



AQUAculture infrastructures for EXCELlence  
in European fish research towards 2020 —  
AQUAEXCEL2020

## **D4.5b Distance Learning Training Course 2- Using Modelling of Scale Effects as a Tool for Experimental Design**



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## Executive Summary

### Objectives:

The AQUAEXCEL<sup>2020</sup> training courses overall aim to educate a new generation of aquaculture researchers and industry stakeholders who focus on sustainable exploitation of their new knowledge, skills and tools in order to advance an innovative European aquaculture sector. This training course on “Using Modelling of Scale Effects as a Tool for Experimental Design” has as specific objective to train researchers in the use of numerical models as efficient tools for designing experiments and gaining a better understanding of the interaction between biological and physical factors within aquaculture research, including growth, nutrition, waste production, water quality, water treatment and hydrodynamic flow fields.

### Rationale:

To foster and build the human capital of the European aquaculture sector, several goals are set by the Strategic Research and Innovation Agenda of EATiP to which AQUAEXCEL<sup>2020</sup> will contribute. All AQUAEXCEL<sup>2020</sup> training courses are multi-partner collaborations bringing together unique knowledge, tools and skills to create innovative modules. The training courses are state-of-the-art, transferring new knowledge and insights originating from the research and services carried out and created by AQUAEXCEL<sup>2020</sup>, and building upon outputs, tools and achievements from FP7-AQUAEXCEL. AQUAEXCEL<sup>2020</sup> has included Distance Learning (DL) training courses as a more flexible education alternative which fits working professionals better, is accessible to more people and does not require travel by participants. The DL courses make use of a blend of delivery technologies such as video conferencing and recordings, message board forums and e-mail; and include practical exercises (models), tutorials and feedback provision by teachers/experts.

### Main Results:

The second DL training course entitled “Using Modelling of Scale Effects as a Tool for Experimental Design” is provided by SINTEF Ocean AS in collaboration with Norges Teknisk-Naturvitenskapelige Universitet (NTNU), Hellenic Centre for Marine Research (HCMR), Jihočeská univerzita v Českých Budějovicích (JU), Nofima and Wageningen University (WU), with administrative and promotional support by AquaTT UETP CLG (AquaTT). The course aims to train participants in the use of numerical models as efficient tools for designing experiments and gaining a better understanding of the interaction between biological and physical factors within aquaculture research, including growth, nutrition, waste production, water quality, water treatment and hydrodynamic flow fields. This DL training course is available online from January 2019, whereby the course teachers and experts were online and available for direct interaction and immediate troubleshooting from 30 to 31 January 2019, with 89 participants attending the course on these 2 days. Since February 2019 the course is available on an ongoing basis and the teachers can be approached by email in case of questions. The course will run over the full duration of the AQUAEXCEL<sup>2020</sup> project.

### Authors/Teams involved:

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# 1. Introduction

AQUAEXCEL<sup>2020</sup> aims to foster a culture of co-operation between European Aquaculture Research Infrastructures, the associated research community, the aquaculture industry and other relevant stakeholders. This will help to develop a more efficient and attractive aquaculture research network leading to a more sustainable and globally competitive European aquaculture sector. One of AQUAEXCEL<sup>2020</sup> specific aims is to provide state-of-the-art unique training courses to educate a new generation of aquaculture researchers and industry stakeholders. A dedicated task within AQUAEXCEL<sup>2020</sup> Work Package 4 aims to provide specialist training inputs to support researchers and industry stakeholders who are seeking to apply their knowledge, skills and existing tools to advance a sustainable European aquaculture sector.

Nine technical training courses in total are being organised by different AQUAEXCEL<sup>2020</sup> partners and offered to people within and outside the partnership. The courses focus on different aspects of aquaculture to transfer new knowledge and insights originating from the research and services carried out and created by AQUAEXCEL<sup>2020</sup>. The second DL training course, and third overall training course, focuses on “Using Modelling of Scale Effects as a Tool for Experimental Design” and is provided by SINTEF Ocean AS in collaboration with Norges Teknisk-Naturvitenskapelige Universitet (NTNU), Hellenic Centre for Marine Research (HCMR), Jihočeská univerzita v Českých Budějovicích (JU), Nofima and Wageningen University (WU), with administrative and promotional support by AquaTT UETP CLG (AquaTT). The course is targeted at aquaculture researchers and industry stakeholders who are involved in research experiments examining the interaction between biological and physical factors in aquaculture production.

This course aims to train researchers in the use of numerical models as efficient tools for designing experiments and gaining a better understanding of the interaction between biological and physical factors within aquaculture research, including growth, nutrition, waste production, water quality, water treatment and hydrodynamic flow fields. It is hoped that participants gain an understanding of the theoretical background for the numerical models used and an understanding of the practical use of the models in aquaculture research.

This DL training course is available online from January 2019, whereby the course teachers and experts were online and available for direct interaction and immediate troubleshooting from 30 to 31 January 2019, with 89 participants attending the course on these 2 days. Since February 2019 the course is available on an ongoing basis and the teachers can be approached by email in case of questions. The course will run over the full duration of the AQUAEXCEL<sup>2020</sup> project.

This deliverable report details the pre-course activities including the course promotion and registration of participants, the course activities, including details on the two-part lecture series and modules, and the post course activities, including the design of the course survey and feedback from participants until February 2019.

## 2. Distance Learning Course 2: Using Modelling of Scale Effects as a Tool for Experimental Design

### 2.1 Pre-course activities

Approximately 8 months before the final release of the DL-course, the course organisers from SINTEF Ocean AS suggested a rough preliminary schedule outlining which topics should be included in the course, and whose responsibility it would be to record lectures on these. This schedule was discussed with the contributing partners, and a final plan for the course contents was agreed upon during autumn 2018.

Partners responsible for video lectures recorded these and provided them to the course organisers before the release date of the course, along with any supporting material such as scientific papers on the lecture topic. A dedicated course was set up on WU's Blackboard site to host all teaching material, with video lectures uploaded to YouTube using the "private" option (meaning that the files are only accessible for people with access to the direct link to the files) due to file size limitations in Blackboard. A system for providing the participants with a login to the server hosting the virtual laboratory (VL) developed in WP5 was also set up before the course started, so that the participants could conduct two simple practical exercises using the models offered by the VL.

A promotional leaflet was designed and developed by AquaTT (Figure 1), combining course information provided by the course organisers at SINTEF Ocean AS. Information that was not suitable for the shorter form leaflet, such as course tutor descriptions, was included on the website so that applicants would have as much information about the course as possible (Annex 1). The course leaflet was distributed through AquaTT and project partner distribution channels. The course was also promoted on the project website (<https://bit.ly/2CWy76X>) and on the project twitter page (<https://twitter.com/AQUAEXCEL2020>) (Figure 2). The tweets promoting the course were seen by 6300+ people and were engaged with 130 times (link clicks, profile visits, etc), this was in large part due to partners with large followings retweeting and liking posts. AquaTT also shared the course leaflet with their 'Aquaculture' mailing lists reaching 300+ people (Annex 2).



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**DISTANCE LEARNING COURSE: USING MODELLING OF SCALE EFFECTS AS A TOOL FOR EXPERIMENTAL DESIGN**

**DATE:** AVAILABLE FROM 30 JAN 2019 **LOCATION:** ONLINE



**COURSE DESCRIPTION**  
This course will train researchers in the use of numerical models as efficient tools for designing experiments and gaining a better understanding of the interaction between biological and physical factors within aquaculture research, including growth, nutrition, waste production, water quality, water treatment and hydrodynamic flow fields. Participants will gain an understanding of the theoretical background for the numerical models used and an understanding of the practical use of the models in aquaculture research.

