AQUA EXCEL 2020

AQUAculture infrastructures for EXCELlence in European fish research towards 2020

Project News

ISSUE 1 OCTOBER 2016

WELCOME TO ISSUE 1 OF THE AQUAEXCEL2020 PROJECT NEWSLETTER

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Welcome from the Coordinator

Project Coordinator Dr Marc Vandeputte (INRA)

Welcome to the AQUAEXCEL²⁰²⁰ project, which started in 2015 and will run until 2020. As an infrastructure project, its major aim is to provide the best research environment for European research on aquaculture. A major feature of **AQUAEXCEL²⁰²⁰** is therefore its Transnational Access (TNA) program which will enable the work of an estimated 170 aquaculture research projects within top-class infrastructures belonging to the project partners across Europe. All selected TNA projects will be financially supported by the EU H2020 funding programme, which means that access to the **AQUAEXCEL²⁰²⁰** research infrastructures and associated travel and subsistence expenses will be covered for participating teams! This is a great opportunity for all European aquaculture researchers from both the private and public sector.

Aquaculture research is the fastest growing animal production sector in the world and is also a highly applied science. To cater to both research and industry stakeholders **AQUAEXCEL²⁰²⁰**, in collaboration with AquaTT and the European Aquaculture Technology and Innovation Platform (EATiP), have devised a strategy to facilitate knowledge transfer from researchers to industry. **AQUAEXCEL²⁰²⁰'s** research and TNA outputs will be evaluated by aquaculture industry experts. The outputs with the greatest application potential will be given additional support to showcase at industry events or aquaculture conferences. Thus, we hope to stimulate additional interest for researchers to make their results quickly available and attractive to the users. This is challenging in itself because researchers typically work on the mid to long term - a lesson learned from the project's predecessor, AQUAEXCEL (2011-2015).

AQUAEXCEL²⁰²⁰ also has its own research agenda which aims to provide more efficient methods and tools for aquaculture research. It will have a special focus on how to ethically perform necessary experiments with animals while implementing the 3R's (Reduce, Refine, Replace). With this in mind, we will develop bioinformatic tools which will replace or improve upon the design of fish experiments, stable and reproducible experimental fish lines, internal sensors to monitor fish physiological parameters in the rearing tanks, and work on how to control fish life history to get meaningful results from our experiments, all of which will hold a great deal of promise for future aquaculture research.

Farmed fish is good, and needs good research to be sustainably and efficiently produced. We hope our contribution will be significant in this respect, and again, we invite researchers to submit their project ideas to the **AQUAEXCEL²⁰²⁰** TNA programme.

Best Wishes,
Marc

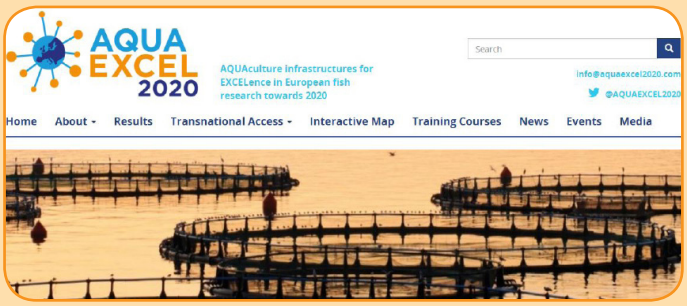
AT A GLANCE

PROGRAMME: Horizon 2020 (INFRAIA-1-2014/2015)
TYPE OF ACTION: Research and Innovation Action
DURATION: 1 October 2015 – 30 September 2020 (60 months)
CONSORTIUM: 22 partners from 12 countries
COORDINATOR: INRA, France

