AQUAEXCEL and AQUAEXCEL2020: Research infrastructures projects for the benefit of European aquaculture
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AQUAEXCEL and AQUAEXCEL\textsuperscript{2020}: RESEARCH INFRASTRUCTURE PROJECTS FOR THE BENEFIT OF EUROPEAN AQUACULTURE

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INRA, France

Paris, CRB Anim international seminar, 12 May 2017
Aquaculture: a growing challenge

EU level: production is now stagnating and 85% of seafood is imported

- EU strategy to develop aquaculture production
- Research to improve competitiveness and sustainability
AQUAEXCEL²⁰₂⁰ – At a glance

Aquaculture Infrastructures for Excellence in European Fish Research (towards 2020)

<table>
<thead>
<tr>
<th>AQUAEXCEL</th>
<th>AQUAEXCEL²⁰₂⁰</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2015 (4 years)</td>
<td>2015-2020 (5 years)</td>
</tr>
<tr>
<td>17 partners, 27 facilities</td>
<td>22 partners, 39 facilities</td>
</tr>
<tr>
<td>9.2 M€ grant</td>
<td>9.7 M€ grant</td>
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**Main goal:** to integrate and open the key aquaculture research infrastructures in Europe, covering all EU fish culture systems and competences

www.aquaexcel2020.eu
Types of activities

**Transnational Access (TNA):** Give ‘free of charge’ access to the world-class infrastructures and resources of the consortium

**Networking Activities (NA):** Co-ordinate partners infrastructures (resource and know-how sharing, communication) and give visibility

**Joint Research Activities (JRA):** Joint R&D to improve the services provided by the infrastructures
AQUAEXCEL Networking activities
The RI Map on www.aquaexcel2020.eu

AquaExcel Archive

Interactive Map

For questions related to the map please contact AquaTT (claudia@aquatt.ie).

Research Infrastructures open for Trans National Access in AQUAEXCEL
University
Research Institute
Industry
Other

Other Research Infrastructures
University
Research Institute
Industry
Other

Add your Research Infrastructure to the map
Login / Register Add Research Infrastructure

Filter Map
Countries Expertise Main species Type of site
Type of water

Currently 108 entries
Interactive menu
Searchable
Detailed information available

Page created on: Wed, 05/10/2016 - 17:32. Last update: Wed, 03/05/2017 - 12:37.
AQUAEXCEL Networking activities
ATOL / EOL ontologies

+ measurement methods for 63 major traits
AQUAEXCEL Networking: training courses

Extended in AQUAEXCEL²₀₂₀

9 courses in total

RAS technology @ Wageningen
Aquaculture Genomics @ INRA
Chromosome manipulations @ Stirling
New Monitoring Tech @ NTNU
AQUAEXCEL Joint research
Access your infrastructure from your living room

www.aquaexcel2020.eu
AQUAEXCEL Joint research

Effect of experimental unit size on results
AQUAEXCEL Joint research

Early individual tagging of sea bass and sea bream

- Survival OK for BW>400 mg
- No effect on growth
- Effect on swimming behaviour (disappears after 42 days)
- Reading success >80%

- Survival OK
- DNA collected starting 71 dpf (43 mg)
- DNA quality/quantity OK for routine genotyping for fish> 87 dpf (248 mg)

- Insertion of the NonaTec tag in the abdominal cavity of a 400 mg juvenile seabass

- Sampling of the caudal fin for DNA collection

- Sampling mucus on Whatmann paper and storage at -20°C

www.aquaexcel2020.eu
AQUAEXCEL Joint research
Isogenic fish lines: the lab mouse of fish research

'Control' salmon from 2011 experiment. The salmon is progeny from a cross between a normal female and untreated sperm from a normal male. The eggs were incubated without pressure treatment. The control fish all had a normal spotted phenotype.

Unspotted gynogenetic double haploid phenotype.

Already there:
AQUAEXCEL transnational access
136 projects submitted → 97 financed

170 projects foreseen in AQUAEXCEL2020
Four workpackages focus on strengthening joint research activities, whilst four more involve TNA, industry links, developing common standards and tools and providing training and dissemination.
Networking activities

- Management of the TNA calls
- Fostering innovation through analysis and promotion of results by and Industry-Research Advisory Panel
- The Digital Fish: organize and share fish lines data
- An open access bioinformatics tool (Fish and Chips)
- Common procedures for cryobanking
- Data collection and interoperability
- “one stop shop” Web portal www.aquaexcel2020.eu
- Face-to-face and distance learning courses
Joint research for better experiments

- Virtual modelling of aquaculture experimental facilities to help design/interpret experiments
- Experimental fish management: effect of life history on results, how to achieve maximal feed intake
- Development and maintenance of stable fish lines for experimental purposes
- Internal nano-sensors to monitor fish physiology/behavior in real time
Transnational Access

The numbers

21 Host Organisations
39 Research Installations
~170 Funded Projects
~217 Users
~300 Applications
The TNA offer

Access to the partner research installations for

- Researchers from public & private organisations
- Maximum 2 people for up to 3 months (remote access also possible)
- Use of facilities not available in own country
- Free (travel and subsistence expenses paid)
Transnational access:
all major EU fish
species + new species

AQUAEXCEL partners
New in AQUAEXCEL2020
All types of infrastructures

New in AQUAEXCEL 2020: Disease challenge testing
What is the vision for 2020?

In 2020, we will...

- Have 180 TNA projects completed, many by SMEs and young scientists (trained in our AE2020 courses)
- Be able to track the background info of all our results
- See AQUAEXCEL2020 results in all EU aquaculture conferences
- Provide a documented catalogue of isogenic experimental lines of salmon, trout, sea bass and carp
- Obtain better, industry meaningful results with less fish
- Follow experiments in real time with implanted fish and benchmark them with a priori simulation models

...prepare AQUAEXCEL2025?
What are the benefits?

For project partners

• Building a community of leading research organizations
• Sharing of experiences/methods and tools
• Developing new experimental approaches
• Developing new collaborations through TNA
• But NOT subsidizing routine operation of the infrastructures
• Preparing an ERIC? Need for national support!
Challenges for an infra project

What do you need to build an infrastructures project?

• Have a shared vision among top-level EU partners
• Identify complementarities / synergies among partners
• Have the right words in the Work Programme:
  • Easy for Networking Activities
  • Think well for Joint Research Activities: this is NOT problem-solving research
• The greatest challenge: an attractive TNA offer
  • What are your products and services?
  • Would you use them if available in other institutions?
  • Does not subsidize unused structures (20% rule)!!