



IMBC 2025

13th International Marine Biotechnology Congress

7-11 JULY 2025 | BREST | FRANCE

PROGRAM

MONDAY 7th July

2.00pm – 6.00pm Registration

Hall

5.00pm Opening Ceremony

Amphitheatre

6.00pm Plenary Lecture

Amphitheatre

Haruko Takeyama, Professor of Waseda University, Department of Life Science and Medical Bioscience, Advanced Science and Engineering



"Unveiling the Hidden Potential of Environmental Microbes: Advancing Marine Biotechnology Through Cutting-Edge Single-Cell Omics"

Haruko Takeyama earned her Doctorate in Engineering from the Department of Biotechnology at the Tokyo University of Agriculture and Technology in 1992. From 1991 to 1994, she served as a research fellow at the University of Miami's Rosenstiel School of Marine and Atmospheric Science. She progressed through academic ranks at the Tokyo University of Agriculture and Technology, serving as an Assistant Professor from 1994 to 1999, an Associate Professor from 1999 to 2005, and Professor from 2005 to 2007 in the Department of Biotechnology. In 2007, she was appointed to the position of Professor at Waseda University in the Faculty of Advanced Science and Engineering, Department of Life Science and Medical Bioscience (<http://www.takeyama-lab.sci.waseda.ac.jp/>). She has been the Director of the Integrated Institute for Regulatory Science at the Research Organization for Nano & Life Innovation at Waseda University since 2009. In July 2016, she was named Director of the AIST (National Institute of Advanced Industrial Science and Technology) and Waseda University Computational Bio Big-Data Open Innovation Laboratory, while also holding a joint appointment as a Joint Appointed Fellow of AIST. Since 2020, she has served as a project manager for the Moonshot R&D Program in the fields of agriculture, forestry, and fisheries. Since 2023, she has taken on the role of program officer for the Biotechnology Research field in the ASPIRE (Adopting Sustainable Partnerships for Innovative Research Ecosystem) program at the Japan Science and Technology Agency (JST) and has been a member of the Science Council of Japan. She has been the Vice President of the International Marine Biotechnology Association. Her research encompasses Environmental Science, Microbiology, Biotechnology, and Genome Technology, with current interests including the utilization of environmental bio/gene resources, metagenomic analysis, single-cell analysis, and the development of supporting technologies.

7.30pm Welcome cocktail

City Hall

TUESDAY 8th July

8.00am – 6.00pm Registration

Hall

Symposium Marine Drugs, Bioactive Compounds and Nutraceuticals

Convenors: Dr. Gaëtan BURGAUD & Prof. Antje LABES

Symposium Climate Change, Environmental Stressors and Marine Biotechnology

Convenors: Prof. Anne-Marie TREGUIER & Prof. Chris BOWLER

Symposium Disease and Immunology in Aquaculture

Convenors : Prof. Claire GACHON & Prof. Isabelle ARZUL

Symposium Innovative approach to sustainable aquaculture

Convenors : Dr. COURTOIS DE VISCOSE & Dr. Bastien SADOUL

Symposium Biomaterials and mineralization

Convenors: Pr. Antoine LE DUIGOU & Prof. Susana FERNANDES

Planning sessions

9.00am – 11.00am Symposium

11.00am – 11.25am Coffee Break

11.30am – 12.30 am Symposium

12.30am – 1.25pm Lunch

1.30pm – 3.00pm Symposium

3.00pm – 4.25pm Posters with Tea & Coffee

4.30pm – 6.00pm Symposium

6.00pm – 7.00pm Pitch PhD students

Conference grand public

Gilles BOEUF

Un océan, une planète, une santé

° **Marine Drugs, Bioactive Compounds and Nutraceuticals:** Dr. Gaëtan BURGAUD (LUBEM, INRAE, Université Bretagne Occidentale, France) & Prof. Antje LABES (Flensburg University of Applied Sciences, Germany)

Marine Drugs, Bioactive Compounds, and Nutraceuticals session will explore the large potential of marine-derived substances for health and wellness. This session aims to delve deeper into the discovery and characterization of bioactive compounds sourced from marine organisms, such as macroalgae, sponges, and microorganisms from all 3 domains of life, for therapeutic and pharmaceutical applications. This session will also explore innovative nutraceuticals that leverage marine biodiversity to prevent and treat diseases while promoting well-being. Additionally, challenges and solutions to overcome bottlenecks related to sustainable production and product development will be addressed.



