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EDITORIAL

Strategic Research and Innovation Roadmap

The publication of the [Marine Biotechnology Research and Innovation Roadmap](#) is broadly welcomed, it provides researchers, funding agencies, policy makers and the enterprise sector with a comprehensive view of current and emerging opportunities to use marine-derived materials in different applications. The roadmap positions marine biotechnology as the key to maximising the creation of value from marine biological resources.

The roadmap dispels the traditional view of marine biotechnology as being relevant only to the marine sector. The research agenda is relevant to all enterprise sectors; and as such, it will stimulate future collaboration in what is a rapidly emerging and increasingly important process involving the discovery, production and use of marine-derived materials. Its strategic relevance is underpinned by the involvement of multiple stakeholders, including contributions from an expert review panel.

... continued on page 2



ERA-MBT Stakeholder meeting, 12-14 November 2016.
Photocredit: VLIZ

The *Marine Biotechnology ERA-NET* (ERA-MBT) is a consortium of 19 national funding agencies seeking complementarities between national activities by pooling resources to undertake joint funding of transnational projects in the area of Marine Biotechnology.

During the lifetime of the project the following activities will be carried out, supporting the European Bioeconomy:

- Launching **three thematic calls** to generate joint European research and development activities.
- Arranging a number of **stakeholder events** to promote dialogue between science, industry and policy and to identify requirements for successful developments within the area.
- Performing **outreach activities** to seek complementarities and avoid overlap with other activities sharing common interest with ERA-MBT.
- Establishing a **Strategic Roadmap** with the support of the **International Advisory Group**, an expert panel reflecting views and expertise from the scientific, policy and business sectors.
- Developing a **perspective on the future** of marine biotechnology research and development and its likely impacts.
- Providing information about marine biotechnology in an **online and open access portal** with a wiki function.



The roadmap targets growth areas identified in various global forecasts and identifies a wide range of markets and industry sectors as major beneficiaries of marine biotechnology research and innovation. An array of different marine organisms is the source of materials used in food, health, and personal care products. These and other markets offer short and long-term opportunities to expand the use of algae, fish, microorganisms and other marine species, and their co-products in wide-ranging applications.

Scarcely a day passes without reference to the global threats to natural resources and the need for a greater effort to manage them. Despite the plethora of national and international agreements and protocols, the marine environment is particularly susceptible to overexploitation of its natural resources. A recurring theme within the roadmap is the call for the sustainable harvesting and use of marine biological resources, and a strong emphasis on the role of marine biotechnology in monitoring marine resources in contributing to the development of new policy measures.

Not only does the roadmap highlight current uses for marine resources, it provides a framework on which to create new opportunities. The role of policy support in stimulating European marine biotechnology research and innovation is key in enabling marine bioresources to contribute to Europe's societal and other challenges. For the first time in Europe, the roadmap provides a cohesive agenda concerning the exploration of marine territories in the search for novel materials; and for harvesting and cultivating marine biomass as the basis of innovative products and processes. Underpinning marine biotechnology research and innovation is an extensive infrastructure; the roadmap draws attention to the need to maintain and enhance this infrastructure by the addition of new tools and facilities to be shared across Europe. These developments will strengthen the innovative capacity of the research communities, it will attract new capabilities and competencies relevant to the enterprise sector and stimulate greater exploration, leading to an expansion of the use of marine biological resources.

In taking a perspective to 2030, the roadmap is strategically relevant to an array of actions from basic research, to the provision of new measures that will stimulate innovation and enhance enterprise performance. Already, the roadmap was used by the ERA-MBT in defining its calls for research proposals. It is likely that national and European research funding agencies will similarly draw from the roadmap to inform their future calls. Quite apart from the practical use of the roadmap in guiding research and innovation it will have a lasting use in enhancing the understanding of the potential for European marine biotechnology research and innovation.



Dr Dermot Hurst
Marine Institute
Ireland

THIRD JOINT CALL

ERA-MBT partners are currently working on realizing the 3rd ERA-MBT call for proposals to be published mid-December. The third transnational joint call for research projects is related to [“Metagenomic approaches for valorization from the marine environment”](#).

