

Aqua-RET 2

Evaluation of Piloted Courses

EMEC Project 0107

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1. Introduction

Aqua-RET (Aquatic Renewable Energy Technologies) is an EU-funded Leonardo da Vinci project established in 2006 by a consortium of eight partners, from six European countries. During the first phase of the project, the consortium successfully developed an e-learning tool (www.aquaret.com) which was supported by a series of technology posters.

The second phase of the project, Aqua-RET 2, is led by a consortium comprising The European Ocean Energy Association (Belgium); The Wave Energy Centre (WavEC) (Portugal); Aquatera Ltd. (UK); Centre for Renewable Energy Sources and Saving (CRES) (Greece); La Tene Maps (Ireland) and AquaTT (Coordinator - Ireland).

Aqua-RET 2's objectives are:

1. to identify the labour market needs of the marine renewable sector and ancillary businesses on a sectoral and geographical basis;
2. to select, adapt and further develop existing material from Aqua-RET to meet identified labour market needs;
3. to integrate the new innovative training content into the work place by piloting new training programmes from which outputs will be transferred geographically and between sectors to ensure that training is more responsive to changes in labour market needs; and
4. to facilitate the transfer of skills from ancillary sectors to the marine renewables sector.

To achieve these objectives, a series of short courses were developed by the consortium (detailed in Table 1).

Course	Location	Date
Environmental Assessment: Marine Energy Projects	Enotel Lido Hotel, Funchal, Madeira Island, Portugal	14 September 2011
Marine Operations	Orkney College Maritime Studies Building, Stromness, Orkney, Scotland	25 November 2011
	National Maritime College of Ireland (NMCI), Cork, Ireland	1 February 2012
Strategic Planning	The International Auditorium, rue du Roi Albert II, 1210, Brussels, Belgium	21 June 2011
Technical Evaluation of Marine RES projects	Centre for Renewable Energy Sources (CRES), Greece	24 February 2012

Table 1. Course details

This report will evaluate these short courses taking into account the feedback provided by the participants, considering the course difficulty, quality, content, organisation and lecturer's abilities. The course templates and course materials are also evaluated.

This evaluation was undertaken on the basis of individual reports which had collated the feedback from each course.

2. Evaluation methodology

2.1. Questionnaire

In order to gain a comprehensive view of the training courses, participants were asked to complete an evaluation questionnaire providing feedback on the courses attended. The questionnaire sought to identify participants' backgrounds and interest in the course, gain feedback on the quality, effectiveness and relevance of the course, and identify the need for follow-up training.

Overall, 153 people attended the courses of which 59% provided feedback. However the Strategic Planning course received a considerably higher response rate (87%) (perhaps due to the smaller number of participants) while the Marine Operations courses had a relatively low response rate (43% for the course run in Cork, Ireland, and only 10% for the course run in Orkney, Scotland). See table 2 for further details.

As only two responses were received from participants who attended the Marine Operations course in Orkney, feedback was not collated into a report and therefore these results are omitted from this evaluation.

Course	No of participants	Feedback received	Response rate (%)
Environmental Assessment: Marine Energy Projects	39	28	72
Marine Operations (Orkney)	21	2	10
Marine Operations (Cork)	35	15	43
Strategic Planning	15	13	87
Technical Evaluation of Marine RES projects	43	33	77
TOTAL	153	91	59

Table 2. Feedback response rate

Each course was evaluated on the following criteria:

- Which of the following applies to your organisation?
- What was your reason for attending the course?
- How would you rate the quality of the course content?
- How would you rate the organisation of the course?

- How would you rate the lecturer's skills?
- Any further comments?

The Environmental Assessment course: Marine Energy Projects and the Strategic Planning course had the additional criteria:

- How would you rate the difficulty of the course content?
- How strongly do you agree? "I found the course content informative"
- Would you be interested in participating in other Aqua-RET 2 pilot training?

The Marine Operations and Technical Evaluation of Marine RES projects courses had the additional criteria:

- How strongly do you agree? "I found the group work session useful"

Individual course reports were provided which had collated the participants' feedback in percentage form. A course report was not provided for the Marine Operations course run in Orkney due to the lack of responses to make a report justifiable.

N.B. The question regarding 'difficulty' was included on the feedback forms for the first two courses that were run (Environmental Assessment: Marine Energy Projects and Strategic Planning), however removed for the later courses as it was felt that the question could incite ambiguous responses. For example, if participants answered 'easy' it wasn't clear if this meant that the course was too simplistic, or that it was actually pitched at the right level for that participant and that they didn't find it 'too difficult'.