Gaëtan Burgaud is an Associate Professor at the LUBEM (Laboratoire Universitaire de Biodiversité et d'Ecologie Microbienne, UR 3882, INRAE, Université Bretagne Occidentale, France), with approximately 15 years of experience in marine mycology. He specializes in deep-sea and subsurface fungi, as well as fungi associated with marine plants, algae, and polluted marine environments (hydrocarbons and plastics). His research focuses on microbial diversity, ecology, adaptation, and evolution, particularly through the application of culturomics, metabarcoding, (meta)genomics, (meta)transcriptomics, and metabolomics. Gaëtan Burgaud has co-authored over 55 scientific articles and 6 book chapters. He has contributed to numerous national, European, and international projects. Gaëtan Burgaud is also a Junior Member of the University Institute of France (2023-2028), a distinction awarded by the French Ministry of Research & Higher Education.



Antje Labes is a professor for microbiology and molecular biology at University of Applied Sciences Flensburg. She is a trained microbiologist active in the field of biotechnology of marine natural products. She is a cofounder and project lead in the ZAIT, the Center for Analytics in Technology Transfer of Bio and Food Technology Innovations. Starting her career in sugar metabolism of hyperthermophilic archaea, her major research field became biotechnology of marine microbes and marine natural products. Her research interests are the biology of marine natural products, in marine fungi, bioanalytical detection methods and the optimization of the production of microbial products. Antje worked as senior scientist at GEOMAR-Biotech, a centre dedicated to natural products biotechnology using marine resources. Antje was involved and started in many research projects associated with the field of blue biotechnology that laid the basis for a strong network of cooperation partners throughout Europe and internationally, including interactions with SMEs and industry, leading to the foundation of a regional network on marine biotechnology in Northern Germany. She authored more than 30 publications in peer-reviewed journals and contributed to two patents.

° **Climate Change, Environmental Stressors and Marine Biotechnology**: Prof. Anne-Marie TRÉGUIER (LOPS, CNRS, Université Bretagne Occidentale) & Prof. Chris BOWLER (Institut de Biologie de l'École Normale Supérieure, Paris, France)

Climate Change, Environmental Stressors, and Marine Biotechnology examine the impacts of global environmental changes on marine ecosystems and explore biotechnological solutions. This theme focuses on understanding how climate-induced stressors, such as ocean acidification and warming, affect marine biodiversity and resources. It highlights the development of innovative biotechnologies to mitigate these impacts and promote ecosystem resilience. The aim is to leverage science for sustainable marine resource management in a changing world.



Chris Bowler is research director at the CNRS and director of the Phylogenomics Laboratory at the Institut de biologie de l'École normale supérieure in Paris. He received his PhD from the University of Ghent in Belgium, followed by postdoctoral studies at the Rockefeller University in New York. In 1994 he established his own laboratory working on signaling in plants and marine diatoms at the Stazione Zoologica in Naples, Italy, and in 2003 he took up his current position in Paris. He has been a member of EMBO since 1995, received the CNRS Silver Medal in 2010, ERC Advanced Awards in 2012 and 2018 and the Grand Prix Scientifique de la Fondation Louis D de l'Institut de France in 2015. In 2016-2017 he was a Fellow at the Radcliffe Institute of Advanced Studies at Harvard University, USA. In 2018 he was elected member of the French Academy of Agriculture, and during the academic year 2020-2021 he held the annual chair as Professor in biodiversity and ecosystems at the Collège de France. Currently, his main research interest is the understanding of the response of marine diatoms to environmental signals, through functional and comparative genomics. Since 2021 he is the scientific director of the Tara Oceans project to explore the biodiversity, ecology and evolution of plankton in the world's ocean. In 2023 he was elected member of the Accademia dei Lincei in Italy.



Anne Marie Treguier is a research director at CNRS working at IUEM, Brest. She is a physical oceanographer, specialist of the effect of ocean eddies and turbulence on the general circulation and climate. In 2019 she was awarded the Nansen medal of the EGU. She is a former director of IUEM and of the ISblue project (Interdisciplinary graduate school for the blue planet), and IPCC author for the 6th cycle. She contributes to the development of numerical models of the ocean for climate studies, for example in the EERIE project (European Eddy-Rich earth system models). She has participated in interdisciplinary studies, in collaboration with mathematicians, biogeochemists and biologists.

° **Disease and Immunology in Aquaculture**: Prof. Claire GACHON (Museum National d'Histoire Naturelle MNHN, France) & Prof. Isabelle ARZUL (IFREMER, France)

Disease and Immunology in Aquaculture focuses on understanding and managing health challenges in aquatic species to ensure sustainable farming. This theme explores the mechanisms of disease development, immune responses, and pathogen interactions in cultivated algae, fish and shellfish. It emphasizes innovative strategies for disease prevention, diagnostics, and immune enhancement. The goal is to support aquaculture's growth by improving animal health and minimizing environmental impacts.



