

FISHBOOST

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Background

In Europe, large differences between countries, species etc.

- Potential to increase productivity, efficiency and profit through domestication and genetic improvement of farmed finfish.
- Main finfish species in Europe: Atlantic salmon, common carp, European seabass, gilthead seabream, rainbow trout and turbot















Aim of FISHBOOST

To improve the efficiency and profitability of European aquaculture by advancing selective breeding to the next level for each of the six main finfish species through collaborative research with industry.



Boosting European aquaculture by advancing selective breeding to the next levels for six main finfish species

	Level 0	Level 1	Level 2	Level 3
Atlantic salmon				
Rainbow trout				
European seabass				
Gilthead seabream				
Turbot				
C. carp				



1. Nofima AS
2. European Forum of Farm Animal Breeders
3. Hellenic Centre for Marine Research
4. Institut Francais de Recherche pour l'Exploitation de la Mer
5. Stichting Dienst Landbouwkundig Onderzoek
6. Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria
7. Institut National de la Recherche Agronomique
8. MTT Agrifood Research Finland
9. University of Edinburgh
10. Universitetet for Miljo og Biovitenskap
11. Università degli Studi di Padova
12. Jihoceska Univerzita v Ceskych Budejovicich
13. Wageningen Universiteit
14. Kalliergies Ydrovion Organismon A.E. Andromeda S.A.
15. Ferme Marine du Douhet SAS
16. Fédération Européenne de Producteurs Aquacoles
17. BioMolecular Research Genomics srl
18. Cluster de la Acuicultura de Galicia
19. Pisciculture de Milin Nevez
20. Geneaqua
21. Klatovske Rybarstvi A.S.
22. Gie Laboratoire d'Analyses Genetiques pour les Espaces Animales
23. Salmobreed AS
24. Syndicat des Sélectionneurs Avicoles et Aquacoles Français
25. Vyzkumny Ustav Veterinarniho Lekarstvi
26. Les Poissons du Soleil



DISEASE RESISTANCE; Ross Houston, University Edinburgh



PRODUCTION EFFICIENCY: Antti Kause, Luke



GENOMICS: Theo Meuwissen, Norwegian University of Life Sciences



OPTIMISING BREEDING SCHEMES: Beatriz Villanueva, INIA



PERCEPTION STUDIES and
COMMUNICATION/DISSEMINATION:
Miriam van Straten, EFFAB



ECONOMIC ASSESSMENT: Hans Komen,
Wageningen University

What will FISHBOOST do for European aquaculture?



Improve protocols for recording of traits

- Feed efficiency
- Fillet yield
- Disease
 - Resistance
 - Tolerance
 - Infectivity



Robbert Blonk, IMARES, feed efficiency

Calculate heritability and genetic correlations

- Feed efficiency and fillet yield
- Winter survival
- Diseases
 - PD (V), KHV ((V), VNN (V), Pasteurella (B), Sparicotyle chrysophrii (P), FP (B), Scuticociliatosis (P)
- G x multiple feed (veg/marine origin)



Develop the genomics field for the six finfish species

- Genotyping by sequencing techniques
- Linkage maps
- Map genes for disease traits
- Genomic selection methods
- Genomic breeding values



Perform economic and perception assessment of breeding

- Economic assessment of traits
- Cost-benefit analysis of breeding in aquaculture
- Interview and survey of perceptions
 - Stakeholder groups and Producers

Deliver optimised breeding schemes for six finfish species

- Design
- Genetic parameters
- Evaluation methods
- Economic evaluation of traits
- Perception of producers & representative organisations

Hard facts

- FP7-Collaborative Research Project targeted to SMEs- grant agreement No 613611
- February 2014-January 2019
- The contribution of the European Commission is €6 million, total budget ~€7.5 mill
- Project officer at EC: Marta Iglesias

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Level 0 No modern breeding programmes.

Level 1 Basic breeding programmes with few traits that are measured directly on selection candidates.

Level 2 Advanced breeding programmes with several traits and routine sib-testing to improve some traits via family selection.

Level 3 Advanced breeding programmes with several traits and routine use of genomic tools to improve accuracy on sib- tested traits.