster presentation	Research and Industry	Scientific community worldwide		12
May 2006	E. Caccia, G. Marino, G. Scapigliati, L. Abelli, V. De Molfetta, L. Mastrolia, M. Mazzini and N. Romano. Effects of oxygen and carbon dioxide on the adaptive immune system of cultured sea bass <i>Dicentrarchus labrax</i> . EAS, AQUA 2006. 9-13 May, Florence, Italy. Abstract and poster presentation	Research and Industry	Scientific community worldwide		12
May 2006	Lemarié G., S. Sammouh, E. Gasset, G. Breuil, G. Marino and J. P. Blancheton. Effect of stocking density on sea bass <i>Dicentrarchus labrax</i> performance in a recirculating system. Oral presentation at AQUA 2006, WAS/ EAS European Aquaculture Society Congress. Florence, Italy.	Research and Industry	Scientific community worldwide		2
June, 2006	Poster presentation to the 8th Panhellenic symposium of Oceanography and Fisheries, to be held in Thessaloniki. Effect of different oxygen levels on sea bass growth. Vatsos I.N., Kalogiros H., Giagnisi M. and Alexis M.	Research and Industry	Greece		4
June 2006	Marino, G., P. Di Marco, T. Petochi, A. Priori, M.G. Finoia. Welfare indicators in farmed fish. SIBM Italian Society of Marine Biology. Grosseto, Italy. June 2006. Abstract and oral presentation.	Research	Italy		12
July 2006	Project web-site	Research, Industry, EU Commission and public	worldwide		All
July, 2006	Sepulcre MP, Dios S, Novoa B, Figueras A, Meseguer J, Mulero V, 2006. Identification of immune-relevant genes from sea bass ( <i>Dicentrarchus labrax</i> ) by Suppression Subtractive Hybridization. 10th international congress of the international society for developmental and comparative immunology, Charleston (USA), 1-6 July 2006 (Poster).	Research	Scientific community worldwide		5
August 2006	Poster at international conference, 23rd conference of European Comparative Endocrinologists, Manchester UK A.P. Scott, M. Sebire, I. Katsiadaki, T. Ellis “Non-invasive measurement of fish steroids in water”	Research	Scientific community worldwide		3

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September 2006	Juell JE, Fosseidengen JE and Kristiansen TS, 2006. Utføring tilpasset torskens begrensede vertikalvandring. AKVAFORSK-semiar "Foring av torsk" Molde, 07.09.2006. (In Norwegian)	Research	Norway		1
September 2006	Marino, G., P. Di Marco, T. Petochi, A. Priori, M.G. Finoia. Welfare indicators in farmed fish. (SIBM Italian Society of Marine Biology, Grosseto, Italy. June 2006).	Research	Italy		12
September 2006	Di Marco, P., A. Priori, T. Petochi, M.G. Finoia, G. Marino Effect of hypercapnia on total oxidant and antioxidant status in cultured sea bass <i>Dicentrarchus labrax</i> . UZI Unione Zoologica Italiana. Naples, Italy, September 2006. Abstract and oral presentation.	Research	Italy		12
October 2006	Abstract and talk at international conference: COST 867, Arcachon, France A.P. Scott & T. Ellis "Progress towards a 'dipstick' test for fish welfare"	Research	European scientific community		3
October 2006	Oppedal, F., Juell, J-E. og Johansson, D., 2006. Oppdrettsmiljø og fiskevelferd - forsøksfisk i storskala oppdrettssystem. Forsøksdyrkurs, Haukeland universitetssykehus, 25 okt. 2006.	Research	Norway		1
October 2006	Juell JE, 2006. Fish welfare research at Institute of Marine Research, Norway. COST-867 "Fish welfare in European aquaculture" Archachon, France, 9-11 October 2006.	Research	European scientific community		1
October 2006	Kvamme BO, Taranger GL, Sundell K, Evensen Ø, Blancheton JP, Ellis T, Alexis M, Meseguer M, Ellis T, Kotoulas G, Novoa B, Verreth J, Marino G and Glette J, 2006. Welfare and Health in Sustainable Aquaculture – WEALTH. COST867, Arcachon, France, 9-11 October 2006.	Research	European scientific community		1-12
October 2006	Juell JE, 2006. Fish welfare research at Institute of Marine Research, Norway 2006. COST-867 "Fish welfare in European aquaculture" Archachon, France 9-11 October.	Research	European scientific community		1