Isabelle Arzul is a marine parasitologist and pathologist whose research focuses primarily on marine diseases and particularly interactions between protozoan parasites and marine bivalves. She obtained her Veterinarian PhD from the Veterinarian school of Nantes in France before completing a PhD in virology at the University of Montpellier. During her PhD she investigated the diversity and virulence of a virus infecting oysters. Since 2002 she has been working at the Laboratory of Genetic and Pathology of Marine Molluscs at Ifremer La Tremblade. She has been responsible for the EU Reference Laboratory for Mollusc Diseases in Europe, leading a network of 23 reference laboratories (<https://www.eurl-mollusc.eu/>). She has also been involved in about ten European projects and has coordinated the European H2020 project VIVALDI between 2016 and 2020, a consortium gathering 21 research teams and aiming at preventing and mitigating impact of bivalve diseases (<https://www.vivaldi-project.eu/>). Since 2021 she is leading the research unit ASIM (Adaptation and Health of Marine Invertebrate) at Ifremer La Tremblade, this team currently includes 21 permanent people (<https://asim.ifremer.fr/>).



Claire Gachon is interested in everything that ties up with algal diseases, ranging from their defence responses, the diversity and taxonomy of their pathogens, to disease management in production facilities, biosecurity and conservation.

° **Innovative approach to sustainable aquaculture and fisheries:** Dr. COURTOIS DE VISCOSE (Universidad de Las Palmas de Gran Canaria, Spain) & Dr. Bastien SADOUL (Pôle Halieutique, Mer et Littoral, UMR DECOD, Institut Agro Rennes Angers, France)

Innovative Approaches to Sustainable Aquaculture and Fisheries focus on advancing practices that balance productivity with environmental and social responsibility. This theme explores cutting-edge technologies, ecosystem-based management, and resource-efficient methods to enhance aquaculture and fisheries sustainability. It emphasizes reducing environmental footprints, improving resource utilization, and promoting biodiversity conservation. The aim is to ensure long-term food security while protecting marine ecosystems.



Dr. Gercende Courtois de Viçose holds a PhD in Biology and serves as a research scientist at the University of Las Palmas de Gran Canaria, with over 25 years of experience in aquaculture, marine biology, and ecology. Her extensive expertise has enabled her to lead research initiatives focusing on invertebrate and mollusk aquaculture, as well as Integrated Multitrophic Aquaculture (IMTA), contributing to the promotion of sustainable aquaculture practices. Her research spans physiological processes, larval and post-larval production techniques, micro and macroalgae cultivation, grow-out methodologies, and nutrition. She has significant experience in developing grant proposals and managing scientific projects at both national and European levels, contributing to the strategic development of European aquaculture. She is the author and co-author of numerous peer-reviewed scientific publications and conference presentations. Additionally, she serves as a referee for various aquatic science journals and as a scientific evaluator for research councils across Europe. Her work is driven by a commitment to environmentally sustainable aquaculture research and development, fostering connections with marine biological and ecological knowledge.



Bastien Sadoul is an Associate Professor in Sustainable Aquaculture at Institut Agro and the Scientific Director of its Fisheries and Aquatic Center. Member of the DECOD laboratory, he specializes in aquatic ecology, focusing on the physiological and behavioral mechanisms that enable aquatic species to adapt to environmental changes, particularly those driven by human activities. His research utilizes dynamic energy allocation models to predict life cycles of various species under shifting environmental conditions, with the aim of advancing sustainable aquaculture practices. Recently, Bastien Sadoul has expanded his work to explore the potential of lower-trophic species as a means to enhance sustainability in aquaculture systems.

° **Biomaterials and mineralization:** Pr. Antoine LE DUGOU (IRDL Institut Dupuy de Lôme, Université Bretagne Sud UBS, France) & Prof. Susana FERNANDES (Institut des Sciences Analytiques et de Physico-Chimie pour l'Environnement et les Matériaux- Université de Pau & Pays Adour, France)

Biomaterials and Mineralization explore the natural processes of biomineralization and their applications in developing advanced materials. This theme focuses on the structure, formation, and properties of minerals produced by organisms, such as shells and coral skeletons. It emphasizes innovative materials bioinspired by these processes for use in medicine, construction, and technology. The goal is to harness nature's ingenuity for sustainable and functional material solutions.



Antoine Le Duigou is Full professor in the IRDL lab within the University of South Brittany (Lorient -France). He is supervising BIONICS group (www.bionics-group.com). His research is focused on marine biomimicry and 4D printing to establish novel sustainable metamaterials for marine and space applications. He has been awarded from institut Universitaire de France in 2024 while received young researcher award in 2027 and 2018 from French and European Composite Material Society respectively. He has published more than 100 articles in peer review.