**COURSE CONTENT**

**MODULE 1: UNDERSTAND SCALING EFFECTS**

- Recorded lectures of experts explaining the relevant concepts of scaling in broad terms
- Literature for in-depth understanding

**MODULE 2: UNDERSTAND MATHEMATICAL MODELLING AS A TOOL**

- Recorded lectures of experts describing general aspects of modelling and relevant models
- Literature on the different models for background information
- Recorded lecture (more comprehensive) on the modelling studies of scaling conducted in AQUAEXCEL<sup>2020</sup>

**MODULE 3: USING SIMPLIFIED VIRTUAL SCALING EXPERIMENTS FOR EXPERIMENTAL DESIGN**

- Online video describing how to get started with and using the virtual laboratory portal
- Two practical exercises - virtual scaling studies using fish, and scaling studies using water treatment/biofilters:
  - ✓ Calculate proper parameters for different scales (so that only physical scale is changed)
  - ✓ Practical exercise in running virtual scaling study using relevant models
  - ✓ Evaluate outputs to investigate any scaling effects and arrive at final experimental design

**DISTANCE LEARNING COURSE: USING MODELLING OF SCALE EFFECTS AS A TOOL FOR EXPERIMENTAL DESIGN**

**DATE:** AVAILABLE FROM 30 JAN 2019 **LOCATION:** ONLINE

**TARGET AUDIENCE**  
Primarily aquaculture researchers, but may also be relevant for aquaculture industry stakeholders involved in research experiments examining the interaction between biological and physical factors in aquaculture production.

**Required competence level:**

- Biology: basic knowledge of aquaculture biological processes
- Modelling: some prior knowledge on modelling and the use of models is recommended

**COURSE TUTORS**



**Name:** Martin Fore  
**Position:** Associate Professor  
at NTNU  
**Contact:** Martin.Fore@ntnu.no



**Name:** Morten O. Alver  
**Position:** Associate Professor  
at NTNU  
**Contact:** Morten.Alver@ntnu.no



**Name:** Finn Olav Bjørnson  
**Position:** Research Scientist  
at SINTEF  
**Contact:** Finn.O.Bjornson@sintef.no

In addition to the course tutors, experts from other AQUAEXCEL<sup>2020</sup> partner institutes will also be involved across specific course topics, in particular partners from: Norges Teknisk-Naturvitenskapelige Universitet (NTNU) (Norway), Hellenic Centre for Marine Research (HCMR) (Greece), Jihočeská univerzita v Českých Budějovicích (JCU) (Czech Republic), Nofima (Norway) and Wageningen University (WU) (Netherlands)

**PRACTICAL INFORMATION:**

**Location:** Online Course. Full details on access will be provided after registration.

**Format:** Two lecture series of about 1h and 1.5h respectively, in video format (previously recorded). Associated material such as literature and practical exercises will be provided.

**Date & Time:** The course will be available online from 30 January 2019 until September 2020. From 30 to 31 January 2019 the course teachers and experts will be online and available for direct interaction and immediate troubleshooting. From 1st February 2019, the teachers can be approached by email in case of questions.

**Language of instruction & material:** English

**Fees:** Course registration and attendance is free, thanks to European Commission Horizon 2020 funding. There are no further fees.

**REGISTRATION:**

E-mail your registration request to [aquaexcel@aquatt.le](mailto:aquaexcel@aquatt.le), using the official registration form that can be downloaded from the AQUAEXCEL<sup>2020</sup> website: <https://aquaexcel2020.eu/training-courses/aquaexcel2020-training-courses>.

Please indicate the following in the subject: AQUAEXCEL2020/DL training course SINTEF. A separate GDPR Consent Form is also provided on the project website. The GDPR Consent Form must be completed by individuals applying for any AQUAEXCEL<sup>2020</sup> training course and should be attached to the training course registration.

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[www.aquaexcel2020.eu](https://aquaexcel2020.eu)

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[www.aquaexcel2020.eu](https://aquaexcel2020.eu)

Figure 1. Promotional leaflet for training course "Using Modelling of Scale Effects as a Tool for Experimental Design"

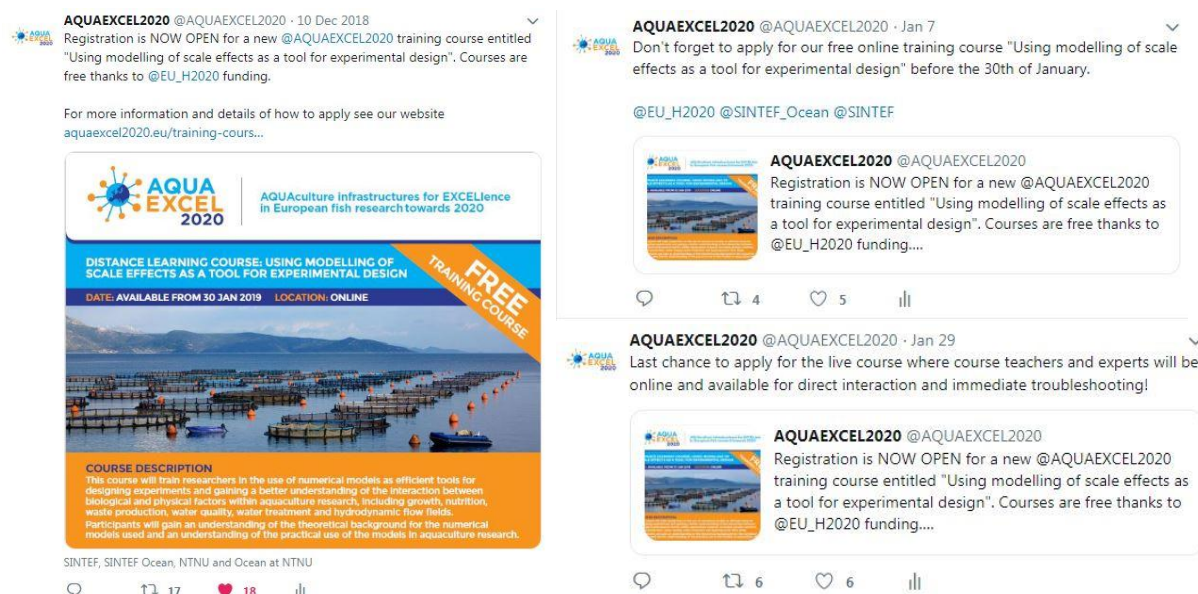


Figure 2. Examples of promotional tweets for training course "Using Modelling of Scale Effects as a Tool for Experimental Design"

To apply for the course, interested applicants are required to send a registration form and GDPR consent form (Annex 3) to AquaTT. Any applicants that registered before the 30<sup>th</sup> of January 2019 were able to follow the training course with the course teachers being online and available for direct interaction and immediate troubleshooting.

The AQUAEXCEL<sup>2020</sup> project partners are subject to the EU General Data Protection Regulation (GDPR) which came into force on 25<sup>th</sup> May 2018, therefore data that is collected and processed for the purposes of facilitating and administering AQUAEXCEL<sup>2020</sup> training courses is subject to GDPR rules. All registration and GDPR consent forms are processed by AquaTT and participant details sent to WUR. WUR and SINTEF then provide participants with login details for the course online system.

