

*Facilitating connectivity
and synergy among
R&I projects*



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BlueBio Milestones 29, 39, 40 and 41:

Development of cross-sectorial and trans-national activities related to the thematic areas 1-4

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1. CREATING CONNECTIVITY - THE APPROACH

The Blue Bioeconomy ERA-NET Cofund was funded under H2020 and consists of 30 partners representing 17 European countries. From 2018 to 2024 BlueBio has worked to strengthen Europe's position in the blue bioeconomy, by funding R&I projects and related activities that identify new and improve existing ways of bringing biobased products and services to the market.

Part of the aim of BlueBio was to create synergies among the funded projects. To enable this, activities were organised so the BlueBio cofunded projects would be introduced to each other, and to facilitate discussions for potential collaboration, knowledge exchange, and other synergies.

Having discussions between projects in smaller groups was seen to be highly relevant for several reasons:

1. *Efficient Resource Utilization*: By bringing together projects that may have overlapping goals, technologies, or resources, they can consider optimizing, by sharing samples, divide tasks or similar. This prevents duplication of efforts and maximizes the efficient use of the project resources.
2. *Cross-Pollination of Ideas*: When projects from similar domains or teams but with slightly different expertise come together, there's an opportunity for the cross-pollination of ideas. This can lead to innovative solutions and new approaches that wouldn't have been discovered in isolation.
3. *Risk Mitigation*: Through sharing of information about methods or approach the projects can help identify potential risks and challenges early in the process. This proactive approach allows teams to address issues before they become critical and can help mitigate project risks.

Informed by this, The Blue Bioeconomy Cofund Value Chain Supervisors (BBC VCS) organised four separate web-meetings (see Figure 1) to allow projects to be introduced to each other and for opening up for discussion of potential collaboration, knowledge exchange or other synergies in a smaller group. The meetings were organised six months after the projects were kicked off.