Project News and Highlights

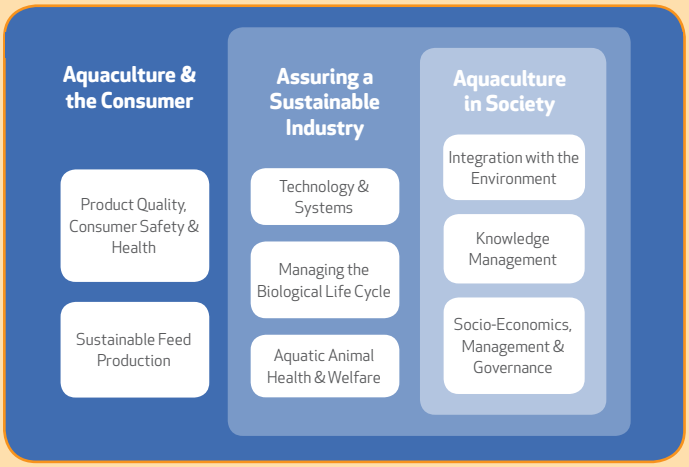
New AQUAEXCEL²⁰²⁰ website

Keep an eye out for the soon to be launched **AQUAEXCEL²⁰²⁰** website! The One-Stop-Access Online Portal will be a viable European aquaculture Research Infrastructure (RI) directory in the long term, and a powerful tool to identify European facilities and genetic and human resources. For more information about the project and its available infrastructures, visit the new site at: **www.aquaexcel2020.eu**.



AQUAEXCEL2020 Industry and Research Advisory Panel

AQUAEXCEL2020 has recently established an Industry and Research Advisory Panel (IRAP) which will provide strategic direction and leadership to the project by acting as a pro-active interface between the research community and the aquaculture industry. IRAP's major tasks will consist of i) providing recommendations about focus areas for use in TNA calls following the EATiP Strategic Research & Innovation Agenda (SRIA), and ii) assessing individual outputs from research within **AQUAEXCEL2020** and from TNA projects to promote promising results that are of benefit to the aquaculture sector. Currently, the panel consists of seven industry experts, nine **AQUAEXCEL2020** work package leaders and five affiliates. We will be actively extending the panel when additional needs for expertise are identified.



EATiP's core priorities identified in the EATiP Strategic Research & Innovation Agenda (SRIA), 2012

AQUAEXCEL2020 past events

The **AQUAEXCEL2020 kick-off meeting** took place in November 2015 in Montpellier, France, and the **Executive Committee meeting** took place in May 2016 in Szarvas, Hungary.

Participants at the AQUAEXCEL2020 kick-off meeting in November 2015 in Montpellier, France © AquaTT

The first **AQUAEXCEL2020 training course** was a distance learning course on "Experimental data management: from generating protocols to sharing data". The course was organised by the University of South Bohemia, Czech Republic, and Wageningen University, the Netherlands, in April 2016. It is now continued as an ongoing online course, available through the **AQUAEXCEL2020** website (see page 4).

AQUAEXCEL2020 was well represented at this year's **Aquaculture Europe 2016** event in Edinburgh. Dr Marc Vandeputte presented the project at the "Fostering global aquaculture development" session and AquaTT promoted **AQUAEXCEL2020** at their booth.

The first **AQUAEXCEL2020 Annual Meeting (AM)** took place in Crete, Greece, from 12-14 October 2016, starting with the **Executive Committee Meeting** on the first morning. The **first IRAP meeting** was held prior to the AM, on 11 October 2016.

The first face-to-face **AQUAEXCEL2020 training course**, entitled "Recirculating Aquaculture Systems (RAS) Technology", organised by Ifremer and Wageningen University, was held from 24-28 October 2016 in France (see page 4).

AQUAEXCEL2020 AM participants in October 2016, Crete, Greece © AquaTT

Please support the promotion of the important activities of the **AQUAEXCEL2020** project, including the many free training courses and TNA opportunities, by distributing this newsletter among your colleagues, organisations and wider networks.

AQUAEXCEL2020 upcoming events

The first **AQUAEXCEL2020 industry brokerage event** will be organised at Aquaculture Europe 2017. Further details will be posted on the project website at a later date and will be widely advertised, including in the second **AQUAEXCEL2020** newsletter due in March 2017.

The **AQUAEXCEL2020 fourth call for access** will open in November 2016 (see page 6 for more details).

Training Courses

AQUAEXCEL²⁰²⁰ training courses aim to educate a new generation of aquaculture researchers and industry stakeholders to use their new knowledge, skills and tools in order to advance an innovative and sustainable aquaculture sector.

All **AQUAEXCEL²⁰²⁰** training courses are multi-partner collaborations creating innovative modules that promote and enable peer-to-peer networking. The participative training design ensures exchange and mutual learning between instructors and participants from both academia and industry, and the access to research infrastructures adds particular value to the training.