As a result of the promotional work carried out by AquaTT and project partners, a total of 89 people registered for the course with teacher presence on the 30<sup>th</sup> and 31<sup>st</sup> of January 2019. From the 1<sup>st</sup> of February until the 28<sup>th</sup> of February 2019, a further 6 people have registered for the course, which is available until the project ends in 2020.



## 2.2 Course activities

As with the first distance learning course, a dedicated (web based) Blackboard learning environment was created for distance learning course 2. Students and lecturers gain access to this online Blackboard system with individual logins provided by WU after registration by AquaTT. All the course information is on Blackboard and is available on a continuous basis for the ongoing course. The Blackboard site provides a detailed overview of course activities.

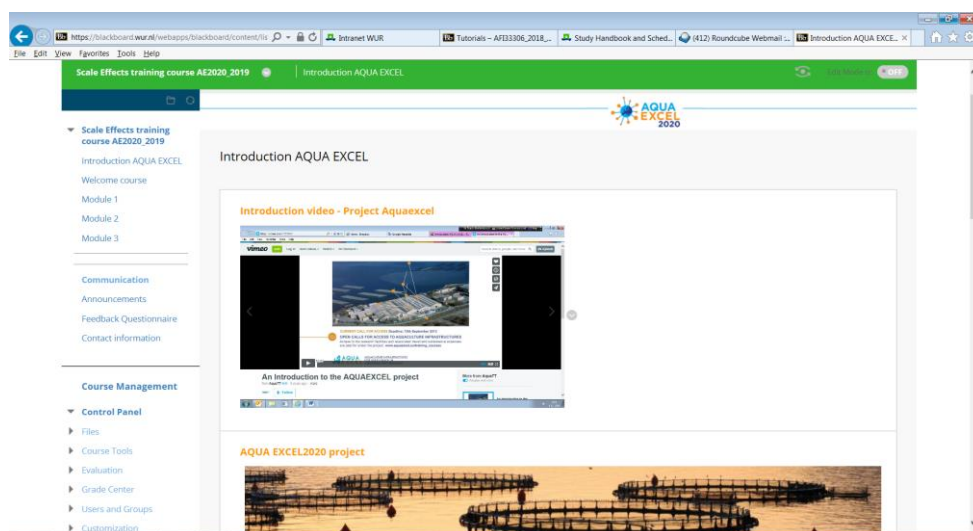


Figure 3. Print screen of 'introduction and welcome training course' page on the Blackboard learning environment

### Module one: Understanding Scaling effects

- Recorded lectures of experts explaining the relevant concepts of scaling in broad terms
  - "Upscaling and validity of research results", Nikos Papandroulakis (HCMR), Konstantia Lika (Univ. of Crete), Athanasios Samaras (HCMR/Univ. of Crete), 22 min.
  - "Tank size in experimental design matters - Comparing performance of Atlantic salmon in sea cages and different tank sizes", Åsa Espmark (Nofima), 15 min.
- Literature for in-depth understanding
  - Espmark, Å.M., Kolarevic, J., Åsgård, T. and Terjesen, B.F., 2017. Tank size and fish management history matters in experimental design. *Aquaculture Research*, 48(6), pp.2876-2894. (Scientific article on scaling trials with salmon)
  - Kamstra, A., Blom, E. and Terjesen, B.F., 2017. Mixing and scale affect moving bed biofilm reactor (MBBR) performance. *Aquacultural Engineering*, 78, pp.9-17. (Scientific article on scaling trials with biofilters).
  - Samaras, A., Pavlidis, M., Lika, K., Theodoridi, A. and Papandroulakis, N., 2017. Scale matters: performance of European sea bass, *Dicentrarchus labrax*, L(1758), reared in cages of different volumes. *Aquaculture Research*, 48(3), pp.990-1005. (Scientific article on scaling trials with sea bass)
  - Gorle, J.M.R., Terjesen, B.F., Mota, V.C. and Summerfelt, S., 2018. Water velocity in commercial RAS culture tanks for Atlantic salmon smolt production. *Aquacultural engineering*, 81, pp.89-100. (Scientific article on the hydraulics of fish tanks)

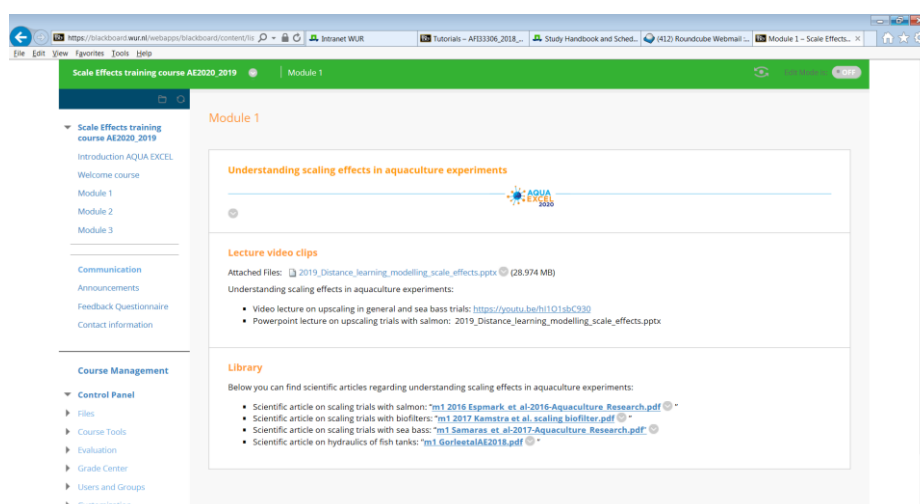


Figure 4. Print screen: Module 1 training course

## Module 2: Understanding mathematical modelling as a tool

- Recorded lectures of experts describing general aspects of modelling and relevant models
  - “CFD as a tool for analysis of fluid flow within aquaculture systems”, Stepan Papacek (JU), 15 min.
  - “Mathematical models”, Morten O. Alver (NTNU/SINTEF), 12 min.
  - “Growth model”, Morten O. Alver (NTNU/SINTEF), 12 min.
- Literature on the different models for background information
  - Føre, M., Alver, M., Alfredsen, J.A., Marafioti, G., Senneset, G., Birkevold, J., Willumsen, F.V., Lange, G., Espmark, Å. and Terjesen, B.F., 2016. Modelling growth performance and feeding behaviour of Atlantic salmon (*Salmo salar* L.) in commercial-size aquaculture net pens: Model details and validation through full-scale experiments. *Aquaculture*, 464, pp.268-278. (Scientific article on development and validation of growth model developed in AQUAEXCEL)
  - Føre, M., Alver, M.O., Alfredsen, J.A., Senneset, G., Espmark, Å. and Terjesen, B.F., 2018. Modelling how the physical scale of experimental tanks affects salmon growth performance. *Aquaculture*, 495, pp.731-737. (Scientific article on the use of the AQUAEXCEL model in a virtual scaling study)
  - Papáček, Š., Petera, K., Masaló, I. and Oca, J., 2018, September. On the optimization of recirculated aquaculture systems. In *International Conference on Engineering Optimization* (pp. 1229-1240). Springer, Cham.
- Recorded lecture (more comprehensive) on the modelling studies of scaling conducted in AQUAEXCEL<sup>2020</sup>
  - “Modelling studies of scaling effects in salmon in AQUAEXCEL”, Martin Føre (NTNU/SINTEF), three parts of 10, 16 and 8 min.