Together, the 10 funding organisations involved in this call expect to support around 5.5 Mill. € for marine biotechnology research. The main purpose of the call is to stimulate joint European research and development activities within marine biotechnology related to valorization of bioactive molecules from the marine environment.

Relevant documents will be available on 13 December at <http://www.marinebiotech.eu/third-transnational-call>



SECOND JOINT CALL

The ERA-MBT second joint call was launched in December 2015 under the topic [“Biodiscovery - Bioactive molecules from the marine environment.”](#)

After the submission date on 16 March 2016, 41 proposals were received, requesting a total of € 45 million. Five transnational collaborative R&D projects were selected for funding based on an international peer-review assessment of proposals and within the possibilities of national budgets. The total public funding was € 5.8 million and projects are expected to start early 2017.

More information on the projects will be published soon on the website and discussed in the next newsletter.



REPORTS OF ERA-MBT EVENTS

LAUNCH OF THE MARINE BIOTECHNOLOGY STRATEGIC RESEARCH AND INNOVATION ROADMAP

The roadmap document was officially presented to the European Commission at a public event in the afternoon of 12 October 2016 at the Hotel Marivaux Congress and Seminar Centre in Brussels. At the event, which gathered 65 participants, the ERA-MBT Coordinator, **Steinar Bergseth**, handed over the first issue of the printed roadmap to Policy Officer **Vanessa Campo Ruiz** from DG RTDI of the EC. She congratulated ERA-MBT with the publishing of this important document, which is looking forward to 2030, and in her address explained how it would fit into the EU policies and funding opportunities supporting marine biotechnology. She emphasised that the financial support to marine biotechnologies represents a substantial component of the total support for activities within the area ‘Aquatic living resources’ in the work programme Horizon 2020. While marine biotechnology can be considered an enabling technology for processing within the value chain from marine resources to marketed products, there may also be benefits in collaborating with horizontal activities as in the newly established Cofund CoBioTech.

Subsequently, invited speakers gave examples on how the Roadmap would give important directions for developments within the industry and the research community. The Bio-based Industry Consortium is an important Public-Private Partnership, which also has an aquatic component where marine biotechnology may be further developed. Speakers also emphasised the importance of establishing good networks and international collaborations, while it was pointed to the importance of proper Access and Benefit Sharing for successful bioprospecting. In the future, we will see more complexity when maintaining balanced, healthy and productive marine ecosystems. This calls for increased multi-national collaboration and increased interdisciplinary work.

It was concluded, as also stated by the chair of the ERA-MBT International Advisory Group, **Rachael Richie**, in the preface to the Roadmap document, that ‘it is clear that the marine biotechnology roadmap provides a framework for future marine biotechnology research and innovation activities creating new biomaterial supply chains’. Further information can be found on the [ERA-MBT website](#).



Steinar Bergseth hands over the first issue of the printed roadmap to Policy Officer Vanessa Campo Ruiz, DG RTDI. [Photocredit: VLIZ](#)

SECOND ERA-MBT STAKEHOLDER MEETING

The topic for this second stakeholder meeting was ‘Enabling future innovations’, and had as its outset the ERA-MBT Marine Biotechnology Strategic Research and Innovation Roadmap, which was officially launched the day before the stakeholder meeting. The meeting was held at Hotel Marivaux Congress and Seminar Centre in Brussels, 13-14 October 2016 and gathered around 75 participants. The event had a total of five sessions and an open forum discussion giving feedback for future directions at the end of the meeting.

In his [opening address](#), the ERA-MBT Coordinator **Steinar Bergseth** welcomed the participants and made an introduction to the stakeholder meeting, and **Dermot Hurst from the Marine Institute, Ireland**, made a brief presentation of the Strategic Research and Innovation Roadmap.

In the [first session, ‘Marine Biotechnology, and industry perspective’](#), five speakers illustrated how marine biomaterials may be sourced, and pointed to various application areas. In her keynote address, **Dagmar Stengel, National University of Ireland, Galway**, gave an extensive overview on algal resources and applications, where she pointed to the opportunities, but also highlighted the challenges. The subsequent speakers presented possibilities for how marine biotechnology can contribute to fish and animal nutrition through proper feeding regimes, and the nutritional values of marine components in the feed. Other examples of application areas included cosmetics and the consumer goods industry, including products from fisheries and aquaculture as well as food ingredients, nutraceuticals and functional components in food formulations.