October 2006	Schrama, J.W., van de Nieuwegiessen, P.G., Santos, G.A., Martins, C.I.M. and Verreth J.A.J, 2006. Behaviour in relation to fish welfare: individual differences (coping styles) and effects of husbandry conditions. In Meeting of COST Action 867 "Welfare of fish in European aquaculture", October 9 – 11 2006, Arcachon, France.	Research	European scientific community		11
October 2006	Coeurdacier J. L. Alteration of total protein and proteome in serum of sea bass ( <i>Dicentrarchus labrax</i> ) reared at different stocking densities. Oral and poster presentation at « Congrès Société Française d'Electrophorèse et d'Analyse Protéomique (SFEAP) » St Malo, France. 16-19 October 2006	Research	France		2
October 2006	Gadan K, Santi N, Evensen Ø, 2006. Effect of stress on the balance between mixtures of recombinant IPNV isolates in persistently infected Atlantic salmon fry. 9th	Research	European scientific		7

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
	International Symposium on Double-Stranded RNA Viruses, South-Africa, 21-26 October 2006		community		
November 2006	Oppedal, F., Johansson, D. og Juell, J-E., 2006. Kan enkeltindividers atferd lære oss mer effektiv produksjon? Produktivitetskonferansen 2006. MonAqua AS. Norway.	Research, industry	Norway		1
2006	Fridell F, 2006. Stress og mottakelegheit for sjukdom, hjå atlantisk laks. Eupharma seminar, Leknes, Norway. (In Norwegian)	Research, education	Norway		1
2006	Braastad, B., Juell, J.E & Damsgård, B. 2006. Animal behaviour – A new concept in aquaculture and fisheries In: Damsgård, B., Juell, J.E., & Braastad, B.O. 2006 (eds.). <i>Welfare in Farmed Fish. Report 5/2006 Fiskeriforskning</i> , Tromsø, Norway, pp 5-11.	Research, education	Norway		1
2006	Juell, J.E., Johansson, D. & Oppedal, F., 2006 Effects of the cage environment and social interactions on the swimming behaviour and welfare of Atlantic salmon In: Damsgård, B., Juell, J.E., & Braastad, B.O. 2006 (eds.). <i>Welfare in Farmed Fish. Report 5/2006 Fiskeriforskning</i> , Tromsø, Norway, pp 91-98	Research, policy, education	Norway		1
2006	Oppedal, F., Johansson, D., Fosseidengen, J.E. og Juell, J.E., 2006. På hvilket dyp bør lyset plasseres? Norsk Fiskeoppdrett, 10: 58-59.	Public	Norway		1
2006	Oppedal, F., Johansson, D. & Juell, J.E., 2006. The cage environment laboratory: Behavioural studies in a realistic farm environment. In: Damsgård, B., Juell, J.E., & Braastad, B.O. 2006 (eds.). <i>Welfare in Farmed Fish. Report 5/2006, Fiskeriforskning</i> , Tromsø, Norway, pp 24-27	Research, policy, education	Norway		1
January 2007	Kvamme BO, Fridell F, Gadan K, Oppedal F, Evensen Ø and Taranger GL, 2007. Effektar av hypoksi på laksens immunsvær. Frisk Fisk meeting, Tromsø, 23.-25. januar 2007.	Research and Industry	Norway		1, 7
January 2007	Fridell F, Oppedal F, Gadan K, Sundh H, Taranger GL, 2007. Effekten av hypoksi på laksens ve og vel, kan ein måla fiskevelferd? Frisk Fisk meeting, Tromsø, Norway	Research and Industry	Norway		1, 6, 7
January 2007	Kvamme, B.O., Fridell, F., Gadan, F., Oppedal, F., Evensen Ø. and Taranger, G.L, 2007. Effektar av hypoksi på laksens immunsvær. Frisk Fisk meeting, Tromsø, Norway. 23-25 January 2007. (In Norwegian)	Research and Industry	Norway		1, 7
February 2007	Oppedal, F., 2007. Improved management of oxygen flow in net cages – OxFlow. CREATE day, Trondheim, Rica Nidelven hotel, 14-15	Research and Industry	Norway		1
February 2007	Oppedal, F., Bratland, S. and Olsen, R.E., 2007. Kortisol i vann – preliminære resultat. EWOS – oppdrettsmøte. Matre, 22 February 2007	Research and Industry	Norway		1
March 2007	Petochi, T., P. Di Marco, A. Priori, M.G. Finioia, G. Marino. Innate immune response	Research	Italy		12

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	of reared European sea bass <i>Dicentrarchus labrax</i> to different environmental and husbandry conditions. SIICS - Italian Society of Developmental and Comparative Immunobiology. Naples, Italy. Abstract and oral presentation.				