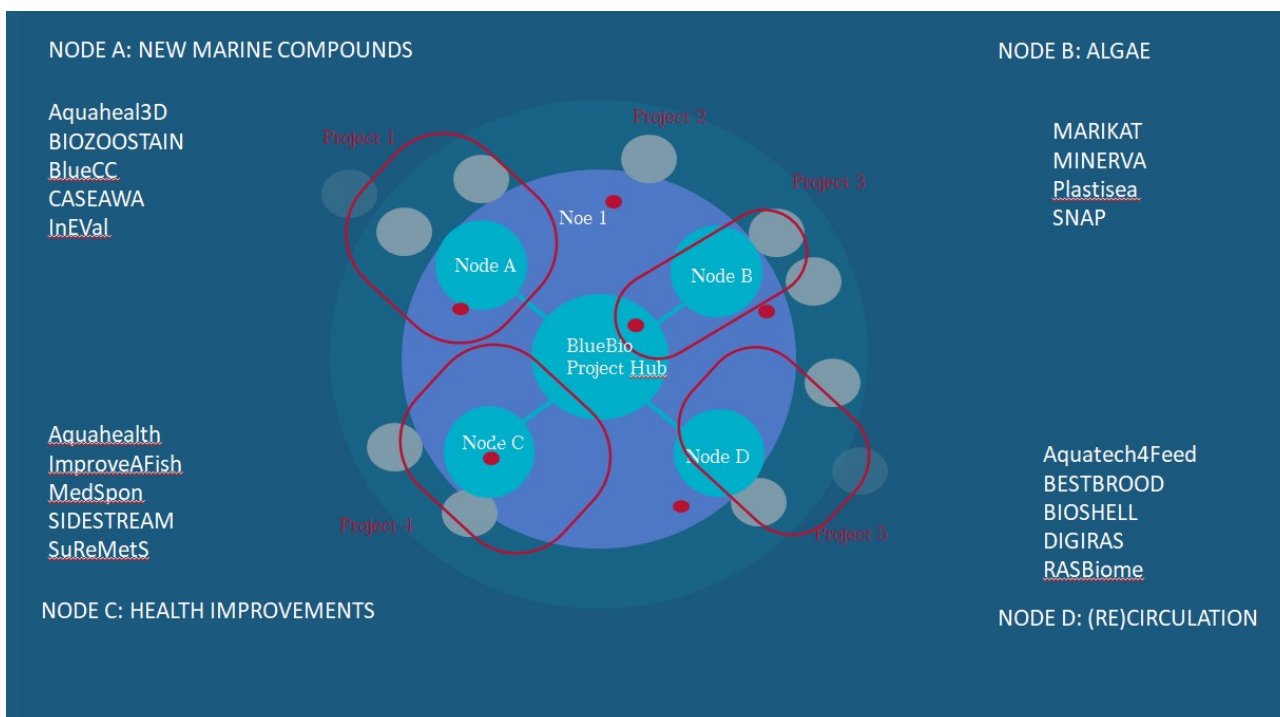


Figure 1. Overview of the Cofunded projects in the four Nodes.

Each project coordinator was encouraged to invite their project partners for the meetings. Thus the webinars had between 19 and 33 participants (including BlueBio representatives from WP1 (Coordinator), Value chain supervisors and WP7).

1.1 Plan for the webinars

The four meetings were arranged between 18 and 20 November 2020, according to the organisation of the projects in Nodes in Figure 1.

- 18/11/2020 14-16: **Node A - New marine compounds:**
Aquaheal3D, BIOZOOSTAIN, BlueCC, CASEAWA, InEVal
- 19/11/2020 09-11: **Node C - Health improvements:**
Aquahealth, ImproveAFish, MedSpon, SIDESTREAM, SuReMets
- 19/11/2020 14-16: **Node B - Algae:**
MARIKAT, MINERVA, Plastisea, SNAP
- 20/11/2020 09-11: **Node D - (Re)Circulation:**
Aquatech4Feed, BESTBROOD, BIOSHELL, DIGIRAS, RASBiome

The agenda was the same for the four meetings. First a round of 5-10 minute presentations of each project, then the remaining time of the 2 hour meeting was planned for an open discussions (see agenda in Annex 1).

As a starting point for the discussions, the list of topics that was voted for in the kick-off meeting in June 2020 was presented (see Figure 2). These topics were industry related issues, giving talks across projects, knowledge sharing, links to other projects, collaborative stakeholder engagement, data sharing and Human Capacity Building.

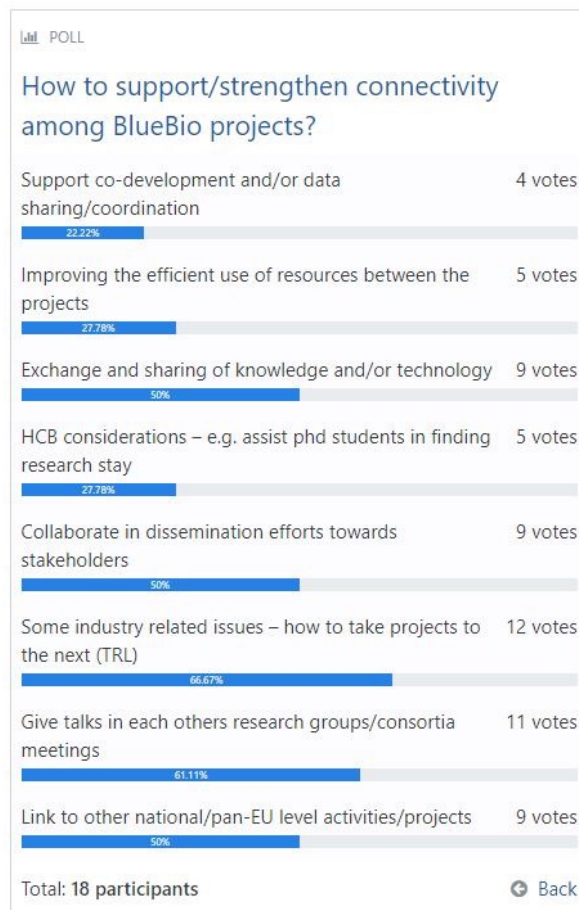


Figure 2. List of topics of interest, voted on by the projects at the kick-off meeting. To be followed up at the e-coffee meetings.