Panel discussions at the ERA-MBT Stakeholder meeting. *Photocredit: VLIZ*

At the end of the session the five speakers participated in panel discussion, where the audience asked questions and the panel responded. This format was applied throughout the stakeholder meeting and gave good feedback from the audience as well as the session speakers.

The second session, ‘Building a marine biotechnology venture’ was initiated by **Fernando de la Calle, PharmaMar, Spain**, who gave an overview on how marine biodiversity offers opportunities for biodiscovery of bioactive molecules for the pharmaceutical sector. The other four speakers in the session presented good examples on how marine biotechnology can be financed, the IP challenges, and how products can be brought to the market. In the chain of events for developing promising research results to marketable products, the pitfalls were illustrated. An early stage investor underlined the importance of maturing R&D projects in the right directions to make good ideas ready for seed capital. This can prevent them from failing at an early stage, which will benefit the whole innovation system. Examples were given on how barriers could be overcome for typical SMEs, and the question was raised why SMEs keep being small and if this was a specific phenomenon for marine biotechnology?

In the third session, ‘Supporting marine biotechnology RTDI’, **Ole Jørgen Marvik, Innovation Norway**, presented a keynote on ‘Biorefining marine biomass’ which gave an overview of particularly interesting new sources of biomass not being harvested today. Some of the opportunities would mean harvesting further down the food web in the oceans. He gave examples on how taking out a minor fraction of some of the huge resources could be made sustainably. The three other speakers in the session presented examples on how research institutes could successfully support marine biotechnology enabled enterprises, how regional initiatives and networks could create new ideas for the local industries, and finally, how marine biotechnology support was adopted as part of the SCAR (Standing Committee on Agricultural Research) foresights.

In the fourth session, ‘ERA-MBT and other EU supported projects’, five different projects were presented. Two of the projects resulted from the first ERA-MBT call ‘Development of biorefinery processes for marine bioresources’. Both projects (**MARBioFEED** and **MicroMBT**) were initiated in 2016 and thus in their initial stages, but they gave good examples on how biotechnology supports the development of biorefinery processes. The three other projects, being supported through the H2020 work programme, were all examples of projects having common interests with ERA-MBT. The **PharmaSea** project, being at its final stage, aimed at discovering active marine agents and increase the speed at which they can be delivered to the marketplace. The extensive sampling programme of **MicroB3** project is applying bioinformatics for integrating data from marine organisms and studying their functions in the environment, where understanding a global microbiome is aimed at. A more recent project, **INMARE**, aims at streamlining the enzyme discovery pipeline, in which metagenomics is an important component.

In the fifth and last session, ‘Future research and innovation opportunities’, **Laura Giuliano, The Mediterranean Science Commission (CIESM)**, outlined the European perspectives towards market diversification in her keynote presentation, and pointed towards possibilities for increased East-West cooperation in the marine sciences. The four following speakers presented new developments for exploring remote ocean territories, how bioinformatics and research infrastructures can improve marine biotechnology research and development, and how new -omics developments will make the study of marine biodiversity and functions more efficient. Similarly, new technological developments will also contribute to solve the challenges connected to bioprocessing of marine resources.

During the “Open forum” at the end of the stakeholder meeting, **Rachael Ritchie, Genome BC, Canada** and chair of ERA-MBT International Advisory Group, moderated a discussion where several proposals for the next steps of marine biotechnology developments were presented. As within the earlier sessions of the meeting, a major focus was on how to achieve industrial development based on marine resources. It was concluded that success stories are needed for generating a better understanding on how important it is to develop and utilize marine biotechnology to release the great potential of marine resources for development of the European bioeconomy.



WEBSITE DOCUMENTS

Launch of the Marine Biotechnology Strategic Research and Innovation Roadmap:

- [Presentations](#)
- [Program & Participants list](#)
- [News report](#)
- [Photo gallery](#)

Second ERA-MBT Stakeholder Meeting:

- [Presentations](#)
- [Program & Participants list](#)
- [Photo gallery](#)



Photocredit: VLIZ



Photocredit: Uwe Waller



THE VOICE OF A STAKEHOLDER

Andrew Mearns Spragg
Jellagen, UK

ERA-MBT is in close dialogue with a range of stakeholders, and in this interview professor Andrew Mearns Spragg, founder of Jellagen Pty Ltd (UK), among other SMEs, has shared his entrepreneurial experiences and insights with Dr. Steinar Bergseth. Andrew is a serial entrepreneur with a range of activities and ideas within the marine biotech area.