Susana Fernandes is Professor in Natural Polymers and Chair in Marine Bioresources Valorization and Marine Inspired Materials (Chair MANTA: marine materials) at the Université de Pau et des Pays de l'Adour (UPPA), France. In 2010 she obtained a double PhD degree (European Label) in Chemistry at the University of Aveiro (UA), Portugal and in Chemistry of Polymers at UPPA. Right after her PhD, she was awarded an International Post-doctoral Fellowship from the Portuguese Science Foundation (FCT) and moved to the University of Basque Country (UPV/EHU), Spain, where she worked until 2014. In 2014, she was awarded a Marie Curie Intra European Fellowship to develop a 2-years project at the Royal Institute of Technology (KTH), Sweden. In 2017-2018, she worked as PI at UPPA of an ANR TREMLIN-ERC and at Uppsala University (Sweden) as PI of a Future Research Leaders Grant. In October 2018, she joined IPREM Lab, as Associate Professor (Tenure track) and Chair, and in 2023, she obtained her current position. She is a chemist with expertise in research areas pertaining to functional and bioinspired biomaterials for tissue engineering and drug delivery, as well as in interdisciplinary research and cultural science. Her research interests focus on blue and red biotechnology, chemical modification of biopolymers and design of functional polymeric materials from renewable resources. Her research activities also focus on the study of marine biological composite materials, in particular the (hierarchical) relationship between structure and physical and chemical properties and their formation and biofunctions.

Conference in French Open to the General Public

Pr. Gilles BOEUF

Un océan, une planète, une santé



L'eau est la **molécule-clé du vivant**, c'est le solvant universel et tous les êtres vivants, des bactéries à l'humain, sont constitués **d'eau liquide**. Un bébé humain à la naissance c'est 75 % d'eau liquide, un adulte entre 58 et 66 %, notre cerveau 80 % ! Sans eau, un écosystème devient très rapidement un **désert** sur la Terre, avec beaucoup moins de biodiversité. La vie est née dans l'**océan ancestral**, il y a un peu moins de 4 milliards d'années et vers un milliard d'années pour les bactéries, 500 millions pour la vie organisée, elle parvient à sortir de l'eau pour aller vers les continents, ceci plusieurs fois, à différentes époques et sous différentes formes. L'**océan** aujourd'hui est en connectivité, il est salé et plus stable que les environnements terrestres. Il est le principal **régulateur du climat**. Tous les écosystèmes vivants, marins et terrestres, sont aujourd'hui affectés par les activités humaines, destructions massives, pollutions, surexploitations et disséminations anarchiques d'espèces vivantes. Et le **changement climatique** est en accélération constante ! Tout ceci a évidemment des répercussions sur la santé des écosystèmes, et celle de tous les êtres vivants, y compris l'humain. Nous nous attacherons donc ici à préciser la notion du programme « **One Health** », une « seule santé », en développant les approches de **sciences participatives**, celles de **bio-inspiration** (solutions basées sur la nature), et les actions actuellement engagées sur le programme « **une seule santé** » actionné en France au niveau de l'état et des Régions.

Gilles Boeuf, Sorbonne-Université, Paris, Laboratoire Arago, Banyuls-sur-mer, AgroparisTech, Paris-Saclay CEEBIOS, Paris. Gilles Boeuf est Professeur émérite à Sorbonne Université (affecté au Laboratoire Arago à Banyuls-sur-mer) et professeur consultant à AgroParisTech. Il a passé 20 ans à l'IFREMER à Brest. Il a présidé 7 ans le Muséum National d'Histoire Naturelle (MNHN) à Paris. Il est océanographe, spécialiste de physiologie environnementale et de biodiversité. Il a été élu professeur invité au Collège de France en 2013-2014 sur la chaire « Développement durable, environnement, énergie et société ». Il a été deux années conseiller scientifique pour la COP21 au cabinet de Ségolène Royal, alors ministre de l'Environnement, de l'Energie et de la Mer. Il a été 5 ans membre du Bureau de l'IPBES, International Platform for Biodiversity and Ecological Services (Plateforme intergouvernementale scientifique et politique sur la biodiversité et les services écosystémiques) auprès des Nations-Unies. Il est actuellement président du CEEBIOS (Centre d'étude et d'expertise pour l'étude du Bio-mimétisme et la Bio-inspiration. Il a reçu en 2012 la Grande Médaille Albert 1er de Monaco pour l'ensemble de sa carrière, dédiée aux mers et à l'océan. Il a été président du Comité de transformation écologique des JO, Paris 2024 Il est élu Conseiller Régional, en Nouvelle Aquitaine, en charge du programme One Health.