2.2. 'Round table' feedback session

(for Strategic Planning course only)

A 'round table' feedback session was documented for the Strategic Planning course where additional comments on the course were recorded.

2.3. Additional Information

Additional information was provided in course templates, course materials and on the www.aquaret.com website.

2.4. Limitations

While the majority of questions were the same throughout the four course questionnaires, there were differences and omissions which inevitably made evaluation of the courses as a whole more difficult.

The opportunity was provided at the end of the questionnaire to provide further comments, however specific qualitative feedback on the different aspects of the course was not requested, nor were participants asked what the best and worst parts of the course was for them. While qualitative feedback was received on some courses, others had no qualitative feedback which again made evaluation of the courses as a whole more difficult.

Feedback on individual courses had been collated prior to evaluation which meant that no relationships between individual responses could be made, and specific trends according to background and interest in the course could not be identified.

3. Findings and analysis

3.1. Participants background

The courses stated that they were designed to cater for a specific target audience, but this target covered a broad range of stakeholders including technology and project developers, the supply chain, utilities, Government, regulators, students, other interest entities, and new entrants into the marine renewable industry.

To gauge participants' backgrounds, they were asked to tick which of the following applies to their organisation:

- Representative from sectors whose workforce have core competences that can be transferred to the marine renewables sector (e.g. offshore oil and gas; other energy/maritime sectors);
- Marine renewables industry (researchers and developers, sector support organisations);
- Social partner (community development organisations, regional development agencies);
- Educational partner (vocational training providers, higher education providers and institutions);
- Other (please specify).

The responses are provided in Figure 1.

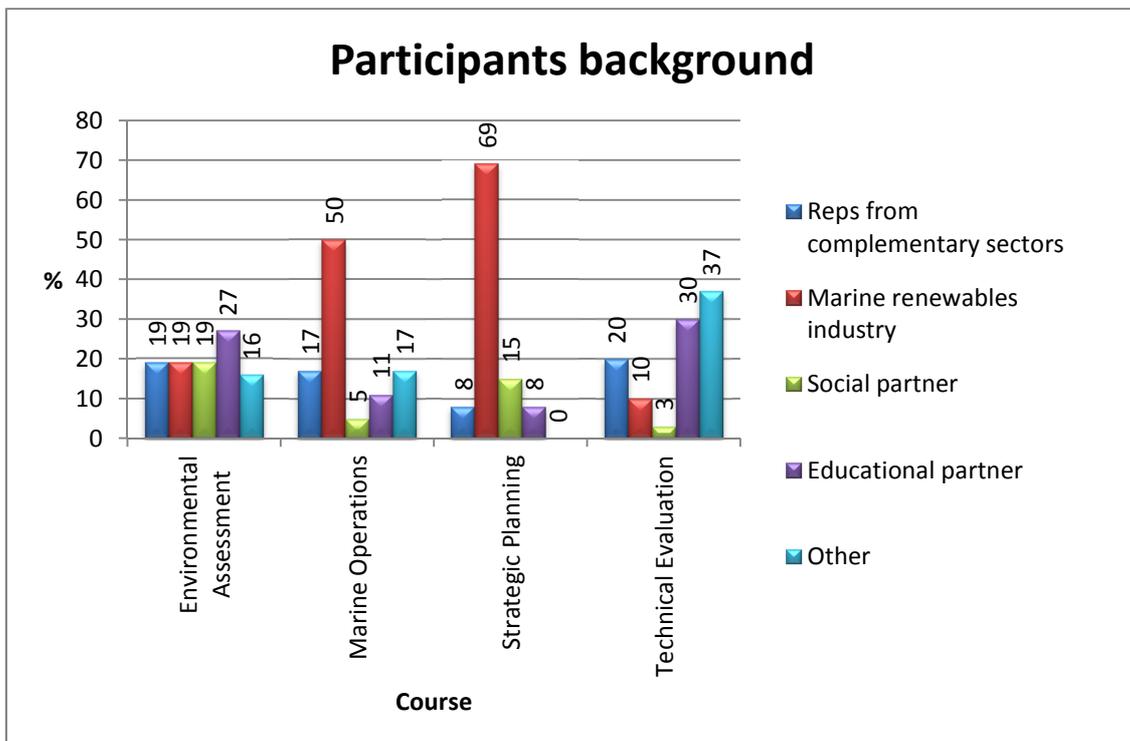


Figure 1. Participants' background

Other backgrounds included research, wave energy desalination, government/public administration, and students.