March 2007	Romano, N., E. Caccia, T. Petochi, S. Meloni, L. Mastrolia, G. Scapigliati, L. Abelli and G. Marino. Effects of different carbon dioxide concentrations on the adaptive immune system of cultured sea bass ( <i>Dicentrarchus labrax</i> SIICS - Italian Society of Developmental and Comparative Immunobiology. Naples, Italy. Abstract and oral presentation.	Research	Italy		12
March, 2007	Blancheton J.P., R. Piedrahita, A. Belaud, Y. Moutounet, S. Fivelstad, G. Lemarié (2007b). Gas control in land based aquaculture, physiological and technical aspects : Gaz totaux et oxygène. 15-16 March 2007. <i>Journées du SFAM 2007, Montpellier, France</i>	Research and producers	France		2
April 2007	Dios S, Poisa-Beiro L, Montes A, Aranguren R, Figueras A, Novoa B, 2007. Nodavirus increases the expression of Mx and inflammatory cytokines in fish brain. 7TH international symposium on viruses of lower vertebrates, Oslo, Norway, 22-25 April 2007	Research	Worldwide European scientific community		10
April 2007	Poisa-Beiro L, Dios S, Figueras A, Novoa B, 2007. New lectins characterized by Supression Subtractive Hybridization (SSH) in head kidney from sea bass infected with nodavirus. 7TH international symposium on viruses of lower vertebrates, Oslo, Norway, 22-25 April 2007(Poster).	Research	Worldwide European scientific community		10
April 2007	Gadan K, Mercy IS, Santi N and Evensen Ø, 2007. Stress, immunocompetence and IPN virus infections in Atlantic salmon. ISVLV symposium, Oslo, 22-25 April 2007.	Research	European scientific community		7
May 2007	Kristiansen, T.S., Begout, M-L., Toften, H., Villaroel, M. 2007. What is an operational welfare indicator? COST 867 conference, 2nd COST 867 Welfare of fish in European aquaculture, Work Shop, Varese, Italy.	Research	European scientific community		1, 2
May 2007	Talk at international conference: COST 867, Varese, Italy. T. Ellis "Review of cortisol and fish welfare"	Research	European scientific community		3
May 2007	Oppedal, F., Kristiansen, T., Bratland, S., Stien, L., Folkedal, O. and Juell, J.E., 2007. Salmon experiments in WP1: Pilot postsmolt study, Parr-presmolt-smolt study and postsmolt in cages, FASTFISH mid-term meeting, Crete, 21-23	Research	European scientific community		1
June 2007	Santos, G.A., Schrama, J.W., Rombout, J.H.W.M, Verreth, J.A.J., 2007. Studies on the effects of cronic stressors on energy metabolism, welfare and immunity of	Research	European scientific		11

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
	European sea bass ( <i>Dicentrarchus labrax</i> L.). 2007. AQUA Twin Event 11 – 12 June, Patras, Greece.		community		
June 2007	Petochi, T., N. Romano, P. Di Marco, A. Priori, E. Caccia, G. Scapigliati, S. Meloni, L. Abelli, G. Marino. Innate and adaptive immunity of reared sea bass <i>Dicentrarchus labrax</i> under environmental hypercapnia. NOFFI, Nordic Society for Fish Immunology Congress. Stirling, Scotland, June, 2007. Abstract and poster presentation.	Research	Scientific community worldwide		12
June 2007	Faucher K., Millot S., Blancheton J.P., Lemarié G., Dutto G. & Bégout M.-L. 2007. Effect of stocking density on cultured fish swimming behaviour: First results on sea bass using acoustic telemetry in flow through tanks. 7 <sup>th</sup> Conference on Fish Telemetry, Silkeborg, Denmark. 17-21 June, 2007. Oral presentation	Research	European scientific community		2