Gilles BOEUF

Un océan, une planète, une santé

Water is the key molecule of life; it is the universal solvent, and all living beings—from bacteria to humans—are composed of liquid water. A newborn human is 75% liquid water at birth, an adult between 58% and 66%, and our brain is 80%! Without water, an ecosystem quickly turns into a desert on Earth, with significantly reduced biodiversity. Life originated in the primordial ocean nearly 4 billion years ago. Around a billion years ago, bacteria appeared, followed by organized life about 500 million years ago. Life managed to leave the water to colonize land multiple times, at different periods and in various forms. Today, the ocean remains interconnected, saline, and more stable than terrestrial environments. It is the primary regulator of the climate. However, all living ecosystems, both marine and terrestrial, are now affected by human activities—massive destruction, pollution, overexploitation, and the uncontrolled spread of species. Climate change is accelerating at an alarming rate! This situation inevitably impacts the health of ecosystems and all living beings, including humans. This is why we will focus here on clarifying the concept of the “One Health” program, emphasizing the interconnected health of humans, animals, and ecosystems. We will explore participatory science approaches, bio-inspired solutions (nature-based solutions), and the actions currently undertaken in France at both the national and regional levels under the “One Health” program.

Gilles Boeuf, Sorbonne University, Paris, Laboratoire Arago, Banyuls-sur-Mer, AgroParisTech, Paris-Saclay, CEEBIOS, Paris. Gilles Boeuf is an Emeritus Professor at Sorbonne University (affiliated with the Laboratoire Arago in Banyuls-sur-Mer) and a consulting professor at AgroParisTech. He spent 20 years at IFREMER in Brest and served as President of the National Museum of Natural History (MNHN) in Paris for seven years. An oceanographer specializing in environmental physiology and biodiversity, he was appointed Visiting Professor at the Collège de France in 2013–2014, holding the Chair of "Sustainable Development, Environment, Energy, and Society." He also served as a scientific advisor for COP21 in the office of Ségolène Royal, then Minister of the Environment, Energy, and the Sea. Additionally, he was a member of the Bureau of IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) at the United Nations for five years. Currently, he is the President of CEEBIOS (Center for Study and Expertise on Biomimicry and Bio-Inspiration). In 2012, he was awarded the Albert I Grand Medal of Monaco for his lifetime achievements dedicated to the seas and the ocean. He also chaired the Ecological Transformation Committee for the Paris 2024 Olympic Games. He is an elected Regional Councilor in Nouvelle-Aquitaine, responsible for the One Health program.

WEDNESDAY 9th July

7.30 am Departure from Brest



[To Sorbonne-Université/CNRS Marine Station in Roscoff](#)

Workshop Algae and associated bacterial communities

Conveners: Dr. Catherine LEBLANC & Dr. Simon DITTAMI

9h30 Arrival by bus and welcome

10h00 and Presentation of the Roscoff Biological Station

Session 1: Fundamental research at Roscoff

11h15 Coffee Break

Session 2: Applications in Biotechnology

13h00 Lunch at the Hotel Gulf Stream

Afternoon: Guided tours of the station and its facilities (30 minutes each)

1. Marine Biology Resource Center and algal culture facilities (Philippe Potin)
2. Visit of the Roscoff Culture Collection (Ian Probert)
3. Visit of the platforms at the SBR: Crystallography, RECYIF, KISSF (M Czjzek)
4. Visit of the historical collection of the SBR (Céline Houbin)

17h00 - Free time to explore Roscoff or the SBR.

18h00 Departure

Limited to 60 persons



To Université Bretagne sud, Laboratoire de Biotechnologie et Chimie Marines in Lorient

Amphi Sciences 2, Science Faculty

Workshop Biofilms and control strategies

Conveners: Pr. Alexis BAZIRE

8.45am: Welcome (coach from Brest)

9h: Introductory lecture: **Pr. RuAngelie Edrada-Ebel** (Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde Scotland). **Title: Marine antibiofilm compounds.**

10h/12h: Selected lectures

Time: 15 + 5 min i.e. 6 to 7 speakers

12h15: Lunch

13h30: Poster if needed

14h/15h: Selected lectures based on applications received

15h30/17h30: Visit to Lorient base (ocean racing/submarine....), IDMer Marine biotechnology technic center

Return to Brest (coach)

Pr. RuAngelie Edrada-Ebel: Director of the Natural Products Metabolomics Group (NPMG). Expertise: Isolation of natural products and elucidation of their structure (spectroscopic techniques). Field of research: metabolomics for the identification and biotechnological optimisation of the production of bioactive secondary metabolites in micro-organisms of marine origin. @ruangelie.edrada-ebel@strath.ac.uk

Limited to 60 persons



To MNHN Marine Station in Concarneau

Workshop Biomimicry for the oceans.