### Module 3: Using simplified virtual scaling experiments for experimental design

- Online video describing how to get started with and using the virtual laboratory portal
  - “Virtual laboratory demonstration”, Finn Olav Bjørnson (SINTEF).
- Two practical exercises - virtual scaling studies using fish, and scaling studies using water treatment/biofilters:
  - Calculate proper parameters for different scales (so that only physical scale is changed)
  - Practical exercise in running virtual scaling study using relevant models
  - Evaluate outputs to investigate any scaling effects and arrive at final experimental design

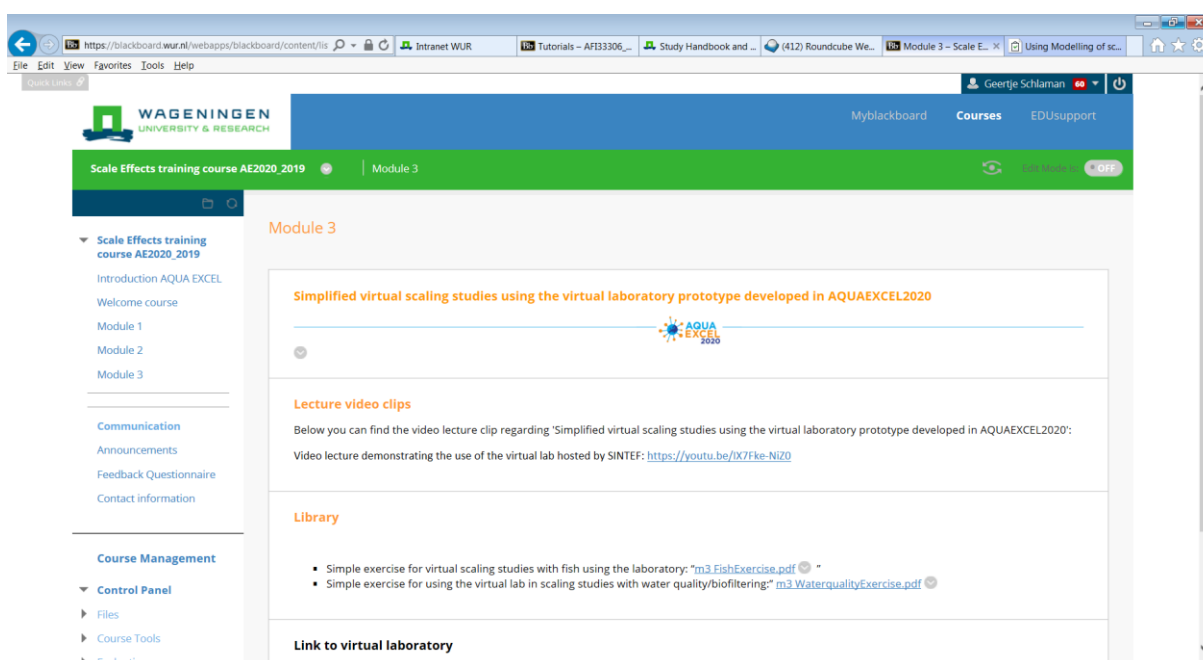
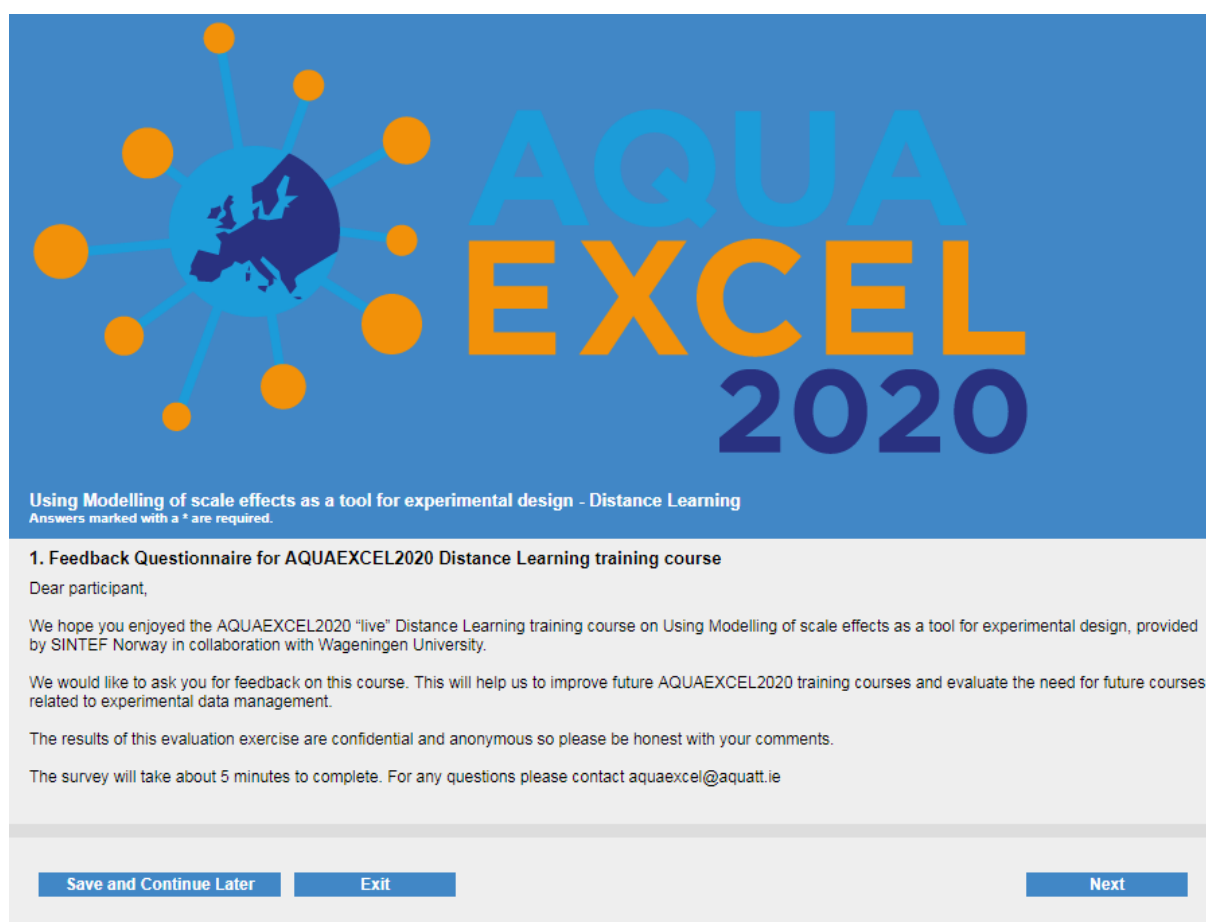


Figure 5. Print screen: Module 3 training course and contact info for feedback

## 2.3 Post- Course activities

After completion of the online course on 30-31 January 2019 (whereby teachers were directly available), participants were asked for feedback via an online survey designed by AquaTT. This link was included on the blackboard system but two follow-on emails reminding participants were also sent by AquaTT in the month after the course was launched. A total of 22 course participants completed the survey so far (February 2019). These results will help the training course organisers to improve the distance learning course and evaluate the needs for future AQUAEXCEL<sup>2020</sup> training courses. The results of this evaluation exercise were confidential and anonymous so participants could be honest in their comments. The survey was online and took about 5 - 10 minutes to complete. This was shortened from previous surveys based upon advice and feedback.