It is evident from Figure 1 that courses included participants from a broad range of backgrounds.

3.2. Reason for attending the course

Participants were asked what their main reason for attending the course was:

- The course is relevant to my current position;
- I am interested in moving into the marine renewable industry and the course would improve my job prospects;
- I have a general interest in the area;
- Other: (please specify).

The responses are provided in Figure 2.

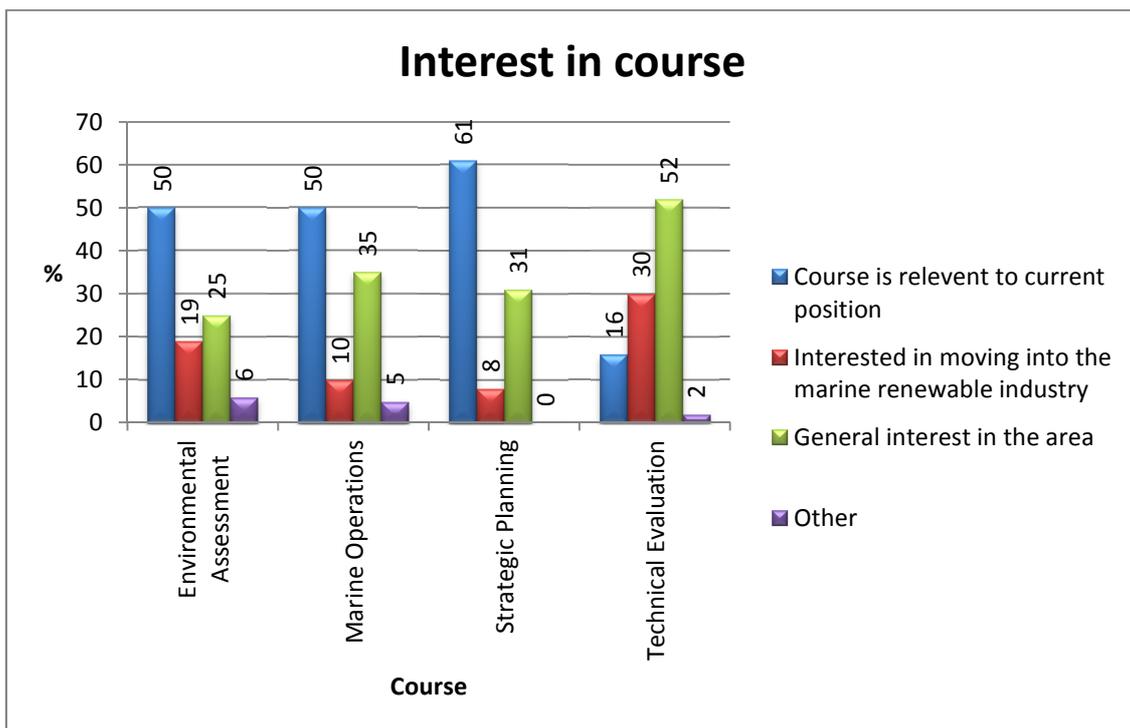


Figure 2. Interest in course

Other reasons included 'prior to WEC meeting', interest in promoting wave/tidal energy projects, and educational reasons.

Figure 2 demonstrates that participants had a wide range of reasons for attending the courses

3.3. Course difficulty

Participants were asked to rate the course difficulty on a five-point scale, with 1 being ‘very easy’, 3 being ‘satisfactory’ and 5 being ‘very difficult’. The responses are provided in Table 3.

	Environmental Assessment	Strategic Planning	Average
Average (on a scale of 1-5)	2.67	2.62	2.65

Table 3. Course Difficulty (for Environmental Assessment course and Strategic Planning course only)

The results indicate that the Environmental Assessment and Strategic Planning courses were pitched at the right level for the majority of participants with 61-62% stating their course was at a satisfactory level. However over one third classed the courses as ‘easy’. This could be due to the range of different backgrounds and reasons for attending (as shown in Figures 1 and 2) which would have made it difficult to cater for specific audiences.

N.B. The question on ‘difficulty’ does not make it clear whether ‘easy’ means that the course was too simplistic, or that it was actually pitched at the right level for the participant (i.e. not ‘too difficult’). The question was therefore omitted from the latter course feedback questionnaires.