1.2 Execution of the webinars – the reality

Though the coordinators were asked to give brief presentations of their projects focused on scope, partners and methods, many presentations were too long. However, it was seen as important that the projects got to know each other, and more detailed presentations were allowed. The one-hour timeframe for presentations was therefore exceeded, and this allowed approx. 30 minutes for discussions.

Initially some participants questioned the grouping of projects, as they might see interest in learning more of other projects than those in the group. The BBC VCS recognised this and adapted the next meetings. In several groups immediate links among projects were made, as they could see potential collaborations or the benefits of further knowledge exchange. These were encouraged to explore these bilaterally and perhaps make use of the “e-coffee” concept.

The “e-coffee” concept where one project makes a presentation into another project got 11 votes in the initial kick-off meeting and was promoted in each of the webinars in order to fulfil two purposes: 1) as COVID-restrictions stood in the way for physical project kick-off meetings, it was difficult to foster the “project-team spirit” and e-coffee meetings among project partners could be a way to connect, while having a common activity. Listening to a related project 2) learning of the activities and methods of another project may lead to sharing of knowledge/experience, samples, challenges or other collaborative activities.

1.3 Considerations for further discussions among projects

The discussion in several groups touched upon similar topics, which were further explored as cross-group themes, allowing for the projects to meet up in different constellations.

1.3.1 Market issues

Regulatory issues for nutraceuticals and other human uses (explicitly mentioned in node A, C)

Several projects aim for developing nutraceuticals or medicaments for human consumption or human use. These types of products may have specific rules and regulatory restrictions that need to be taken into account when going from prospecting to further trials or considered for further development.

Regulatory issues for using side-streams in aquaculture production (explicitly mentioned in node B, C, D)

Several projects aim to utilise today's waste stream in biomass processing for new products that will be utilised in production. Depending on the resource used, the type of biomolecules extracted and/or where in the production cycle the product is applied, these may be subject to regulatory constraints.

Overview of potential products (explicitly mentioned in node C)

Several projects are exploring utilisation of biomass/ molecules for new marketable products. It was suggested to collate information on these, for instance to evaluate the market potential and/or to find common ground for dissemination of this potential to different stakeholder groups. Thus, it could be useful to report results from own work as well as other projects and plan stakeholder meetings together.

1.3.2 Methodology

Manipulation of algae cells (explicitly mentioned in node C)

Several projects explore potential biomolecules from micro algae and plan to extract and convert substances from these. It was suggested to share knowledge and experiences of successful and unsuccessful methodologies.

Characterisation of polysaccharides (explicitly mentioned in node B)

In Node B the projects are focused on aspects of macroalgae utilisation through exploration of the algae compounds. It was discussed if there could be potential collaboration in exchange of biomass as the content may vary depending on season and location as well as characterisation of extracts.

Standardisation of microbiome annotation (explicitly mentioned in node D)

Many of the RAS projects, but also projects in the other nodes, are focusing on microbiome. The microbiome is investigated in different parts of the system and phases of production. However, the methods used vary and this may lead to difficulty in interpreting and comparing of results that could be contrasted. The initial discussion was dipping into the possibility of standardisation of sampling, workflow and annotation and possible approach to characterisation of microbiome in the system.

Standardisation of LCA efforts

Several projects included a Life Cycle Assessment (LCA) activity. It could be further explored if a common approach to these would be beneficial.

1.3.3 Knowledge sharing

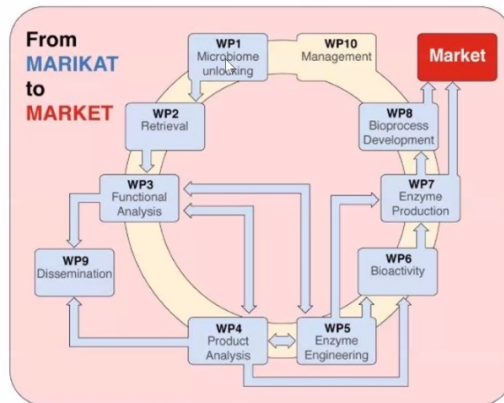
Several projects are planning involvement of Master or PhD students. It was mentioned that besides visiting partners within a project, a PhD student could have a short-term exchange with a partner from another project in order to exchange knowledge on methodologies. RAS farms/companies also welcomed internships and student projects.