**AQUA EXCEL 2020**

Using Modelling of scale effects as a tool for experimental design - Distance Learning  
Answers marked with a \* are required.

**1. Feedback Questionnaire for AQUAEXCEL2020 Distance Learning training course**

Dear participant,

We hope you enjoyed the AQUAEXCEL2020 "live" Distance Learning training course on Using Modelling of scale effects as a tool for experimental design, provided by SINTEF Norway in collaboration with Wageningen University.

We would like to ask you for feedback on this course. This will help us to improve future AQUAEXCEL2020 training courses and evaluate the need for future courses related to experimental data management.

The results of this evaluation exercise are confidential and anonymous so please be honest with your comments.

The survey will take about 5 minutes to complete. For any questions please contact [aquaexcel@aquatt.ie](mailto:aquaexcel@aquatt.ie)

[Save and Continue Later](#) [Exit](#) [Next](#)

Figure 6. Print screen of welcome page of the online evaluation survey



### 3. Conclusion

Participants who took part in this distance learning course so far (February 2019) were primarily Postgraduates (38%), followed by Experts (28%) (e.g. Professors, fish farmers, consultants, investors) and Postdoctoral Researchers (20%) (Figure 4a). These participants were spread throughout the Aquaculture industry working in Universities (39%), Research institutes (28%), Private companies (19%), SMEs (8%) and other organizations such as museums, state agencies, NGOs and research councils (Figure 4b). This demonstrates the broad appeal of the course, which is also emphasized by applications coming from all around the world (Annex 4).

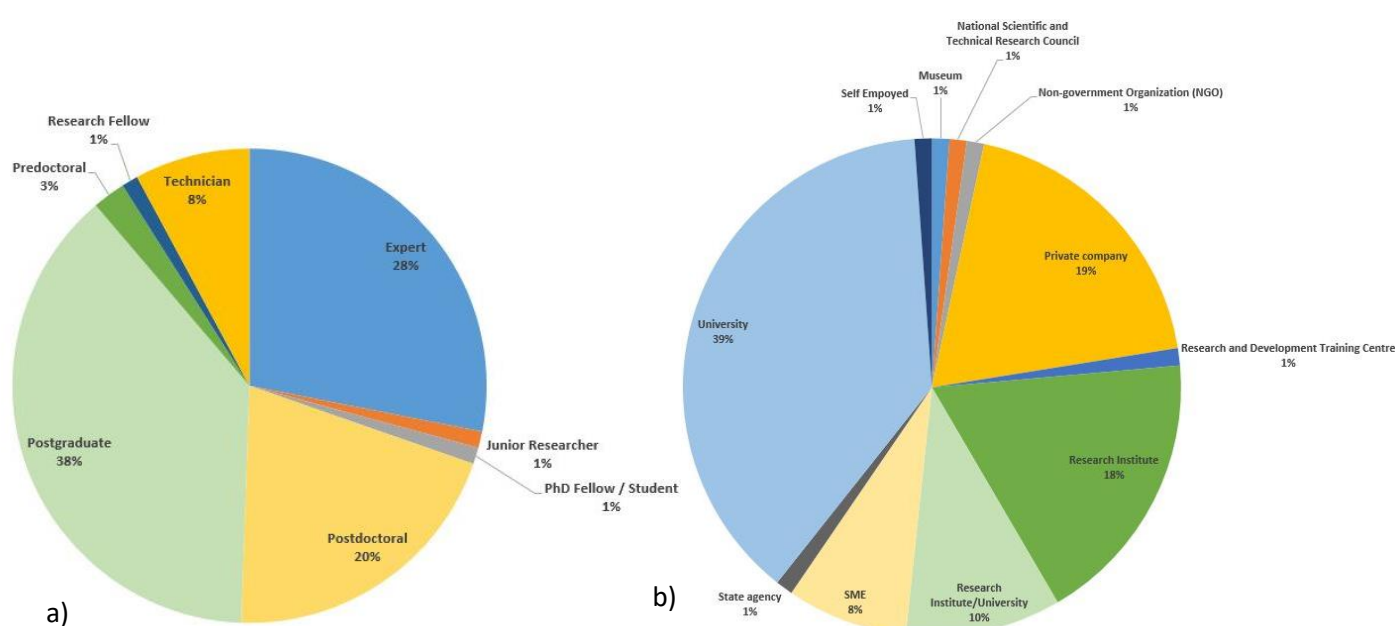


Figure 7. a) Research Category, b) Organisation type

The training course has so far achieved the desired objective to inform and teach participants about using modelling of scale effects as a tool for experimental design. This is evident as the percentage of participants with some knowledge of the topic or better increased from 29% before the training course, to over 95% after the completion of the course, based on feedback from the course survey. 95% of the participants who indicated that they had zero or limited knowledge of the topic before the course indicated that they had improved this knowledge as a result of taking part in the course.

Promotion of the course was a success with participants hearing about it from colleagues (47.62%), through the AQUAEXCEL<sup>2020</sup> website / Twitter (33.33%) or through internet searches (14.29%) (Figure 5).

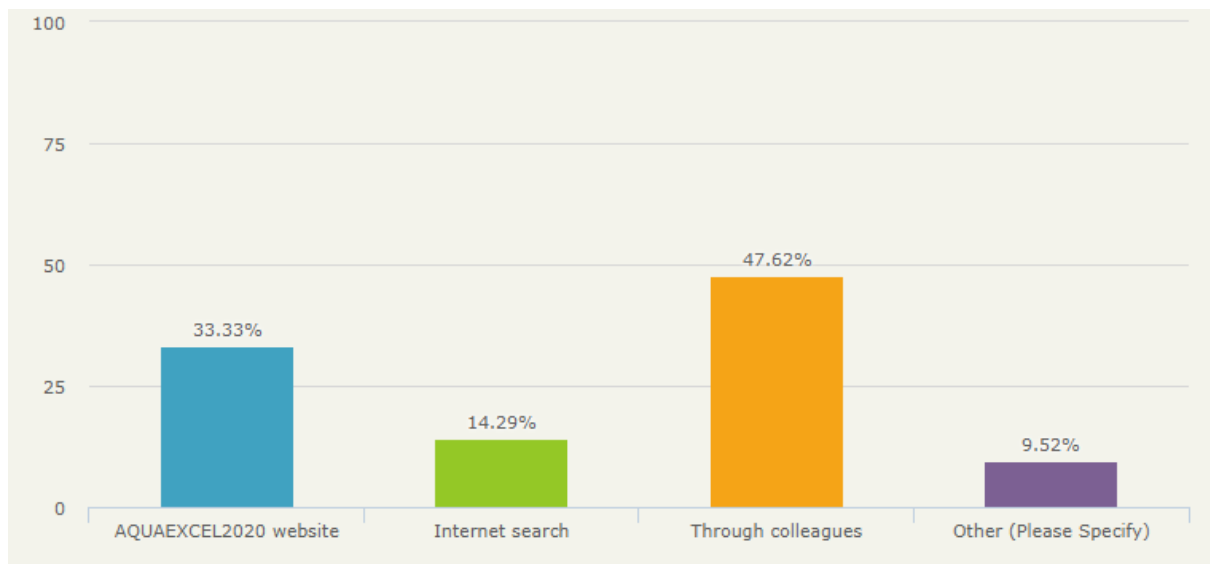


Figure 8. How participants heard about the course

Along with questions about specific aspects of the course (Annex 5), participants were also asked which overall grade they would give different parts of the course from organization to the course material and online system. Over 95% of participants said the course organization was above average (42% - good and 52% - Excellent). Over 95% of participants said the course material was above average (62% - good and 33% - Excellent). 100% of participants said the experience of undertaking an online distance learning course was above average (70% - good and 30% - Excellent). This feedback demonstrates that the high-quality course material was matched by the promotion and delivery of the course. For more detailed results and feedback related to course organization, course material and Distance learning see Annex 5.