Q: Could you give us a short recap of your background and how and why you ended up as an entrepreneur?

A: As an undergraduate studying for a microbiology degree at Heriot-Watt University Edinburgh, I was offered a project trying to extract an antibiotic compound from a photosynthetic marine bacterium. I remember thinking how beautiful this microbe looked in culture from its bright red colouration and it was during this time that I got my first insights in to what the marine environment could offer in terms of new technologies and marketable products. It was then during my PhD researching new tools for the discovery of novel antibiotics from marine micro-organisms at Heriot-Watt University in the late 1990's, that I was lucky enough to work in a lab where my closest lab mate's father had started one of the UK's first biotechnology companies in the early 1980's near Cambridge. I remember his visit to the lab very clearly. Buried under a number of petri dishes containing a wealth of marine microbial diversity, he saw the commercial potential of what I was studying and his enthusiasm switched on something in my mind leading me to travel down an entrepreneurial career path. This eventually took me on a journey where I understood the possibilities embedded in marine biodiversity and that kicked off my own interest to realize ideas based on marine biology. This also made me understand that there is an entrepreneur in most people which needs some good mentoring to be activated. I founded my first SME, Aquapharm, right after I finished my Ph.D. having won a place on the Royal Society of Edinburgh's Enterprise Fellowship programme which was designed to further develop my entrepreneurial instincts some 16 years ago.

Q: How do you think and work to turn marine biology into market relevant products and services by applying biotechnological tools and methods?



A: I have always looked at the marine environment as a tool to provide a market / technology advantage to developing a new business idea. The main idea is that products based on knowledge and material from the marine environment can have key advantages or unique selling points (USPs), which could give a competitive edge in the chosen market of interest. There are many such possibilities ranging from development of new polymers and enzymes, to the discovery of new nutraceuticals, antibiotics and other bioactive compounds for use as pharmaceuticals. Much of this is due to the vast biodiversity contained within the ocean giving rise to new molecular structures and modes of action that can be released by applying biotechnological tools and knowledge. However, in order to effectively translate a good idea into a viable business with a concrete business model depends on what product or service you intend to target, how big the market is and will be going forward and who is also out there doing what you intend to do using alternative solutions. I always recommend that as an entrepreneur it is a good idea to approach and identify a business that can provide the low hanging fruits i.e. achieve early revenue generation whilst offering the potential for high rewards from riskier elements of the technology platform. We heard many good examples of this during the ERA-MBT stakeholder meeting in October. However, as it would suggest, low hanging fruit opportunities tend to occupy busy market/technology landscapes meaning many competing products already on the market. This makes it even more important to ensure that the marine product is sufficiently differentiated to capture market share and generate revenues. When your idea is clear, you then need to build value in your business proposition by refining this by teaming up with academic groups and perhaps contract research organisations (CRO) to reach a stage where you have a proof of principle sufficient to attract private investment. In this process, IPR must be handled openly and transparent to give value for the later stages where private investments are sought. An additional factor important to understand and to be focused on, is be open and aware of what the competition is and what competing technology developments are out there beyond marine.

Q. Entrepreneurship needs money, so how is your thinking and preparations before you meet potential investors

A: First of all, it is important to understand that investors hear a lot of stories, and it is important to remember that marine inspired innovations face competition from all different areas. When you have a basic understanding of the market and its potential for your product and a good and honest explanation about why this is interesting for an investor, you should be able to generate interest from a potential investor(s). You will never understand and know everything when you start the journey, but your knowledge and appreciation about markets and IP-strategies will increase as you meet people and build networks. However, many investors will fall off when digging deeper, but those who follow you and finally invest in your idea, do so because they love the idea and that you have built trust, credibility, a good relation and never faked when pushed to the wall. At the end of the day, the

investor(s) put money on the entrepreneur to drive the innovation forward – the person is the key. It is also important that investor(s) offer more than just money, they offer what I call “intelligent capital” e.g. provision of mentorship, advice and often will be able to open commercial doors quickly for you.