June 2007	Faucher K., Millot S., Struski C. & Bégout M.-L., 2007. Assessment of sea bass swimming activity and preferential space use in sea cages using acoustic telemetry and archival tags. 7 <sup>th</sup> Conference on Fish Telemetry, Silkeborg, Denmark. 17-21 June, 2007. Poster.	Research	European scientific community		2
August 2007	Taranger GL, Fridell F, Kvamme BO, Oppedal F, Johansson D, Juell JE, Olsen RE, Sundth H, Gaddan K, Sundell K and Evensen Ø, 2007. Welfare biology in sea cage culture of salmon and sea bass. “My sea home” session. EAS Aqua NOR forum, “Welfare as a driver for technological development in aquaculture”, Trondheim August 15-16, 2007. Oral presentation and panel member. See summary at: <a href="http://www.easonline.org/files/Meetings/aqua_nor_forum_summary.pdf">http://www.easonline.org/files/Meetings/aqua_nor_forum_summary.pdf</a>	Research	Scientific community worldwide		1, 6, 7
August 2007	Welfare Fish welfare in land-based production systems from flow through to recirculation in relation to water quality and fish density. Jean-Paul Blancheton, Emmanuelle Roque d’orbcastel, Jeannine Person and Gilles Lemarié. “My sea home” session. EAS Aqua NOR forum, “Welfare as a driver for technological development in aquaculture”, Trondheim August 15-16, 2007. Oral presentation and panel member. See summary at: <a href="http://www.easonline.org/files/Meetings/aqua_nor_forum_summary.pdf">http://www.easonline.org/files/Meetings/aqua_nor_forum_summary.pdf</a>	Research	Scientific community worldwide		2
September 2007	Petochi T., Di Marco P., Priori A., Longobardi A. M.G. Finoaia. Development of an autopsy-based method to assess on-farm welfare in sea bass. EAFP European Association of Fish Pathologists. Grado, Italy. Abstract and poster presentation.	Research	Scientific community worldwide		12
September 2007	K. Gadan, I. Singh Mercy, H. Sundh, K. Sundell and Ø. Evensen. Effects of Growth hormone and cortisol on the immune response after challenge with infectious pancreatic necrosis virus in Atlantic salmon ( <i>Salmo salar</i> ). EAFP. September 2007.	Research	Scientific community worldwide		1, 7
October 2007	Stien, L. H., Folkedal, O., Gytre, T., Kristiansen, T., Nilsson, J., Torgersen, T., 2007.	Research	Scientific		1

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	Monitoring the welfare of farmed fish. The Research School SCOFDA - Sustainable Control of Fish Diseases in Aquaculture, Two day workshop on welfare and health of fish, Copenhagen, 30th to 31th October, 2007. (Invited lecturer).		community worldwide		
October 2007	Marino, G., T. Petochi, P. Di Marco, J.P. Blancheton, G. Lemariè, A. Priori, A. Priori, A. Massari, M.G. Finioia Developing operational welfare indicators for farmed sea bass <i>Dicentrarchus labrax</i> . EAS, Istanbul, Turkey. Abstract and poster presentation.	Research and Industry	Scientific community worldwide		12,2