The main conclusion which can be drawn from the participant's feedback is that the training course was overall successful. Participants had mostly positive experiences during the course with the content, format and delivery of material. 100% of participants said they would recommend the course to a fellow colleague and 94% saying they would be interested in using the course with in their organization (73% saying they would be willing to pay < €1,000, 20% willing to pay < €1,500 and 7% willing to pay < €2,000 for use of the course). It is therefore clear, that this training course was a success and a valuable experience for all participants involved.

## Glossary

AQUAEXCEL<sup>2020</sup>: AQUAculture Infrastructures for EXCELlence in European Fish Research towards 2020

## Document information

<b>EU Project N°</b>	652831	<b>Acronym</b>	AQUAEXCEL <sup>2020</sup>
<b>Full Title</b>	AQUAculture Infrastructures for EXCELlence in European Fish Research towards 2020		
<b>Project website</b>	<a href="http://www.aquaexcel.eu">www.aquaexcel.eu</a>		

<b>Deliverable</b>	<b>N°</b>	D4.5b	<b>Title</b>	Distance Learning Training Course 2- Using Modelling of Scale Effects as a Tool for Experimental Design
<b>Work Package</b>	<b>N°</b>	4	<b>Title</b>	Integration, training, dissemination and cooperation

<b>Date of delivery</b>	<b>Contractual</b>	31/03/2019 (Month 42)	<b>Actual</b>	29/03/2019 (Month 42)
<b>Dissemination level</b>	X	<b>PU Public, fully open, e.g. web</b>		
		<b>CO Confidential, restricted under conditions set out in Model Grant Agreement</b>		
		<b>CI Classified, information as referred to in Commission Decision 2001/844/EC.</b>		

<b>Authors (Partner)</b>	AquaTT			
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<b>Version log</b>			
<b>Issue Date</b>	<b>Revision N°</b>	<b>Author</b>	<b>Change</b>
05/03/2019	DRAFT 1	Marieke Reuver	
19/03/2019	DRAFT 2	John Bostock	
29/03/2019	DRAFT 3	Marc Vandeputte	Validation



# Annex 1: Course information on Website

Using Modelling of scale effects as a tool for experimental design - (ONGOING distance learning) - APPLY NOW

Course provider: SINTEF Ocean AS (SINTEF)

Location: Online Course. Full details on access will be provided after registration.

Format: Two lecture series of about 1h and 1.5h respectively, in video

## Course overview

This course will train researchers in the use of numerical models as efficient tools for designing experiments and gaining a better understanding of the interaction between biological and physical factors within aquaculture research, including growth, nutrition, waste production, water quality, water treatment and hydrodynamic flow fields. Participants will gain an understanding of the theoretical background for the numerical models used and an understanding of the practical use of the models in aquaculture research. For more information about this course see the Course Leaflet [here](#)

## Date & Time

The course will be available online from 30 January 2019 until September 2020. From 30 to 31 January 2019 the course teachers and experts will be online and available for direct interaction and immediate troubleshooting. From 1st February 2019, the teachers can be approached by email in case of questions.

## Course Tutors:

**Martin Fore - Associate Professor at NTNU**

Dr Fore has significant experience within modelling and simulation of fish in aquaculture situations and has published several papers on modelling fish behaviour in sea-cages. He was a post-doctoral research examining the scaling experiments completed in the FP7 project AQUAEXCEL and played a key role in developing the Precision Fish Farming concept, where the use of mathematical models as tools is an important element. In AQUAEXCEL<sup>2020</sup>, he works with model development.

**Morten O. Alver - Associate Professor at NTNU**

Dr Alver has focused most of his research on marine modelling, ranging from oceanographic modelling of coastal current systems to the distribution of feed pellets inside fish cages. He was also a central researcher in the scaling experiments in AQUAEXCEL and was involved in developing Precision Fish Farming. His role in AQUAEXCEL<sup>2020</sup> is to develop mathematical models.

**Finn Olav Bjørnson - Research Scientist at SINTEF**

Dr Bjørnson is an expert on software development and has worked on research and development solutions for remote monitoring on fish farming sites in Norway. He is the main architect behind the virtual laboratory that is developed in AQUAEXCEL<sup>2020</sup> and that will be used in the exercises associated with this course.

## General Data Protection Regulation

The AQUAEXCEL<sup>2020</sup> project partners are subject to the EU General Data Protection Regulation (GDPR) which came into force on 25th May 2018. Data that is collected and processed for the purposes of facilitating and administering AQUAEXCEL<sup>2020</sup> training courses is therefore subject to GDPR. Please review our Data Management Policy [here](#).

It is a requirement of GDPR that all data subjects (i.e. training course applicants) give explicit consent to the storage and processing of their personal data. A separate GDPR Consent Form is therefore provided, and this must be completed by an individual applying for an AQUAEXCEL<sup>2020</sup> training course. This should be attached to the training course application.

## Registration

E-mail your completed registration form ([click here](#)) and GDPR consent form ([click here](#)) to AquATT ([aquaexcel@aquatt.ie](mailto:aquaexcel@aquatt.ie)).

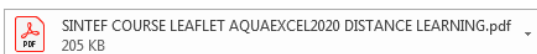
Please indicate the following in the subject: AQUAEXCEL2020/DL training course SINTEF.

## Further information

[For further information about the course content, fees and other information of interest, please click here.](#)



## Annex 2: Mailing list e-mail



Dear all,

I would like to let you know about a free online distance learning training course taking place as part of the Horizon2020 funded AQUAEXCEL<sup>2020</sup> project.

The training course entitled '**Using Modelling of scale effects as a tool for experimental design**' will be available online from the 30<sup>th</sup> of January with course teachers available online for direct interaction on the 30<sup>th</sup> and 31<sup>st</sup> of January.

This course will train researchers in the use of numerical models as efficient tools for designing experiments and gaining a better understanding of the interaction between biological and physical factors within aquaculture research, including growth, nutrition, waste production, water quality, water treatment and hydrodynamic flow fields. Participants will gain an understanding of the theoretical background for the numerical models used and an understanding of the practical use of the models in aquaculture research. For more information please see the course leaflet attached here.

To register please E-mail your completed registration form (click [here](#)) and GDPR consent form (click [here](#)) to AquaTT ([aquaexcel@aquatt.ie](mailto:aquaexcel@aquatt.ie)) by the 30<sup>th</sup> of January.

Please indicate the following in the subject: AQUAEXCEL2020/DL training course SINTEF.

Kind regards,

# Annex 3: Registration and GDPR forms



Please complete all sections of this form and email it to [aquaexcel@aquatt.ie](mailto:aquaexcel@aquatt.ie), indicating in subject: AQUAEXCEL2020 / DL training course (SINTEF)

## Registration Form for Distance Learning Training Courses

**Title: Using modelling of scale effects as a tool for experimental design**

**Organiser(s):** SINTEF Ocean AS (SINTEF)

**Format:** Two lecture series; 1h and 1.5h respectively in video format.

**Location:** Online course. Full details on access will be provided after registration

Any questions about the course or application process should be sent to [aquaexcel.afi@wur.nl](mailto:aquaexcel.afi@wur.nl) or [aquaexcel@aquatt.ie](mailto:aquaexcel@aquatt.ie)

We look forward to welcoming you to the course.