FP7-AQUAEXCEL training course participants at the NTNU course "Use of Advanced Monitoring and Communication Tools in Aquaculture Fish Experiments", Norway, May 2014 © NTNU

The training courses transfer new knowledge and insights originating from the research and services carried out and created by **AQUAEXCEL²⁰²⁰**, and build upon the outputs, tools and achievements of its predecessor, the FP7-funded AQUAEXCEL project.

In total, nine state-of-the-art training courses will be offered between April 2016 and November 2019. Six training courses will be organised as face-to-face events and three as online distance learning courses. Course registration and attendance is free of charge but participants are expected to cover their own travel and subsistence costs. All courses are open to anyone interested in the subjects offered in the different courses.

First AQUAEXCEL²⁰²⁰ Course - now online: "Experimental data management: from generating protocols to sharing data"

Course type: Distance learning
Organiser: University of South Bohemia (Czech Republic)
Date: Ongoing
Location: Online
Course tutors: Ing. Petr Cisar PhD & Mr. Antonin Barta
Online Access: This course is available on an ongoing basis. Visit the **www.aquaexcel.eu** training course page to find out more.

Ing. Petr Cisar PhD

Mr. Antonin Barta

"Experimental data management: from generating protocols to sharing data" course tutors from the University of South Bohemia, Czech Republic.

"There should be more courses in this format. (course participant)

Second AQUAEXCEL²⁰²⁰ Course: "Recirculating Aquaculture System (RAS) Technology"

Course type: Face-to-face
Organisers: Ifremer (France) and Wageningen University (the Netherlands)
Date: 24-28 October 2016
Location: Ifremer Sète Research Station (France)
Course tutors: 14 experts in their field
Course organiser: Dr Jean-Paul Blancheton, Ifremer

The RAS Technology course will be offered again in September 2018 at Wageningen University, the Netherlands.
For more details, visit: **www.aquaexcel2020.eu**

Transnational Access (TNA) Facilities

A major feature of **AQUAEXCEL²⁰²⁰** is its TNA program, allowing external teams to access the partners' facilities via submission of research proposals, which are funded based on the evaluation by an independent selection panel. Access is offered to 39 unique research infrastructures of the participating institutes, with experimental costs, travel and subsistence covered by **AQUAEXCEL²⁰²⁰**. The available facilities cover the entire range of production systems, environments, scales, fish species and fields of expertise. Access is available to EU and Associated States' research teams, industry, and small and medium-sized enterprizes (SMEs), based on the scientific excellence of proposals and relevance to the aquaculture sector. Access is also available to third countries (countries outside the EU) on a limited basis (up to 20%).

Map of TNA infrastructure facilities from www.aquaexcel.eu website

Add your aquaculture facility to the **AQUAEXCEL²⁰²⁰** interactive map, which is the most complete online European Aquaculture Research Infrastructure Directory. Please email AquaTT's **AQUAEXCEL²⁰²⁰** Project Officer Dr Claudia Junge (claudia@aquatt.ie).

In the Spotlight: TNA facility #1: Nofima Research Station for Sustainable Aquaculture, Sunndalsøra, Norway

Nofima is one of the **AQUAEXCEL²⁰²⁰** partners offering access to its aquaculture infrastructures for external researchers via the TNA programme. Nofima, based in Norway, is one of the largest institutes for applied research within the fields of fisheries, aquaculture and food research in Europe and offers three infrastructures to the **AQUAEXCEL²⁰²⁰** TNA programme.

Nofima Centre for Recirculation in Aquaculture (NCRA)

Recirculating Aquaculture Systems (RAS) can provide good control of the water environment, sensible utilisation of water sources, less discharge of nutrients, and better protection against introduction of external pathogens. NCRA is designed for studies on physiological and nutritional requirements of fish in cold-water RAS.

Two experimental sections contain 15 separate 2-meter tanks in each, and a third section has 18 pcs of 1-meter diameter tanks. A further three sections each have three 100 m^3 tanks for experiments on a large, near-commercial scale (not available for TNA trials).

Cleaner Fish Experimental Unit

The cleaner fish experimental unit (CFU) has license for holding ballan wrasse and lumpsucker. The tanks (3 x 6000L; 3 x 3000L; 4 x 1500L; 12 x 800L) can be used for brood stock nutrition,

Nofima Research Station for Sustainable Aquaculture © Nofima

environment manipulation and experiments using dry feed for juvenile cleaner fish. The research aims at ensuring optimal supply of cleaner fish through aquaculture production rather than capture fisheries.