Q: How does an entrepreneur think regarding public and private funding to achieve the goals?

An important principle at the early stages is to not accumulate too much overhead. Therefore, cooperation with academic labs, funding agencies and CROs who understand your idea and needs are important success factors. During these initial phases of polishing the technology and building the story, it is important to balance between the academic's need to publish and your need to secure IP. A good guide is to secure IP – then publish, but to always keep the momentum moving forward. Time is important, so getting to results quickly and being able to leverage the money for continued developments is necessary, and as always encountered the recurring gap is the ability to fund the later stage product development phase. Here is when you need a good business plan and understanding of how you can engage angel investors and venture investors to bridge this. A lot of hard learning which I have gained since my early days in Aquapharm and until I founded Jellagen in 2013, have given valuable experience to handle these factors going forward.



Jellagen's Mearns Spragg participates in the harvesting of jellyfish off the coast. Photocredit: Jellagen



Q: How do you utilize the national and European networking possibilities, and how are they supporting your aims in different development phases?

A: Both nationally and in particular on a European level, there are offered lots of meeting places and opportunities to interact with actors all along the value chain, both for finding partners to develop the technology at various stages and to speed date with potential investors. To participate here and build the right networks and personal relations is important and requires experience and time.

Q: Let's sum up by some insight in the Jellagen story where it seems you have succeeded on most of the matters we have touched upon?

A: Again - interest, ideas, knowledge and creativity came together. During my days surfing off the coast of Scotland, I experienced at certain times of the year swimming amongst jellyfish, and to cut a long story about collagen short, the idea of utilizing this resource came during a conference I attended in Germany. As we already have talked about, the networks and exchange of ideas and understanding of market opportunities were developed with a belief and intuition in the competitive edge this source of marine collagen could have. Jellagen is a med-tech business developing next generation collagen products derived from jellyfish. Our target markets cover low hanging fruit sales into the research cell culture market however we are also developing collagen scaffolds that we hope will provide new med-tech devices for tissue engineering and regenerative medicine applications. When Jellagen was founded, the first two questions we needed to answer was i) can we harvest at scale jellyfish and 2) can we convert this into high grade collagen at a cost point that could meet market expectations. To answer this, I initially teamed up with local fishermen and Swansea University and through trial and error trawled for jellyfish. After many inventive and practical steps, I got an understanding of how to process jellyfish, apply biotechnology and engineering solutions to achieve a proof of concept leading to a robust business plan that was investor ready. Since the company was founded in 2013, Jellagen has gone on to secure considerable private investment and grant financing. This investment has helped the company develop a scalable engineering and manufacturing solution based on a biorefinery concept to produce a price competitive next generation collagen product that we hope to manufacture to GMP in 2017. Investment has also helped us fill the collagen pipeline and develop a diversified product technology platform that will be able to deliver further med-tech product innovations with strong market growth prospects and unmet market needs.



Andrew Mearns Spragg presenting at the ERA-MBT Stakeholder meeting, Brussels
Photocredit: VLIZ

Q: Will we see new entrepreneurship from you in the future?

A: Yes, absolutely! I play with ideas which some day may be realized, but it is also interesting to consider investing in other startups. It all depends on how Jellagen develops and hopefully gives me possibilities to continue this exciting journey as an entrepreneur and possibly investor.

Q: What is your best tip to a new entrepreneur?

A: Understand what the competitive edge for your technology is, target the low hanging fruits whilst ensuring your story provides some higher risk upside, and build networks and personal relations that support all development phases along the value chain. There is a vast biodiversity and undiscovered potential in the marine environment and I am positive this will deliver new innovations for the 21st century.