1.3.4 Pooling dissemination efforts

Across all Nodes it was mentioned that many projects have an overlap in stakeholder groups that they want to reach out to. Thus, it was suggested to do shared dissemination activities. The potential of utilising the blue biomass is a common overarching message, shared among many projects, and providing examples from not only one's own project prove the point. Combining stories and efforts towards stakeholders could thus be further explored.

2. CONTINUING THE GOOD WORK

Some themes were raised in only one of the four meetings, however, they were potentially of interest for projects in other Nodes as well, as there are overlaps in approach, biomass or goals across Nodes. Many projects had a focus on several parts of the value chain. From prospecting or production to market (see example in Figure 3). Thus, even if a theme was relevant for a project, it might be with some specific partners or in specific work packages that the real knowledge gaps manifest or interest in themes appear.



The technology wheel

Figure 3. Overview of work packages in the MARIKAT project

The BlueBio Value Chain Supervisors (VCS) therefore did not move forward with fostering Node-based synergies, but developed theme-based activities that encouraged work packages/partners from projects across all Nodes (see Figure 4). These themes were standardisation in microbiome annotation; discussion of common challenges in regulatory issues in feed products and products for human use; or developing a common outputs database on market exploitation of research results could be done in cross-node theme-based activities.

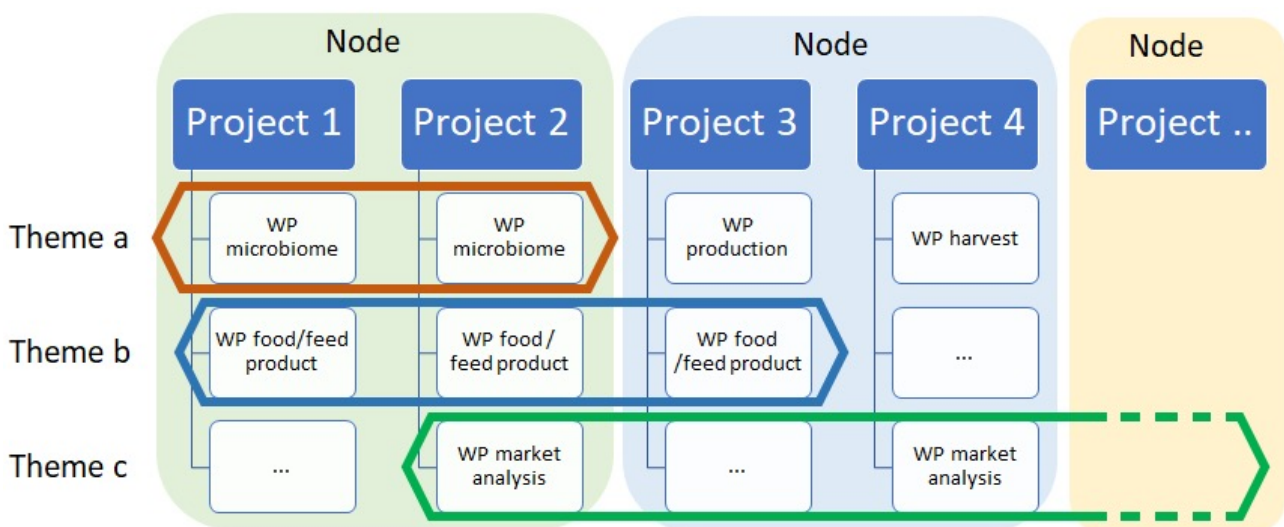


Figure 4. Overlap in thematic interest areas within and between nodes.