October 2007	Effect of anaesthetics on stress physiology and welfare in sea bass <i>Dicentrarchus labrax</i> P. Di Marco, T. Petochi, A. Priori, M.G. Finioia, A. Longobardi, A. Massari, A. Mandich, G. Marino. EAS, Istanbul, Turkey. Abstract and poster presentation.	Research and Industry	Scientific community worldwide		12,2
October 2007	Long-term exposure to combined hyperoxia and hypercapnia on stress and innate immunity of sea bass <i>Dicentrarchus labrax</i> . P. Di Marco, A. Priori, T. Petochi, M.G. Finioia, J.P. Blancheton, G. Lemariè, A. Cevasco, G. Marino. EAS, Istanbul, Turkey. Abstract and poster presentation.	Research and Industry	Scientific community worldwide		12,2
October 2007	Effect of hyperoxia and hypercapnia on total oxidant and antioxidant status in cultured sea bass <i>Dicentrarchus labrax</i> P. Di Marco, A. Alberti, D. Macciantelli, A. Priori, Finioia, A., T. Petochi, J.P. Blancheton, G. Lemariè, G. Marino. EAS, Istanbul, Turkey. Abstract and poster presentation.	Research and Industry	Scientific community worldwide		12,2
October 2007	Blancheton J.P., J. Person-Le Ruyet, G. Lemarié Relation water quality fish requirements. <i>Aquaculture Europe 07 - Annual Meeting of the European Aquaculture Society, Istanbul, Turkey, Short course Principles of recirculation aquaculture systems (RAS) technology, Istanbul, Turkey</i> . Oral presentation.	Research and Industry	Scientific community worldwide		1
October 2007	Blancheton J.P., R. Piedrahita, A. Belaud, Y. Moutounet, S. Fivelstad, G. Lemarié (2007a). Gas control in land based aquaculture, physiological and technical aspects. <i>Aquaculture Europe 07 - Annual Meeting of the European Aquaculture Society, Istanbul, Turkey, Short course Principles of recirculation aquaculture systems (RAS) technology, Istanbul, Turkey</i> .	Research and Industry	Scientific community worldwide		1
October 2007	Oppedal, F., Bratland, S., Stien, L., Nilson, J. and Folkedal, O., 2007. Må vi tenke mer på dyrevelferd i norsk fiskeoppdrett? - Akutt stress hos settefisk, Microteket, EWOS seminar, Stjørdal, 31 October 2007. (In Norwegian)	Research and Industry	Norway		1
October 2007	Oppedal, F., Johansson, D. og Juell, J-E., 2007. Vanngjennomstrømning, oksygentilgang og faktorer som påvirker fiskens atferd i store merder. Akvaveterinærenes høstkurs 2007, Park Inn hotell, Stavanger, 23-24 October 2007. (In Norwegian)	Research and Industry	Norway		1
November	Oppedal, F., Bratland, S. and Folkedal, O., 2007. Akutt stress hos laks - preliminære	Research and	Norway		1

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
2007	data. Produktivitets-konferansen 2007, Kristiansund, November 1 2007. (In Norwegian)	Industry			
November 2007	Oppedal, F., Bratland, S., Stien, L., Nilson, J. and Folkedal, O., 2007. Må vi tenke mer på dyrevelferd i norsk fiskeoppdrett? - Akutt stress hos settefisk, Microteket, EWOS seminar, Bergen, 7 Nov 2007. (In Norwegian)	Research and Industry	Norway		1
December 2007	Taranger GL, Sundell K and Evensen Ø, 2007. WEALTH: "Welfare and health in sustainable aquaculture". Working Group (WG) in the field of aquaculture. Research, Data Collection & Scientific Advice Unit of DG Fisheries & Maritime Affairs, EU Commission, Brussels, 3 - 5 December 2007. (Invited oral presentation).	Research	Scientific community worldwide		1, 6, 7io