Nofima Next Generation Sequencing

Nofima Next Generation Sequencing of Microbiota (NNGS-Microbiota) carries out research on methodologies to characterise microbial communities using next generation sequencing. The installation covers microbiota analysis of a wide range of different samples from the marine, food and health sectors, including samples from RAS installations (NCRA) (biofilter biofilm, water, surfaces, fish skin and intestine) and also cod larvae (NCBC).

Calls for Access

AQUAEXCEL²⁰²⁰ calls for access are published on a regular basis. Calls for access invite proposals from European scientists who wish to utilise the TNA facilities available at any of the participating aquaculture research infrastructures. For more information on the fourth call and a complete list of all calls for access for the full duration of the project, see: **www.aquaexcel2020.eu**

Apply soon for the fourth call, closing 13 January 2017.

AQUAEXCEL²⁰²⁰ Calls for Access 2016/2017

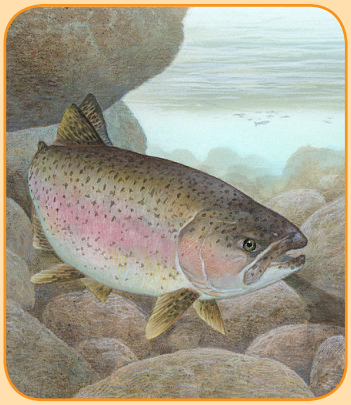
Call no.	Status	Opens	Deadline
1	CLOSED	CLOSED	CLOSED
2	CLOSED	CLOSED	CLOSED
3	CLOSED	CLOSED	CLOSED
4	OPEN	05/12/2016	13/01/2017
5	TBA*	30/01/2017	10/03/2017
6	TBA	01/05/2017	09/06/2017
7	TBA	31/07/2017	08/09/2017
8	TBA	30/10/2017	08/12/2017

***To Be Added (TBA)**

Fish'n Co.

Salmonids - Rainbow trout (*Oncorhynchus mykiss*)

"Salmonids are diverse, intriguing, beautiful – and very well studied" (Evolution Illuminated: Salmon and Their Relatives by Hendry and Stearns, 2004).



What a true statement! This very interesting family, called Salmonidae, consists of salmon, trout, char, grayling and freshwater whitefish. Salmonids have fascinating life cycles. All salmonids spawn in fresh water, but in many cases, the fish spend most of their lives at sea, returning to the rivers only to reproduce. For example, salmon and trout return to breed in the same river in which they hatched from eggs.

Trout is the common name for a number of species of freshwater fish belonging to the genera *Oncorhynchus*, *Salmo* and *Salvelinus*. Most trout such as lake trout live in freshwater lakes and/or rivers exclusively, while there are others such as the rainbow trout which may either live out their lives in freshwater, or spend two or three years at sea before returning to freshwater to spawn, a habit more typical of salmon. A rainbow trout that spends time in the ocean is called a steelhead. Resident freshwater rainbow trout adults average between 0.5 and 2.3 kg in riverine environments, while lake-dwelling and anadromous (migrating up rivers from the sea to spawn) forms may reach 9 kg. The maximum recorded lifespan for a rainbow trout is 11 years.

The production of rainbow trout has grown exponentially since the 1950s, especially in Europe and more recently in Chile. Over 800,000 tonnes were produced globally in 2014, from which over 30% (261.000 t) were produced in Europe. Products for human consumption come as fresh, smoked, whole, filleted, canned, and frozen trout (Food and Agriculture Organisation of the United Nations, FAO, 2016).

Guess the fish species!

Let us know your answer! Email claudia@aquatt.ie with your guess. The first correct answer will be acknowledged on the new website. Stay tuned until this exciting mystery is resolved at **www.aquaexcel2020.eu**.

"Getting Fed Up"; www.gettingfedup.com [Delicious Goatsbridge Farm Rainbow Trout, Lemon Risotto and Butternut Squash Purée Recipe] © Ciara Daly

Satisfy your taste buds!

Recipe #1: Delicious Goatsbridge Farm Rainbow Trout, Lemon Risotto and Butternut Squash Purée

"Here is one of the recipes I put together for Goatsbridge Trout Farm… if I do say so myself, it really is a good one! **Trout really is such an under-appreciated fish…** so that is why I'm here today to try and convince you to get it in your gob!" explains chef Ciara Daly, from the blog: **www.gettingfedup.com**

"**Eat trout – it's good for you!**" exclaims a very passionate Goatsbridge Fish Farm team member.