2.1 Continuing the success – more meetings

The COVID-19 pandemic was limiting in many ways, but it did enable greater online participation from all over Europe. This created an opportunity to reach more people and a more diverse group of people in the meetings. After the initial success of the first four webinars, and the evident need to have topical webinars of identified topics, more meetings were organised.

After the initial round of meetings, connectivity and synergy was achieved through two types of meetings. The concept of an e-coffee meeting for all the projects funded in the same call, to present their project to each other and discuss, was continued for the three Additional Calls. And four topical e-coffee meetings were organised, one in collaboration with SUSFOOD2 ERA-NET, all open to all BlueBio projects funded at the time.

Overview of all additional e-coffee meetings:

- i. 4 April 2021: e-coffee meeting on microbiomes
- ii. 23 September: 2021 e-coffee meeting on taking algae products to the market
- iii. 6 April 2022: e-coffee meeting on Human Capacity Building
- iv. 23 June 2022: e-coffee meeting for the projects funded under the 1st Additional Call
- v. 28 October 2022: e-coffee meeting on commercialisation support
- vi. 22 June 2023: e-coffee meeting for the projects funded under the 2nd Additional Call
- vii. 2 and 8 November 2023: e-coffee meetings for the projects funded under the 3rd Additional Call

2.2 E-coffee meetings to create synergies between projects funded under the same call

The e-coffee meetings were a practical way to “walk the walk” and facilitate synergies between projects. The four initial e-coffee meetings for the projects funded under the Cofunded call, showed that a lightly facilitated webinar, with participation of more than just the project coordinator, was very beneficial for a number of reasons. The longer presentations enabled the projects to better understand the scope and practicalities of the other projects, leading to more and less formal collaboration between several of the projects. The opportunity for peer-to-peer discussion created an open and friendly atmosphere that increased trust and lowered the threshold for the projects to laterally invite and include the other projects in events. Inspiration is hard to measure, but it has been clear that projects have copied each other’s best practices, especially for communication and dissemination, commercialisation, and trainings and exchange.

For the projects funded under the 1st and 2nd Additional Calls, the cohort sizes were smaller than the cofunded call, and all projects attended the same e-coffee meeting. The larger thematic scope in the meeting and larger group size, did reduce sharing and interaction in the meetings, but was still viewed as beneficial by the projects.

For the special case of the projects funded under the 3rd Additional Call, there were two thematic e-coffee meetings. The projects were eager to learn from each other, and to understand what they had chosen to do to boost their project when asked to “think outside the box” in the call text.

2.3 Topical e-coffee meetings

In the first four e-coffee meetings, a number of topics and themes were identified as of interest to multiple projects.

The topics were not only interesting to projects within one node, so it was decided that all projects would be invited to all topical e-coffee meetings. The projects know best what is most relevant to them. An effort was made to make sure that not only project coordinators would participate, but also Work Package leaders and other project participants, as the specific competence on a topic at an e-coffee meeting would not necessarily be in the project coordinator's Work Package.

The first topical e-coffee meeting was "**Microbiome analyses and standardization**" on 4 April 2021. For this meeting AORA-colleagues from North America working on microbiomes were also invited. There were three keynotes, two external contributors and one BlueBio project coordinator. Three additional BlueBio projects had been chosen to present their plans for microbiome analysis. From this starting point, a lively and energetic discussion and sharing developed. It was evident that the participants greatly appreciated the opportunity to meet and discuss with their peers in this format. The meeting led to formal collaborations between several of the projects.

The second topical e-coffee meeting was a collaborative workshop on "**Taking sustainable algae products to the market**" jointly with SUSFOOD2 ERA-NET on 23 September 2021. The goal of the workshop was to bring research and industry together to discuss the future of sustainable algae products and especially about market issues like regulation, pilot scale infrastructure, techno-economic feasibility and sustainability. The workshop was organised with both external keynote speakers and speakers from both SUSFOOD2 and BlueBio projects working on algae. Participation was open to all interested and a report on the workshop and groupwork was published.