### Contact details

Title:	
Surname:	
First Name(s):	
Email:	
Telephone:	
Date of Birth:	
Gender:	

### Relevant information

Organisation Name:	
Organisation Type:	<ul style="list-style-type: none"> <li>University</li> <li>Research Institute</li> <li>SME</li> <li>Private Company</li> <li>Other (please specify)</li> </ul>
Country:	
Position:	



<b>Highest Qualification:</b> <ul style="list-style-type: none"> <li>PhD</li> <li>DVM or equivalent</li> <li>MSc or equivalent</li> <li>BSc or equivalent</li> <li>Other (please specify)</li> </ul>	
<b>Research Category:</b> <ul style="list-style-type: none"> <li>Postgraduate</li> <li>Postdoctoral</li> <li>Expert</li> <li>Technician</li> <li>Other (please specify)</li> </ul>	
<b>Previous Relevant Experience:</b>	
<b>Additional Support:</b>	

Please complete all sections of this form and email it to: [aquaexcel@aquatt.ie](mailto:aquaexcel@aquatt.ie), indicating in subject: AQUAEXCEL2020 / DL training course (SINTEF)



AQUAculture infrastructures for EXCELlence in European fish research towards 2020

## AQUAEXCEL 2020 Training Courses Data Processing Consent Form

Version 01 – 26/06/18

### General Data Protection Regulation Compliance

The AQUAEXCEL<sup>2020</sup> project partners are subject to the EU General Data Protection Regulation (GDPR) which came into force on the 25<sup>th</sup> May 2018. Data that is collected and processed for the purposes of facilitating and administering AQUAEXCEL<sup>2020</sup> training courses is therefore subject to GDPR. Please see the document "AQUAEXCEL2020\_TrainingCourses\_Data Management Policy" for further guidance on our data management policies. In order to process your application, we require your consent to the following (please check each box as appropriate).

- I give my consent for all personal information provided on the AQUAEXCEL<sup>2020</sup> training course application form and other application documents to be stored and processed by relevant AQUAEXCEL<sup>2020</sup> project partners for Data Management Purposes. ☐
- I give my consent for all personal information provided on the AQUAEXCEL<sup>2020</sup> training course application form and other application documents to be stored and processed by AquaTT for the purpose of administering AQUAEXCEL<sup>2020</sup> training courses, as well as for storage and processing purposes to support exploitation and dissemination of the EU supported research work. ☐
- I give my consent for all personal information provided on the AQUAEXCEL<sup>2020</sup> training course application form and other application documents to be stored and processed by Wageningen University for the purpose of administering AQUAEXCEL<sup>2020</sup> training courses. ☐
- I give my consent for all personal information provided on the AQUAEXCEL<sup>2020</sup> training course application form to be stored and processed by INRA Transfert for the purpose of overall coordination of the AQUAEXCEL<sup>2020</sup> project. ☐
- I give my consent for all personal information provided on the AQUAEXCEL<sup>2020</sup> training course application form to be stored and processed by the organisation within the AQUAEXCEL<sup>2020</sup> consortium which is involved in coordination, communications and project management. ☐



- I give my consent for the following personal information to be passed on to the European Commission in case my training course application is approved: ☐
  - Name
  - Email address
  - Telephone number
  - Date of birth
  - Gender
  - Organisation name
  - Organisation type (university, research institute, SME, private company)
  - Country
  - Position
  - Highest qualification (BSc, MSc, DVM, PhD)
  - Research category
  - Previous relevant experience
  - Additional (in relation to requiring additional support)
- I give my consent for the following personal information to be published on the Internet and elsewhere for the purposes of project transparency: ☐
  - Name
  - Organisation affiliation
  - Gender
- I give my consent for my e-mail address to be published on the Internet or elsewhere to assist others to contact me (optional). ☐
- I give my consent for my name and organisational affiliation to be published in AQUAEXCEL<sup>2020</sup> promotional materials for the purposes of promoting the project (optional). ☐

Your Name:

Organisation:

Date:

Signature:

Note: You can use an Adobe Acrobat digital signature, or print, sign and then scan the form to PDF.

NB: Attach this completed form to your AQUAEXCEL<sup>2020</sup> training course Application

Further information: for any additional information or clarification please contact Liam Fullbrook, AquaTT ([liam@aquatt.ie](mailto:liam@aquatt.ie)). This consent form does not remove any of your rights under GDPR but provides us with the necessary permissions to process your application and manage AQUAEXCEL<sup>2020</sup> training courses.