3.4. Quality, content, organisation and lecturer’s skills

Quality, content, organisation and lecturer’s skills were evaluated on a five-point scale. An overview of these results (average ratings) can be found below where 1 = poor/strongly disagree and 5 = excellent/strongly agree:

	Environmental Assessment	Marine Operations	Strategic Planning	Technical Evaluation	Average
How would you rate the quality of the course content?	3.78	4.53	3.67	4.24	4.06
How strongly do you agree? “I found the course content informative”	3.97	N/A	3.77	N/A	3.87
How strongly do you agree? “I found the group work session useful”	N/A	4.34	N/A	4.11	4.23
How would you rate the organisation of the course?	4.29	4.27	3.85	4.39	4.20
How would you rate the lecturer’s skills?	3.97	4.73	3.84	4.55	4.27
Average	4.00	4.47	3.78	4.32	4.14

Table 4. Quality, content, organisation and lecturer’s skills

Table 4 shows an average rating of above 4 out of 5 on the quality, content, organisation and lecturer’s skills suggesting an overall high appreciation for the course. The Marine Operations and Technical Evaluation courses scored higher across the board, but all courses scored above an average of 3.5 on all accounts.

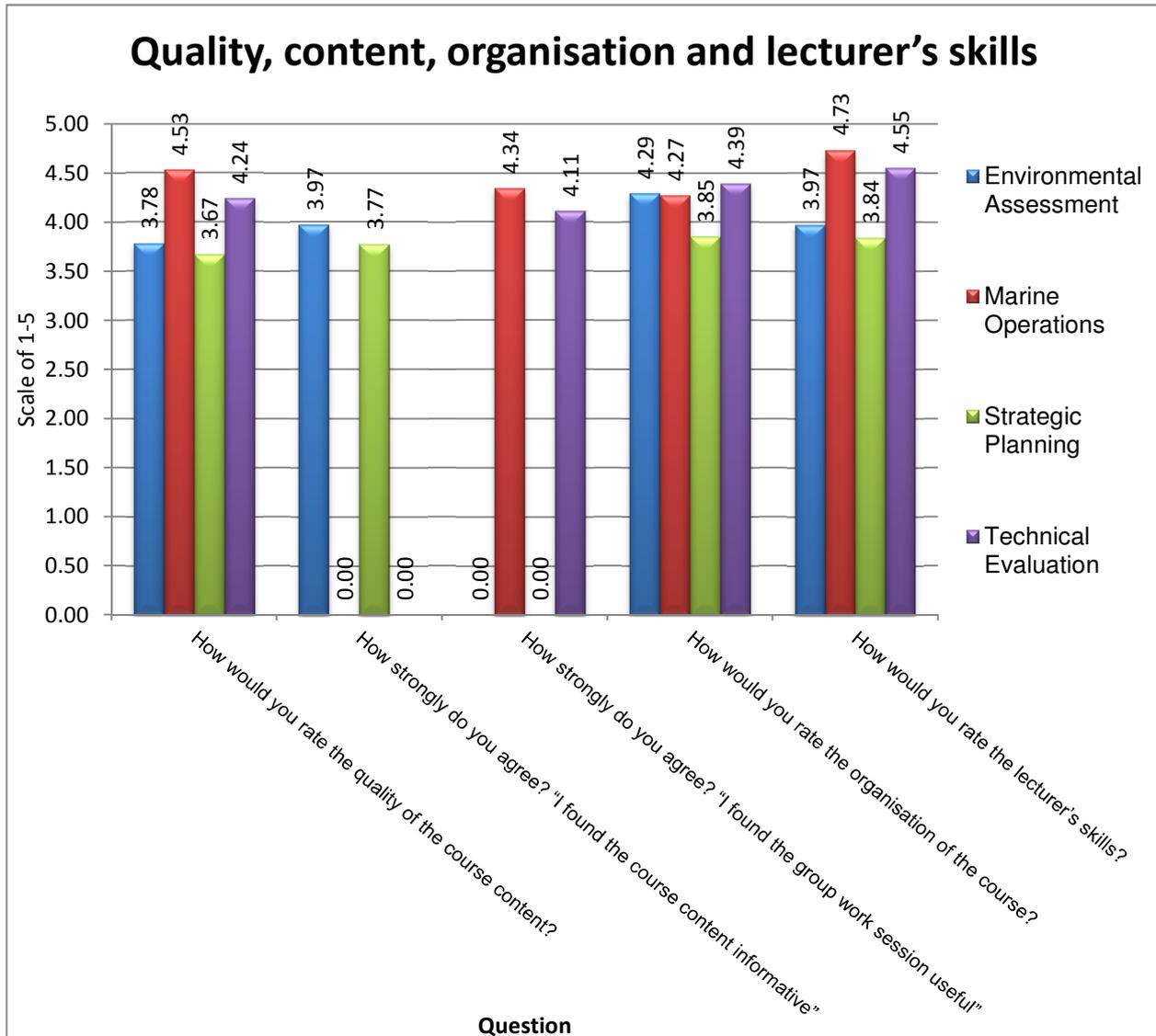


Figure 3. Quality, content, organisation and lecturer’s skills

3.4.1. Course quality and content

The course quality and content was evaluated using participant’s feedback on the quality of the course, how informative they found the content and/or how useful they found the group work. The Marine Operations and Technical Evaluation courses were rated very highly scoring between good and excellent. The Environmental Assessment and Strategic Planning courses rated between 3.5 and 4 thus rated well above average quality.

3.4.2. Course Organisation

The rating for the organisation of the course was high across the board, with only Strategic Planning rating below 4 out of 5 (3.85) on average. This is a positive outcome indicating that the courses were well organised.

3.4.3. Lecturer's skills

The lecturer's skills were also rated highly across all four courses, most notably in the Marine Operations course where 73% of participants rated the lecturer's abilities as 'excellent' resulting in an average of 4.7 out of 5. All four courses rated well above an 'average' rating suggesting a very high calibre of lecturers.

Additional comments on the teaching staff support this assertion including: *"delivery and content was excellent"* and *"I liked the rhythm of the lecture and the interaction"*.

The feedback provided by the participants is a reflection on the experience and expertise of the lecturers who include Dr G. Davies and M. Holgate (Aquaterra), Dr T. Simas, and S. Patricio (WavEC), Dr T. Soukissan, (Hellenic Centre for Marine Research), Dr M. Panagiotopoulos and Dr P. Chaviaropoulos (CRES).

However one additional comment for the Strategic Planning course suggested *"a mix of presenters would help both the presenter himself and for the audience. Keeps the material lively!"*