The efforts of Human Capacity Building in the projects were evaluated as part of the mid-term evaluation of the Cofunded call projects in March 2022. From the evaluations, it was clear that it would be beneficial to have an e-coffee meeting on "**Human Capacity Building**" on 6 April 2022, not just for the projects from the Cofunded call, but also the recently kicked-off projects from the 1st Additional Call. At the meeting the strategic role of HCB in BlueBio was highlighted, two best practices from projects were presented and a roundtable discussion was facilitated for the projects to find improvement. A wish for additional training courses organised by the ERA-NET was also aired. Receiving the input while the projects were still running, enabled BlueBio to address the needs and work more agile on HCB. The meeting led to two additional training courses being organised in January and October 2023.

Another topic addressed in the mid-term reporting, was the need for support with commercialisation in the funded projects. A topical e-coffee meeting on "**Commercialisation support, increased impact and market readiness**" was organised on 28 October 2022 after a longer process of interviews with industry stakeholders and a mapping and survey of all funded projects. Insights on commercialisation opportunities were shared with the projects and six projects gave pitches. Following the event, one-on-one mentoring was initiated with relevant projects and commercialisation factsheets were developed for all funded projects. The process was published in a brief in January 2024 and the commercialisation factsheets are available on the BlueBio website.

A final topical e-coffee meeting is planned in spring 2024 on "**Life Cycle Assessment – standardisation and methods**". To create a sustainable and circular blue bioeconomy, the complete impact of a product or solution must be known. The current best method to understand the lifetime impact of a product or solution is Life Cycle Assessment (LCA), but there is still not enough standardisation for this to be universally useful. The e-coffee meeting will help the projects share experiences and learn from each other on this topic.

3. IMPACT OF MEETINGS – SYNERGIES ACHIEVED

After 12 meetings organised in three years, it is clear that they have created regular meeting points in addition to the usual three (kick-off, mid-way evaluation and end-term evaluation). This has created a group feeling within the consortium for all projects and a better connection between the consortium and the projects. Projects have appreciated the meeting places, which they have voiced in the meetings and that you can see from the attendance at all the meetings.

It is evident that the meetings have led to collaboration. This is especially clear in how the collaborations are mentioned in the final reports of the cofunded call projects. Ten of the 19 projects explicitly mention collaborating with at least one other project in their final report. The topical meetings have also created connections between projects from different calls, and have enabled projects starting later to learn from those starting earlier.

Being in regular contact has enabled the BlueBio Consortium Work Packages to better support the funded projects. By receiving input and wishes, and being able to react to these requests while the projects were running, has been invaluable. Especially on capacity building and training, communication and commercialisation.

All in all, the online meetings organised have been relatively simple to organise and have required few resources. But they have contributed greatly to the success of the funded projects and the BlueBio ERA-NET Cofund.

4. ANNEX 1 – OUTLINE OF AGENDA FOR THE MEETINGS

The following agenda was more or less setting the scene for the meetings, but was used flexible in order to allow interventions as the participants found of interest.

Networking Meeting Agenda

Date and time: xx November 2020, xx:00 - xx:00 CET

Meeting venue: Online, Zoom
Join Zoom Meeting: LINK

Participants: All partners in the Cofunded projects (not only the coordinator) in 4 groups

Time	Topic
	Virtual coffee and practical help
xx:00 – xx:00	Welcome, approval of the agenda, aim of the meeting, tour de table (Dennis)
	Introduction to projects represented – 10' for each project Please provide an overview of partners, and scope including methods used
xx:00-xx:15	Break
xx:15-xx:40	Discussion on: <ul style="list-style-type: none"> ■ COVID-19 implications/challenges for the projects ■ How to engage within a project? E.g. 'e-coffee'?
xx:40-xx:55	Meetings ahead: <ul style="list-style-type: none"> ■ Further on possibilities for advancing TRL ■ How to increase human capacity building (HCB) within a project/among projects? ■ Invite related projects (national/regional/EU-level/international)? ■ Training courses together with BlueMed ■ Other topics?
xx:55-xx:00	Closing of the meeting <ul style="list-style-type: none"> ■ Date for a next meet-up – e.g. xx February 2021?

Blue BTO COFUND



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