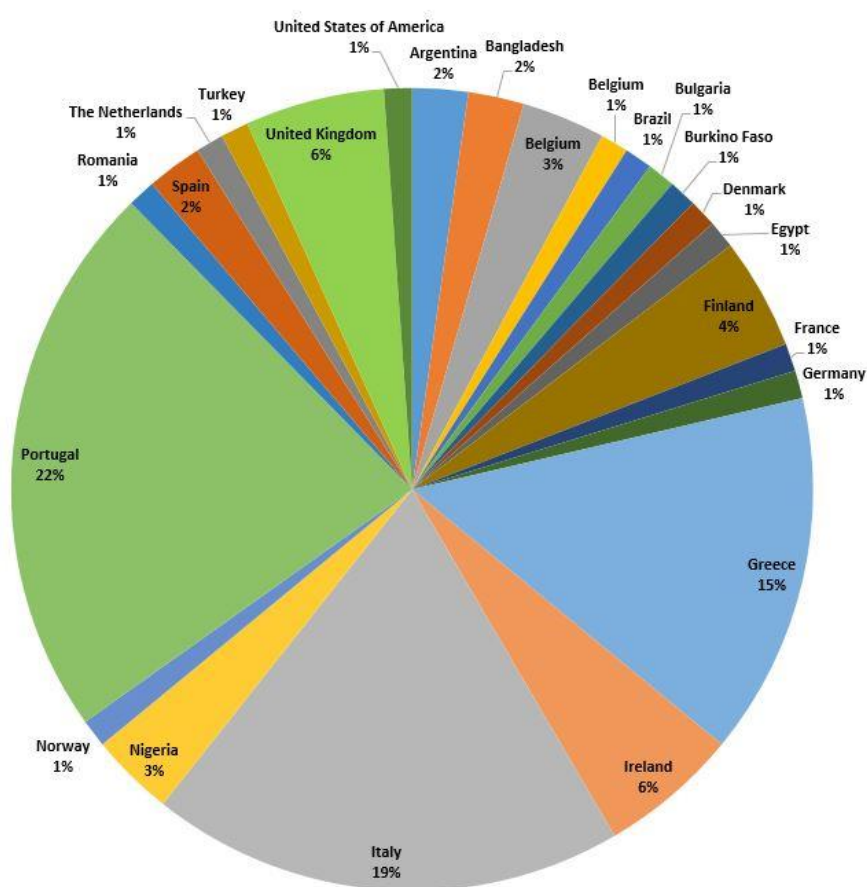
Page 1



Page 2

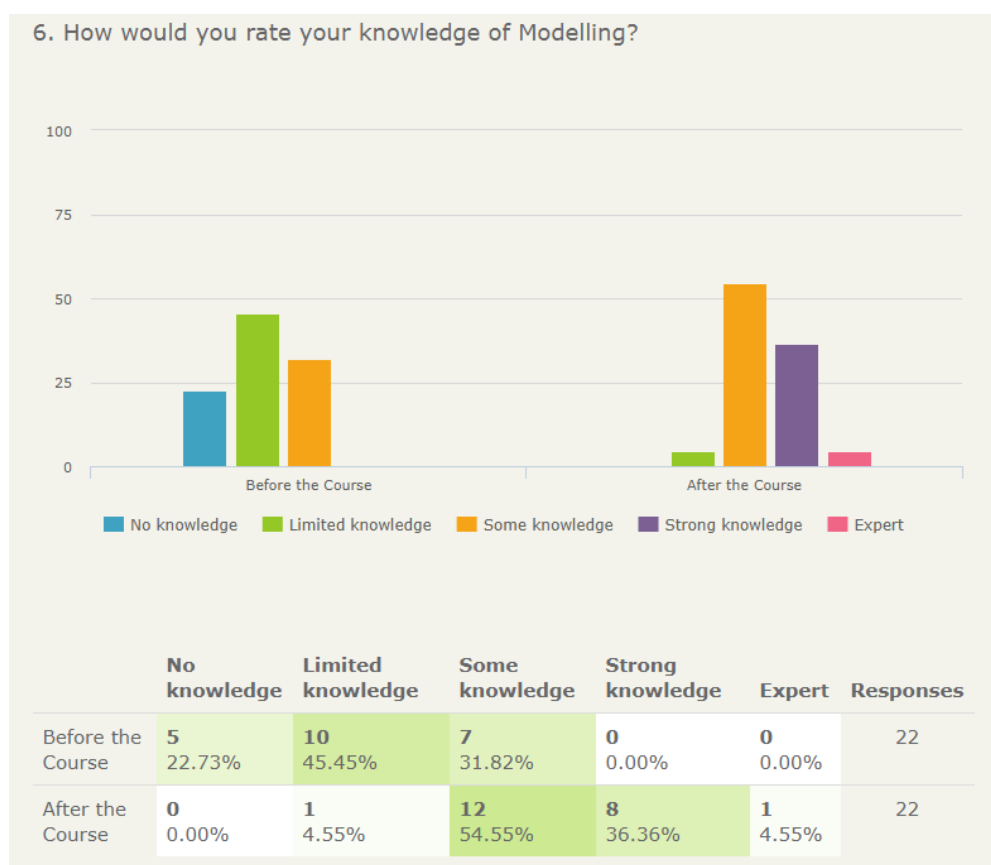


## Annex 4: Country of participants





## Annex 5: Course Survey results



	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
The procedure for the course registration was clear and simple.	0 0.00%	0 0.00%	1 4.55%	7 31.82%	14 63.64%
The information leaflet about the course was informative and visually attractive	0 0.00%	0 0.00%	1 4.55%	10 45.45%	11 50.00%
The communication of the course (announcements, program, etc.) was good.	0 0.00%	0 0.00%	2 9.09%	11 50.00%	9 40.91%
The information before the start of the course was clear.	1 4.55%	0 0.00%	0 0.00%	11 50.00%	10 45.45%
I had no trouble getting access to the course material (I.e. logging in, etc.)	1 4.55%	2 9.09%	1 4.55%	4 18.18%	14 63.64%
The duration of the course was good	0 0.00%	1 4.55%	2 9.09%	11 50.00%	8 36.36%

*Course organisation feedback*

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
The course material met my expectations.	<b>0</b> 0.00%	<b>0</b> 0.00%	<b>4</b> 18.18%	<b>10</b> 45.45%	<b>8</b> 36.36%
The objectives of the course were clear.	<b>0</b> 0.00%	<b>0</b> 0.00%	<b>3</b> 13.64%	<b>5</b> 22.73%	<b>14</b> 63.64%
The course material helped me gain a better understanding of data management	<b>0</b> 0.00%	<b>0</b> 0.00%	<b>5</b> 22.73%	<b>8</b> 36.36%	<b>9</b> 40.91%
The structure of the course was logical and easy to follow.	<b>0</b> 0.00%	<b>0</b> 0.00%	<b>2</b> 9.09%	<b>8</b> 36.36%	<b>12</b> 54.55%
I was challenged by this course.	<b>0</b> 0.00%	<b>1</b> 4.55%	<b>3</b> 13.64%	<b>7</b> 31.82%	<b>11</b> 50.00%
I was encouraged to think about the subject matter.	<b>0</b> 0.00%	<b>0</b> 0.00%	<b>2</b> 9.09%	<b>9</b> 40.91%	<b>11</b> 50.00%
I would attend a follow-up course in the future.	<b>0</b> 0.00%	<b>0</b> 0.00%	<b>2</b> 9.09%	<b>4</b> 18.18%	<b>16</b> 72.73%

*Course material feedback*

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
The digital set-up of the course, on Blackboard, was clear and easy to use.	<b>0</b> 0.00%	<b>1</b> 4.76%	<b>4</b> 19.05%	<b>9</b> 42.86%	<b>7</b> 33.33%
The structure of the lectures was clear.	<b>0</b> 0.00%	<b>0</b> 0.00%	<b>1</b> 4.76%	<b>12</b> 57.14%	<b>8</b> 38.10%
The duration of the lectures was adequate	<b>0</b> 0.00%	<b>0</b> 0.00%	<b>1</b> 4.76%	<b>11</b> 52.38%	<b>9</b> 42.86%
The sound of the lectures was good quality	<b>0</b> 0.00%	<b>0</b> 0.00%	<b>2</b> 9.52%	<b>15</b> 71.43%	<b>4</b> 19.05%

*DL course feedback*

## Check list

Deliverable Check list (to be checked by the “Deliverable leader”)

	Check list	Comments
BEFORE	I have checked the due date and have planned completion in due time	<i>Please inform Management Team of any foreseen delays</i>
	The title corresponds to the title in the DOW	<i>If not please inform the Management Team with justification</i>
	The dissemination level corresponds to that indicated in the DOW	
	The contributors (authors) correspond to those indicated in the DOW	
	The Table of Contents has been validated with the Activity Leader	<i>Please validate the Table of Content with your Activity Leader before drafting the deliverable</i>
	I am using the AQUAEXCEL <sup>2020</sup> deliverable template (title page, styles etc)	<i>Available in “Useful Documents” on the collaborative workspace</i>
<b>The draft is ready</b>		
AFTER	I have written a good summary at the beginning of the Deliverable	<i>A 1-2 pages maximum summary is mandatory (not formal but really informative on the content of the Deliverable)</i>
	The deliverable has been reviewed by all contributors (authors)	<i>Make sure all contributors have reviewed and approved the final version of the deliverable. You should leave sufficient time for this validation.</i>
	I have done a spell check and had the English verified	
	I have sent the final version to the WP Leader, to the 2 <sup>nd</sup> Reviewer and to the Project coordinator (cc to the project manager) for approval	<i>Send the final draft to your WPLLeader, the 2<sup>nd</sup> Reviewer and the coordinator with cc to the project manager on the 1<sup>st</sup> day of the due month and leave 2 weeks for feedback. Inform the reviewers of the changes (if any) you have made to address their comments. Once validated by the 2 reviewers and the coordinator, send the final version to the Project Manager who will then submit it to the EC.</i>