3.5. Interest in additional Aqua-RET training courses

Participants in the Environmental Assessment and Strategic Planning courses were asked about their interest in participating in other Aqua-RET2 pilot training courses. The responses are provided in Table 5.

Course interested in:	Course attended	
	Environmental Assessment	Strategic Planning
Environmental Assessment		9 (60%)
Marine Operations	24 (86%)	8 (53%)
Strategic Planning	Not on questionnaire	
Technical Evaluation	25 (89%)	8 (53%)

Table 5. Interest in additional Aqua-RET training courses

The responses from the Environmental Assessment courses indicate significant interest in the other Aqua-RET 2 training courses, which is further endorsement for the initial course itself. The same can be said, if to a lesser extent, for the Strategic Planning course, which

still arouses interest in each of the other training courses by over 50% of participants. These responses suggest that the pilot courses have been successful, that these courses serve a need in the marine renewables industry, and that there is a need for further training within the industry.

3.6. Additional comments

All courses provided the opportunity for participants to provide additional comments, enabling some qualitative feedback on the courses to be collected. In particular, the questionnaires asked participants to indicate *“potential topics that should have been included in the presentations or any that should have been covered in more detail”*. No comments were made for either the Environmental Assessment course or the Technical Evaluation course.

Nine additional comments were provided on the Marine Operations course. Of these, four comments were very complimentary of the course and the lecturer thus supporting the above findings. The other comments provided short suggestions on how to improve the course including *“more time for structured group discussion and case studies”*, and *“possibly too wide a brief for the time allocated in the group session”*.

Similarly, nine participants provided additional comment on the Strategic Planning course, plus informal feedback was recorded from a group feedback exercise. The key themes from the feedback were on the length of the course (*“too long”*), and the need to *“tailor to specific audiences”* with a few comments indicating that the course was *“too broad”*.

There were also a few suggestions on how to improve the course content including a request for more information on cross-sectoral learning, and the inclusion of more *“facts and figures”*. A few comments suggested that it was a good introductory course but indicated that they were looking for more depth (i.e. facts and figures, use of case studies). These comments provide deeper insight into why 38% of participants stated the course was *“easy”*.

The ‘general’ nature of the course, and thus perceived ease, is a further reflection on the suggested lack of a target audience. A number of comments agreed that the course would be of particular benefit to *“policy makers and legislators”*.