Serves 4,
Approx. 1 hour

INGREDIENTS

For the trout:
4 fresh trout fillets
2 tsp olive oil
1 tbsp butter
Salt and pepper

For the risotto:
1½ L chicken stock
3½ tbsp butter
1½ tbsp olive oil
½ onion, diced
1 stick of celery, diced
2 garlic cloves, diced
400g risotto rice
100ml white wine
120g grated parmesan cheese
Zest of one lemon
Juice of ½ lemon
Salt and pepper

For the purée:
200g butternut squash, diced
200ml chicken stock
2 tbsp crème fraîche
Salt and pepper

RECIPE

Purée

1. Bring the butternut squash and chicken stock to the boil in a saucepan. Then reduce the heat and simmer for 10 minutes.

2. Drain the butternut squash, leaving 1 tbsp of the stock. Add crème fraîche, salt and pepper and mix to a smooth purée.

Risotto

1. Place a large saucepan over a low to medium heat and add the oil, followed by the butter. Add the onion, celery and garlic and sauté until tender. Add the rice and stir for 2-3 minutes, turning the heat up to medium.

2. Add the wine and stir until evaporated, followed by 500ml of the warm chicken stock. Keep stirring the rice until all the water has been absorbed. Once the water has been absorbed by the rice, add the remaining chicken stock - approximately 300ml at a time. Do not add it all at once. Allow the stock to be absorbed by the rice before adding more. Keep stirring until the rice becomes creamy and tender, about 30 minutes.

3. Keep 300ml of the stock on the side for later. Stir in the cheese, butter, lemon juice and zest. Season the rice with salt and pepper. Just before serving, stir in the last of the stock.

Trout

1. Season the trout fillets with salt and pepper. Add a tablespoon of oil to a hot pan, followed by the fish skin-side down. Fry for 2–3 minutes until the crust turns golden-brown. Turn the fillets over and cook for a further 2 minutes. Add the butter and baste the fish while it finishes cooking.

Serve and enjoy!

Tip: Enjoy with a nice glass of Chablis Grand Cru from a rich vintage (e.g. 2009). Cheers!
(Suggested wine pairing brought to you by your coordinator and wine enthusiast, Marc)

Dr Marc Vandeputte © AquaTT

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Publications

M. Vandeputte (2015). **AQUAEXCEL²⁰²⁰**: Research infrastructures for the benefit of European aquaculture research and industry. Aquaculture Europe 2015 - Aquaculture, Nature and Society, 20-23 October 2015, Rotterdam, the Netherlands. See: **archimer.ifremer.fr/doc/00307/41793**

M. Vandeputte (2016). **AQUAEXCEL²⁰²⁰**: A network of research infrastructures for the benefit of European aquaculture. Aquaculture Europe 2016 - Aquaculture, Nature and Society, 20-23 September 2016, Edinburgh, Scotland, UK.

Events Calendar

Event Name	Location	Dates	Website
November 2016			
International Symposium on Fisheries and Aquatic Sciences (FABA2016)	Antalya, Turkey	3-5 Nov.	bit.ly/2arL0K8
2nd International Congress on Applied Ichthyology and Aquatic Environment (HydroMediT 2016)	Messolonghi, Greece	10-12 Nov.	bit.ly/2abLy4q
Latin American and Caribbean Aquaculture 2016 (LAQUA16)	Lima, Peru	28 Nov. – 1 Dec.	bit.ly/1opVlus
2017			
Seafood Expo Global	Brussels, Belgium	25-27 Apr.	bit.ly/1mZE3LG
14th International Fair of Seafood Processing and Products (POLFISH)	Gdansk, Poland	7-9 Jun.	bit.ly/2c6KWiB
Aqua Nor	Trondheim, Norway	15-18 Aug.	bit.ly/2bv1jFN
7th Fish and Shellfish Larviculture Symposium (Larvi 2017)	Ghent, Belgium	4-7 Sept.	bit.ly/2eYhtZx
Aquaculture Europe 2017	Dubrovnik, Croatia	17-20 Oct.	bit.ly/2ap6QOj

Contact Us

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