December 2007	Oppedal, F., Dempster, T., Kristiansen., T., Korsøen, Ø., Folkedal., O, 2007. Nedsenking/ heving av merder – biologiske aspekter. CREATE-Submersible cage, prosjektmøte, Trondheim, 20 des. 2007	Research and Industry	Norway		1
2007	Annon. 2007. "WEALTH - Welfare and health in sustainable aquaculture". 12pp. (Wealth leaflet available at <a href="http://wealth.imr.no/_data/page/6068/Wealth_leaflet_web.pdf">http://wealth.imr.no/_data/page/6068/Wealth_leaflet_web.pdf</a> )	Research, Policy and Industry	Worldwide		1-12
2007	Fridell, F., Kvamme, B.O., Brix, O., Oppedal, F., Olsen, R.E., Taranger, G.L. 2007. Søket etter nye stress og velferdsmarkører hjå Atlantisk laks. <i>Norsk Fiskeoppdrett</i> , 11:54-57	Public	Norway		1
2007	Fridell, F., Taranger, G.L, Kristiansen T.S. 2007. New research will help farmers manage fish health and welfare. <i>Fish farmer</i> , 30:12-13	Public	Norway		1
2007	Gytte, T., Stien, L. H., Oppedal, F., 2007. How are things in the sea-cage? <i>Marine Research News</i> NO. 18-2007	Public	worldwide		1
2007	Johansson, D. 2007. Production cage environment and salmon beaviour. <i>PhD Thesis</i> . University of Bergen, 2007.	Research, Public	Scientific community worldwide		1
2007	Juell, J.E, Nilsson, J., Olsen, R.E. Fridell,F., Kvamme, B.O., Oppedal, F., Humborstad, O.B., Mangor-Jensen, A. Stien, L.H and Kristiansen, T., 2007. Dyrevelferd i akvakultur og fiskeri – et nytt fagområde i rask vekst. In: Dahl, E., P.K. Haug, T. Karlsen, Ø (eds.). Kyst og Havbruk 2007. Fisken og Havet, særnr 2-2007, s. 141-148.	Public	Norway		1
2007	Kristiansen, T. Johansson, D. Oppedal, F. og Juell, J.E., 2007. Hvordan har oppdrettsfisken det i merdene? In: Dahl, E., P.K. Haug, T. Karlsen, Ø (eds.). Kyst og	Public	Norway		1

Planned/ actual Dates	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved
	Havbruk 2007, Fisken og Havet, særnr 2-2007, pp. 151-155				
2007	Peer-review paper: Scott, A.P., Ellis, T. (2007). Measurement of fish steroids in water—a review. <i>General and Comparative Endocrinology</i> 153 392–400.	Research	Scientific community worldwide		3
2007	Peer-reviewed paper: Fridell F, Gadan K, Sundh H, Taranger GL, Glette J, Sundell K and Evensen Ø. Effect of hyperoxygenation on the susceptibility of Atlantic salmon ( <i>Salmo salar</i> L.) to experimental challenge of IPN virus. <i>Aquaculture</i> 270, 23-35	Research	Scientific community worldwide		1, 6, 7
2007	Peer-reviewed paper: Ellis, T., James, J.D., Sundh, H., Fridell, F., Sundell, K., Scott, A.P. (2007). Non-invasive measurement of cortisol and melatonin in tanks stocked with seawater Atlantic salmon. <i>Aquaculture</i> , 272, 698-706	Research	Scientific community worldwide		1, 3, 6
2007	Peer-reviewed paper: Ellis, T., Bagwell, N., Pond, M., Baynes, S., Scott, A.P. (2007). Acute viral and bacterial infections elevate water cortisol concentrations in fish tanks. <i>Aquaculture</i> , 272, 707-716	Research	Scientific community worldwide		3
2007	Peer-reviewed paper: Johansson, D., Juell, J.-E., Oppedal, F., Stiansen J.E. and Ruohonen, K., 2007. The influence of the pycnocline and cage resistance on current flow, oxygen flux and swimming behaviour of Atlantic salmon ( <i>Salmo salar</i> L.) in production cages. <i>Aquaculture</i> 265, 271-287.	Research	Scientific community worldwide		1