Overall, the qualitative feedback gained indicated the value of group work sessions and the desire for more time to be spent on practical application (i.e. use of case studies and group work) and less theory.

3.7. Course templates

Standard course templates were provided for each course including the following information:

- Course Designer
- Course Title
- Course Contents
- Target Audience
- Entry Level
- EQF Equivalent
- Period of Reference
- Language(s) of Instruction
- Date of Development.

In addition, the following information is provided for each unit in the course:

- Name
- Purpose
- Recommended prior knowledge and skills
- Learning outcomes
- Teaching and Learning Methods
- Knowledge and/or skills
- Evidence requirements
- Assessment method
- Number of credits of each unit related to the total of the course and/or duration.

The course and unit templates provide prospective participants with ample information on the course including assumed prior knowledge and skills, and intended learning outcomes.

The target audience sections, as discussed above, are perhaps too wide reaching and should be reviewed.

3.8. Course materials

Each course consisted of two main sections: a theoretical section and an interactive group work session. The courses were supported with a PowerPoint presentation. The PowerPoint presentations for each course use the same master slides, and follow a logical flow of information beginning with stating the learning objectives, and then progressing through each unit.

On the whole, the information was clearly presented, text was kept to a minimum per slide, good use was made of images and graphics to add interest to the presentation, and slides were not too cluttered utilising ‘white space’ effectively. It was clear that a lot of thought and effort had gone into producing the course materials.

There was some inconsistency apparent in headers and unit divider pages in terms of text format, size and layout, and in some sections too much text was presented on a single slide making the slide difficult to read and very likely detracting from the lecturers’ presentations (most notable in the Marine Operations and Technical Evaluation courses). A few slides were very busy and could have been simplified. However in general they provided a sound basis on which the lecturer could build a presentation.

One further point was the number of slides included in each of the courses, detailed in table 6. PowerPoint presentation slides should be used as an aid to the lecturer’s presentation and not as the presentation themselves, and therefore in future, courses could be condensed focusing on the main points in the lecturers presentation. 200-300 slides for a 3-4 hour course is a large number, and may provide insight into the participants’ feedback suggesting a need for more interactive/group work and less theoretical focus.

Course	Number of slides
Environmental assessment	231
Marine Operations	113
Strategic Planning	207
Technical Evaluation	322

Table 6: Number of PowerPoint presentation slides

4. Conclusion and recommendations

The feedback gained from the questionnaires indicates that the pilot courses developed by the Aqua-RET 2 consortium were successful, fulfilling a real need for training in the marine renewables industry and identifying the need for additional follow-up training. The average rating of above 4 out of 5 on quality, organisation and lecturer's skills, and the fact that the majority of participants are interested in participating in other Aqua-RET2 training courses suggests high appreciation and satisfaction in the pilot training courses.

The Aqua-RET 2 consortium have therefore met their aims identifying genuine training needs for the marine renewable sector and ancillary businesses, and piloting new training programmes that meet these needs.

However some improvements could be made to the courses to ensure that they meet the needs of their target audience sufficiently. Most notable from the feedback is the lack of a clearly defined target audience for each of the courses: participants were from a wide range of backgrounds with differing reasons for attending the courses. This can have its benefits if participants are at the same level academically and/or professionally, but on the other hand makes it very hard to pitch the course at the right level, with the right messages. The suggested target audience in the course templates are too wide reaching and should be reviewed. In reviewing the target audiences for the course, the difficulty level should also be reconsidered to suit the specific audience.

Further to this, the qualitative feedback provided by the participants on how to improve the courses should be taken into account when further developing the courses. Particularly, further consideration should be given to enhancing the practical side of the courses (i.e. group work, use of case studies, etc.) as many participants felt this was the most beneficial learning technique. To this end, PowerPoint presentation slides should be reviewed and reduced honing in on the main points. It is recommended that formatting of text, headers, and pictures is taken into consideration and streamlined for consistency.

Finally, the course providers should continue to evaluate the courses as they are run again, in order to monitor how courses have been improved since the pilot courses, and how best to further enhance the offering to ensure that market needs are still being addressed. A standard questionnaire should be developed for the evaluation of all courses with more opportunity for specific qualitative feedback. Instead of omitting the 'difficulty' question, it should be reworded to mitigate the chance of ambiguous responses. For example, by asking 'was the course pitched at the right level for your needs/ability?' If 'no', 'how would you rate the difficulty of the course?' and provide opportunity for comment. Group feedback sessions should also be documented to allow additional qualitative feedback.