

Evaluation of genetic impact of aquaculture activities on native populations

Terje Svåsand¹, Donatella Crosetti², Eva García-Vázquez³, Eric Verspoor⁴, François Bonhomme⁵, Lorenzo Colombo⁶, Sylvie Lapégue⁷, Gudrun Marteinsdottir⁸, Ingrid Olesen⁹, Costas Triantaphyllidis¹⁰

¹Institute of Marine Research, PO. Box 1870, 5817 Bergen, Norway

²Istituto Centrale per la Ricerca scientifica e tecnologica Applicata al Mare (ICRAM), Ital

³Universidad de Oviedo (UOVE), Spain

⁴The Scottish Ministers acting through Fisheries Research Services, Marine Laboratory (FRS), UK

⁵Université de Montpellier II (UM2), France

⁶Università di Padova (UNIPD), Italy

⁷Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER), France

⁸Institute of Biology, University of Iceland (UoI), Iceland

⁹Institute of Aquaculture Research AS (AKVAFORSK), Norway

¹⁰Aristotle University of Thessaloniki (AUTH), Greece

During the past 10 years, worldwide production of farmed fish has more than doubled, with farming activities now producing half of the fish directly consumed by humans. The potential genetic effects of aquaculture on natural fish populations have aroused a great deal of concern among scientists as well as the general public. The perceived risks are often associated with the possible interactions between cultured and native fish with harmful consequences on ecosystem dynamics.

The EU funded project *Genimpact* (Evaluation of genetic impact of aquaculture activities on native populations – An European network, <http://genimpact.imr.no>) started in November 2005 to review existing knowledge necessary to assess the genetic effects of aquaculture on biodiversity and on the environment, to review future research needs, and to disseminate this information to a wider public.

To achieve this, *Genimpact* convened a series of expert workshops on risk assessment and about interbreeding and aquaculture ecosystem interactions:

1. *Genetics of domestication, breeding and enhancement of performance of fish and shellfish*, Viterbo, Italy, 12-17 June 2006
2. *Monitoring tools for evaluation of genetic impact of aquaculture activities on wild populations*, Tenerife, Spain, 19-21 October 2006
3. *The use of modelling to assess the risk of genetic impacts on wild populations from escapes of cultured fish*, Pitlochry, Scotland, UK, 15–17 February 2007

The gaps in our current knowledge and the suggested research priorities identified during these expert workshops were discussed with stakeholder representatives during a fourth workshop on *Development of management options to reduce genetic impacts of aquaculture activities*, held in Thessaloniki, Greece, 19-22 April 2007, and presented at an international symposium in Bergen, Norway, 2-4 July 2007.

The main findings and conclusions of *Genimpact* focusing on genetic tools for stock identification are presented in this paper.

Key words: Aquaculture, Genetic interaction, monitoring tools

Contact author: Dr Terje Svåsand, Institute of Marine Research, PO. Box 1870, 5817 Bergen, Norway, tel.: +47556891, email: terje.svaasand@imr.no