2007	Peer-reviewed paper: Johansson, D., Ruohonen, K., Kiessling, D., Oppedal, F., Stiansen, J.E., Kelly, M., and Juell, J.-E., 2006. Effect of environmental factors on swimming depth preferences of Atlantic salmon ( <i>Salmo salar</i> L.) and temporal and spatial variations in oxygen levels in sea cages at a fjord site. <i>Aquaculture</i> 254, 594-605.	Research	Scientific community worldwide		1
2007	Peer-reviewed paper: Oppedal, F., Juell, J.-E. and Johansson, D., 2007. Thermo- and photoregulatory swimming behaviour of caged Atlantic salmon: Implications for photoperiod management and fish welfare. <i>Aquaculture</i> 265, 70-81	Research	Scientific community worldwide		1
2007	Peer-reviewed paper: Sepulcre MP, Sarropoulou E, Kotoulas G, Meseguer J, Mulero V. 2007. <i>Vibrio anguillarum</i> evades the immune response of the bony fish sea bass ( <i>Dicentrarchus labrax</i> L.) through the inhibition of leukocyte respiratory burst and down-regulation of apoptotic caspases. <i>Mol Immunol</i> 44 (15): 3751-3757.	Research	Scientific community worldwide		5, 9
2007	Peer-reviewed paper: Rønneseth A, Wergeland HI, Devik M, Evensen Ø, Fausa Pettersen E, 2007. Mortality after IPNV challenge of Atlantic salmon ( <i>Salmo salar</i> L.) differs based on developmental stage of fish or challenge route. <i>Aquaculture</i> 271 (1-4): 100-111.	Research	Scientific community worldwide		7
February 2008	Oppedal, F., Bratland, S., Stien, L., Nilson J., og Folkedal, O. 2008. Må vi tenke mer på dyrevelferd i norsk fiskeoppdrett? - Akutt stress hos settefisk, Fiskeridirektoratet,	Research, Industry	Norway		1

<b>Planned/ actual Dates</b>	<b>Type</b>	<b>Type of audience</b>	<b>Countries addressed</b>	<b>Size of audience</b>	<b>Partner responsible /involved</b>
	Bergen, 7 February 2008.				
2008	Kvamme B.O., Oppedal F., Torgersen T., Fridell F., Sundh H., Sundell K. Oksygenivået viktig for oppdrettsfiskens helse og velferd. Kyst og Havbruksrapporten 2008, Fisken og Havet, særnr 2-2008	Public, research, education	Nordic countries		1, 6
2008	Kvamme BO, Fridell F, Oppedal F, Stien L, Torgersen T, Sundh H, Sundell K, Kristiansen T, Juell JE and Taranger GL, 2008. Hypoksi og Hyperoksi - Kva kan det føre til. ScanVacc Seminars, Trondheim, Norway, 2008. (In Norwegian)	Research	Norway		1, 6
2008	Kvamme BO, Fridell F, Oppedal F, Stien L, Torgersen T, Sundh H, Sundell K, Kristiansen T, Juell JE and Taranger GL, 2008. Hypoksi og Hyperoksi - Kva kan det føre til. ScanVacc Seminars, Stavanger, Norway, 2008. (In Norwegian)	Research	Norway		1, 6
2008	Kvamme BO, Fridell F, Oppedal F, Stien L, Torgersen T, Sundh H, Sundell K, Kristiansen T, Juell JE and Taranger GL, 2008. Hypoksi og Hyperoksi - Kva kan det føre til. ScanVacc Seminars, Bergen, Norway, 2008. (In Norwegian)	Research	Norway		1, 6
2008	Peer reviewed paper: Poisa-Beiro L, Dios S, Montes A, Aranguren R, Figueras A and Novoa B. 2008. Nodavirus increases the expression of Mx and inflammatory cytokines in fish brain. Mol Immunol 45 (1): 218-225	Research	Scientific community worldwide		10

Bergen, 18 April 2008, Geir Lasse Taranger