Biomimicry is a multidisciplinary approach to research and (eco)innovation, at the interface between the life sciences and design. It aims to draw inspiration from nature to better preserve it. Applied to the oceans, it is a vector of discovery proposing new solutions for their exploration, as well as an approach generating solutions (materials and processes, products and service, forms of organization, etc.) designed for their preservation and revitalization. Through concrete examples from biomimetic Research and (eco)Innovation projects, this session will explore the ways in which the observation of nature, from the molecular to the ecosystemic scale, enables the design of innovations contributing to the discovery, preservation and even revitalization of the oceans. The session will be underpinned by a methodological reflection linking all the presentations, with the aim of sharing with the audience the recipes for a successful biomimicry project.

Conveners: Pr. Nadia AMEZIANE & Dr. Guillaume MASSÉ

Moderators: Laura Magro (CEEBIOS) and Guillian Graves (ENSCI/Big Bang Project)

8:45 am: Welcome (coach from Brest)

9:00 am: Introductory lecture

9:45 am: Selected lectures - Time: 15 + 5 min, 7 to 8 speakers

12:30 pm: Lunch

1:30 pm: Poster session if needed

2:00 pm: Selected conferences according to applications received

3:30 pm: visit to François Gabart's Mer Concept premises (ocean racing)

6 pm: Return to Brest (Bus)



Laura MAGRO, director of scientific development, Ceebios: Engineer and doctor graduated from ESPCI Paris and UPMC, Laura cultivates a multidisciplinary scientific approach oriented towards societal issues. Through a specialization in microfluidics, she thrives on projects at the physics-chemistry-biology interface during academic and industrial experiments. Her PhD work, rewarded by a L'Oréal-UNESCO excellence scholarship, focused on the development of low-cost medical diagnostic devices, adapted to the Guinean context. This expertise in frugal innovation as a vector of solidarity led her to become interested in the opportunities offered by biomimicry to respond to current environmental challenges. More specifically in Ceebios, Laura designed the educational program for a PSL-week on bio-inspired materials at ESPCI Paris, renewed every year for the past 7 years. Laura coordinates the multi-actor consortium BiOMIg, winner of a bpifrance future investment program, which enables public and private research collaborations (Muséum, Cetim, EDF, Citeo, L'Oréal, etc.) around a portfolio of bio-inspired R&D projects.



Guillian Graves : Graduated from the École Nationale Supérieure de Création Industrielle (ENSCI-Les Ateliers, accredited by the Conférence des Grandes Écoles) in partnership with the École Polytechnique Fédérale de Lausanne (EPFL), Guillian is a designer. He leads Big Bang Project, an agency that brings together designers, engineers, and scientists to develop innovative and sustainable solutions tailored to the lifestyles of tomorrow. Additionally, he is a teacher and head of the Specialized Master's Program in Nature-Inspired Design and the Phusis Lab at ENSCI-Les Ateliers, a collaborator with the Design Research Center ([CRD](#)), and a public speaker.

For over fifteen years, Guillian has drawn on science and new technologies to imagine and design innovations aimed at contributing to the creation of more sustainable and desirable societies. Notably, Guillian has solid expertise in biomimicry and bio-inspired innovation design, recognized both in France and abroad. This unique approach enables him to explore a wide range of topics such as the future of housing, cosmetics, energy, health, food, mobility, sports, and even space exploration, in collaboration with partners such as Air Liquide, CEA, Decathlon, EDF, INRAE, Institut Pasteur, L'Oréal, MNHN, Office National des Forêts, Renault, RTE, Salomon, Saint-Gobain, and others. His work revolves around three key missions: research (to produce knowledge and develop methods, tools, and expertise that put science and technology at the service of life); innovation: To conceive, develop, and bring to market new solutions addressing today's and tomorrow's major challenges; education: To share and transmit expertise within organizations and research centers through various media, teachings, conferences, publications, workshops, and exhibitions.