ANDREW MEARNS SPRAGG

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IAG DISCUSSED THE FUTURE FOR MARINE BIOTECHNOLOGY

The **International Advisory Group (IAG)** of ERA-MBT met in Brussels 12th October 2016, and one of the items on the agenda concerned which opportunities there might be for continued marine biotech activities based on the achievements obtained during the project period of ERA-MBT. **The Strategic Roadmap for Research and Innovation** is looking forward to 2030, but as ERA-MBT ends its activities by the end of November 2017, it is necessary to initiate further activities immediately thereafter in order not to lose momentum. A task for ERA-MBT is to *'Develop a framework and initiate cooperation for a sustainable, European marine biotechnology supportive network by undertaking the necessary operational and political preparations'*. A discussion on how this could be done is thus timely, and be given high priority for the remaining period of ERA-MBT. The IAG discussed this matter and gave valuable input on possible ways forward.

Instead of creating yet another separate, new network, one proposal was to link up with an already **existing marine network**, like the European Marine Research Network *'Euromarine'*. This network was launched in 2014 and is based on three previous European Centres of Excellence. It has 66 members representing research institutions and funding agencies, each paying a membership fee. Being part of larger, thematic networks have its benefits, but may also disperse the focus of specific marine biotech activities.

In Horizon 2020, the traditional ERA NETs have been substituted with **ERA-NET Cofunds**, where the EC tops up the budget with 1/3 of the funds raised by the Cofund consortium. Only the first call within a specific topic can be supported by the EC this way, but the consortium of funders can issue further calls and other relevant activities on their own for a 3-4 years project period. One such ERA Cofund where marine biotech has a role, is established; ERA NET *'Cofund on BioTechnologies'*, (**CoBioTech**). The first call will be launched in December 2016, and marine biotech projects can be funded as many of the partners have strong R&D activities within the marine area. Some success can therefore be expected on biotech projects focused on marine challenges. For further MBT activities, a close dialogue with the CoBioTech consortium should be pursued.

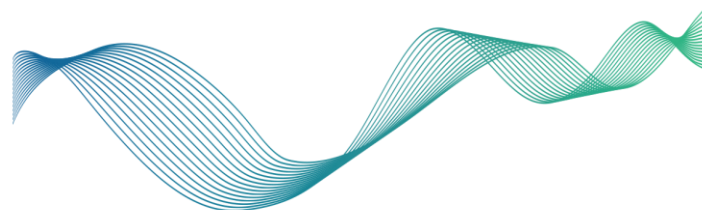
Another option is to search for collaboration with other, existing consortia, working with marine value chains, and looking for future networking to stimulate enterprise

activities based on marine resources. [ERA NET COFASP](#), is such a consortium. The focus of this ERA NET is within **fisheries, aquaculture and seafood processing**. Both this ERA NET and ERA-MBT have good contacts to [JPI Oceans](#), an organisation having adopted a **Strategic Research and Innovation agenda** where all topics targeted by ERA NET COFASP and ERA-MBT are highlighted as important. Positive contacts have been made, and a draft for an **ERA-NET Cofund on blue bioeconomy/bioresources** have been forwarded to the EC, proposing such a Cofund to be announced on the last work programme of H2020 late 2017. If successful, this could give an opportunity to launch calls and other activities where marine biotech is a strong, enabling component, thus continuing activities after the present ERA-MBT period. The effort to have such an ERA-NET Cofund announced is actively ongoing, so all interested parties are welcome to make contact for further information and possible partnership.

For pursuing **industry oriented projects**, working with the Public-Private-Partnership *'BioBased Industries'*, www.bioconsortium.eu, and [EuropaBio](#) are good opportunities for networking and creating understanding for the values in the marine environment. There has recently been a call with marine biotech content, and future calls may also include this topic.

The members of the IAG found **the Strategic Research and Innovation Roadmap for marine biotechnology** a **very important document** to be disseminated as broadly as possible. The impact of the funded projects should also be demonstrated to show how value can be made from the different areas covered by the ERA-MBT calls and joint calls with other activities. Being an **active voice in as many fora as possible**, including the European Parliament and regional fora, was considered the most important aspect for securing the future of MBT.

MarineBiotech



ERA-MBT IN INTERNATIONAL EVENTS

CONFERENCE “EUROPEAN ROADMAP FOR AN ALGAE-BASED INDUSTRY”

The Conference “European Roadmap for an Algae-Based Industry” was successfully held on 6-8 April in the Algarve region of southern Portugal. Co-organised by the European Algae Biomass Association (EABA) in a partnership with the EU projects Miracles, FUEL4ME, Splash and the Algae Cluster (InteSusAI, BIOFAT and All-gas), the event brought together over 100 leading European microalgae researchers from academia and industry. After three days of discussions, the experts worked together and identified the essential needs of the sector, pointing-out the direction of the European algae strategic research agenda for the upcoming years, which will soon be published as a White Paper.