Limited to 60 persons

THURSDAY 10th July

8.00am – 6.00pm Registration

Hall

Symposium **Marine microbiology, marine symbiosis and marine ecology**

Convenors: Dr. Narish TAKUR & Dr. Charlotte CORPOREAU

Symposium **Blue Innovation, Science to Policy**

Convenors : Dr. Denis DUCLOS & Dr. Pierre FAILLER

Symposium **Marine Algal Omics and Biotechnology**

Convenors : Dr. Matthieu GARNIER & Prof. Izabela MICHALAK

Symposium **Novel foods from the ocean**

Convenors : Dr. H  l  ne MARFAING & Prof. Concetta MESSINA

Symposium **Blue carbon, Marine Bioenergy, and biofuels**

Convenors: Prof. Lieve LAURENS & Prof. C  line LAROCHE

Planning sessions

8.30am – 10.30am Symposium

10.30am – 10.55am Coffee Break

11.00am – 12.00 am Symposium

12.00am – 1.00pm Lunch

1.00pm – 2.30pm Symposium

2.30pm – 4.00pm Posters with Tea & Coffea

4.00pm – 5.30pm Symposium

° **Novel foods from the ocean**: Dr. H  l  ne MARFAING (CEVA Centre Etudes et de Valorisation des Algues, France) & Prof. Concetta MESSINA (Department of Earth and Marine Sciences DiSTeM, University of Palermo, Trapani, Italia)

Novel Foods from the Ocean focuses on exploring new, sustainable food sources derived from marine ecosystems. This theme examines the potential of underutilized marine species, such as seaweed, algae, micro-organisms for nutrition and culinary innovation. It emphasizes the development of functional, eco-friendly foods that can address global food security challenges. The aim is to unlock the ocean's diverse resources for healthy, sustainable food options.



Concetta Messina is PhD in "Aquaculture and quality of fish", Full Professor in Fishery and Aquaculture at University of Palermo. Her research focuses on effects of value-chain on health, welfare and quality of aquatic organisms, on marine biotech applied to production of new marine biobased products, on valorization of marine by-products and sidestreams for the production of functional foods and bioactive compounds and promotion of circular economy pathways. These research activities are related to a strong national and international network, thanks to teaching activities, Erasmus and research and development projects on blue growth. Concetta is scientific board member of the European Society for Marine Biotechnology.



H  l  ne Marfaing is a Food applications manager, with more than 20 years of experience at CEVA in applied research in the fields of food technology and biotechnology. She has been working on the development of new products from algae for food as well as for animal health. She has expertise in enzymatic hydrolysis, extraction chemistry and in the engineering of industrial processes (N   ORCID : 0000-0003-0894-5538). H  l  ne Marfaing is President of the French Working Group for standardization of algae and algae products (AFNOR) and provides expertise on algae to French Food and Food Safety authorities (ANSES, DGCCRF,...).

° **Blue carbon, Marine Bioenergy, and biofuels:** Dr. Lieve LAURENS (National Renewable Energy Laboratory, Denver, USA) & Prof. Céline LAROCHE (Institut Pascal, Université Clermont Auvergne, France)

Blue Carbon, Marine Bioenergy, and Biofuels explore the potential of ocean-based solutions to mitigate climate change and contribute to the nascent sustainable bioeconomy, while promoting and integrating with renewable energy. This theme focuses on the carbon sequestration capabilities of marine ecosystems like kelp forest, mangroves, seagrasses, and salt marshes. It also examines the development of marine biofuels and bioenergy from algae and other marine organisms, through sustainable harvests and farming, and implementing innovative processes. The goal of this session is to present concepts that harness the ocean's resources for sustainable energy production while simultaneously enabling climate resilience and for coastal communities.



Dr. Lieve Laurens is a Principal Scientist and Distinguished Member of the Research Staff at NREL's Biosciences Center, where she is currently team lead, and Algae Program manager. She is principal investigator on research projects in analytical biochemistry, investigating ways to understand carbon capture and storage in photosynthetic algae and seaweeds. A large emphasis of her current research is the pursuit of low carbon intensity products that can be derived from sustainably-sourced biomass and elucidating the biochemistry that leads to these products. This work includes bio-derived lipids, bio-based plastics, surfactants and polyurethanes, as well as polysaccharide extraction, characterization and valorization. She has extensive experience in biotechnology, with a focus on bioenergy. Dr. Laurens was until 2021, the chair of the Algae Biomass Organization's Technical Standards Committee leading the development of industry acceptance of algal biomass, bioproducts, and biofuels, and she is a guest editor and advisory board member for the Royal Society of Chemistry's Sustainable Energy and Fuels. She holds undergraduate and graduate degrees in Biochemistry and Biotechnology from the University of Ghent in Belgium, and University of Paris (Paris VI), France, and a PhD in Plant Biochemistry from the University of East Anglia and the John Innes Centre in Norwich, England.