Further information can be found on the [conference website](#).



THE SALMONID GENOME PROJECT

The **International Cooperation to Sequence the Atlantic Salmon Genome (ICSASG)**, a \$10M USD investment partners in Chile, Norway and British Columbia, Canada resulted in a landmark paper published in Nature, April 2016. Thanks to this, **Functional Annotation of All Salmonids (FAASG)** is now possible based on this high quality reference genome for Atlantic salmon.

The FAASG initiative follows in the tradition of functional annotation initiatives in human and mouse (ENCODE) and more recently, terrestrial animals (FAANG). This international initiative is based on salmonid knowledge, reference sequences and stakeholder's needs, that can be constructively taken forward in an international collaboration.

A workshop held in Toronto, June 2016, included scientists and funders from 19 institutions in ten countries and provided a forum to discuss opportunities for this international collaboration. A new workshop will be held in San Diego, January 2017, where project ideas and a governance structure will be discussed and agreed.

The wider salmonid research community, along with end-users of this knowledge, is engaged in the development of the FAASG initiative. To learn more, and/or to become involved, please check the <http://www.faasg.org> website.



8TH 'RENDEZ-VOUS DE CONCARNEU – WHERE INDUSTRY MEETS SCIENCE IN MARINE BIOTECHNOLOGY'

The overall topic for the conference this year was '**Aquaculture for tomorrow**', and gathered around 75 participants 29-30 September, 2016, at the Marine Station in the village Concarneau in Brittany, France (Muséum national d'Histoire naturelle-MNHN). The first session gave an updated overview of **international collaboration**, where highlights of the ERA-MBT Strategic Roadmap for Research and Innovation were presented. Other presentations included a presentation of the 'Baltic Blue Biotech Alliance', and 'Blue Biotech in Portugal'.

In the second session, several presentations focused on how **sponges and bacteria** might have a role in marine bioremediation. The third session, representing the core of the conference, concerned **Integrated Multi-Trophic Aquaculture (IMTA)**, where the keynote was presented by professor Thierry Chopin, representing the IMTA network in Canada. Professor Chopin has for many years been a pioneer in establishing IMTA in the western world.

The third session, focusing on **biomass production**, the status of microalgae production was presented by leading researchers and industry representatives within the area. In Europe, more than 600 facilities for production of microalgae exist, many being on an experimental basis, but it illustrates the great interest there is for developing this biomass.

The last session concerned **technology transfer and intellectual property** rights in marine biotechnology. A good mix of speakers, representing biotech researchers, TTO office representatives and expert lawyers made presentation that triggered a lot of good discussions.

Presentations at the conference are available at <http://concarneau.mnhn.fr/node/434>



Participants at the 8th Rendez-Vous de Concarneau.
Photocredit: Rendez-Vous de Concarneau 2016.

ERA-MBT IN UPCOMING EVENTS

COFASP FINAL CONFERENCE

7-9 December, Kiel, Germany, registration via [website](#)

BIOPROSP_17

8-10 March, Tromsø, Norway, registration via [website](#)



ERA-MBT AT A GLANCE



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ERA-MBT Partners

The ERA-MBT partners welcome you to ERA-MBT and invite you to become involved in the shaping of a common ERA in Marine Biotechnology. Contact the individual project partners using the partner information page at the [project website](#).

Stay connected

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Contribute to

[The MarineBiotech wiki-pages](#) which aggregate information on marine biotechnology to inform funding agencies, stakeholders and the interested public about developments, achievements and knowledge in this area.

[A LinkedIn communication forum](#) to support exchanges between stakeholders and to highlight opportunities for interlinkage and collaboration.

Comments? Suggestions?

Please contact us at info@marinebiotech.eu.

Upcoming events

We are collecting information on all events related to the field of marine biotechnology.

To stay up to date, please visit our [upcoming events page](#). If you cannot find the event you are organising or attending and would like to have it featured in our events calendar, please contact [us](#).



Newsletter acknowledgements

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