Dr. Céline Laroche is full professor at Institut Pascal UMR CNRS 6602, research laboratory of the Clermont Auvergne University (Clermont-Ferrand, France) and she is head of the GePEB team (Bioprocesses engineering). Her research topic deals with the production and the extraction of biomolecules from seaweeds and microalgae (polysaccharides, proteins, lipids, pigments) in a circular economy and biorefinery context. The various studied aspects are linked to the conditions of culture of microalgae in photobioreactors, the influence of abiotic factors on growth and biomolecules production, to the extraction and fractionation processes of the molecules, in their

characterization and in search for potential applications (in fields of biofuels, cosmetic, food, medicine...). In this framework, she has been involved in more than 20 French or International research projects, most of them as coordinator or principal investigator. Moreover, she is the contact point for MeLiSSa project from European Space Agency (ESA) at UCA and has participated to several projects funded by ESA, including flight demonstrators development and their test on board of International Space Station.

° **Marine microbiology, marine symbiosis and marine ecology:** Dr. Narish TAKUR (CSIR-NIO National Institute of Oceanography, Goa, India) & Dr. Charlotte CORPOREAU (Laboratoire CNRS des sciences de l'environnement marin LEMAR, Ifremer, France)

Marine Microbiology, Marine Symbiosis, and Marine Ecology focus on understanding the complex interactions between microorganisms and their hosts in a changing marine environment. This theme explores the role of microbes in marine nutrient cycles, in health and disease of the hosts, and environmental sustainability. It also examines symbiotic relationships, where organisms live in mutualistic partnerships, and their ecological significance. The aim is to deepen our knowledge of marine ecosystems and promote their health and resilience.



Physiologist of marine invertebrates, **Dr. Charlotte Corporeau** is a senior researcher at the French Institute for Research and Exploitation of the sea IFREMER, UMR 6539, Laboratory of MARine science and Environment (LEMAR) in Brest. She is a physiologist, expert in marine sciences, specialist of stress responses in marine organisms. She has a strong background in the biochemistry of proteins, focusing on their role in health, disease and environmental adaptation of marine invertebrates. C Corporeau is currently involved in a range of international projects, mainly devoted to study the impact of environmental changes on the molecular responses of marine invertebrates at the individual and population levels.



Dr. Narsinh L. Thakur, a Senior Principal Scientist, leads the Chemical Oceanography Division, the International Science & Technology Affairs Group, and the Patent & Technology Section at the CSIR-National Institute of Oceanography, Goa, India. He also serves as the Coordinator for the AcSIR School of Oceanography's Ph.D. program. With over 22 years of research experience, Dr. Thakur specializes in marine chemical ecology and bioprospecting. His innovative work has deepened the understanding of microbial symbiosis with marine invertebrates and microbial diversity in extreme marine environments, resulting in the discovery of bioactive compounds with significant ecological and biotechnological applications. He has collaborated with European researchers on the EU-funded project "MAREX," mentored several students, reviewed theses and manuscripts, and published extensively, making substantial contributions to marine chemical ecology and biotechnology. Dr. Thakur actively leads major research projects and is instrumental in the commercialization of marine natural products.

° **Blue Innovation, Science to Policy:** Dr. Emma QUILLEROU (AMURE, IUEM, France) & Dr. Pierre FAILLER (Centre for Blue Governance, Portsmouth, UK)

Blue Innovation, Science to Policy focuses on translating scientific research into actionable policies for sustainable ocean management. This theme explores innovative solutions in marine science, technology, and conservation that can inform policy decisions. It emphasizes the collaboration between researchers, policymakers, and industry to address ocean challenges. The goal is to foster evidence-based strategies that support both environmental protection and economic growth in marine sectors.



Emma Quillérou is an environmental and natural resource economist. Her work focuses on human behaviours and policy incentives related to the natural environment, at the science-policy interface and science-society interface, with research from the local to the international level.



Prof. Pierre Failler is the Director of the Centre for Blue Governance. He holds the UNESCO Chair in Ocean Governance. He coordinates complex research projects with multidisciplinary teams for more than 25 years in Europe, North America, Africa, Asia, Caribbean, and Pacific coastal countries in collaboration with national research institutions and universities and a close link with policy bodies. He has recently coordinated the Blue Economy Strategy for the African Union, the Regional Action Plan for the Blue Economy of the Indian Ocean Commission, the Blue Economy Strategy of IGAD, SADC, EAC, ASEAN as well as the Blue Economy Strategy and Action Plan for Bangladesh, Seychelles, Guinea, The Bahamas, St Martin, Jamaica, Madagascar, Tanzania, Ethiopia, Côte d'Ivoire. He has authored and co-authored numerous journal articles, book chapters, research reports, consultancy reports, etc. He is also a Scientific evaluator for several research councils in UK, Europe, North America, Africa, and Asia.

° **Marine Algal Omics and Biotechnology:** Dr. Matthieu GARNIER (Unité de recherche du département Océanographie et Dynamique des Ecosystèmes, IFREMER, France) & Prof. Izabela MICHALAK (Wroclaw University of Science and Technology, Faculty of Chemistry, Department of Advanced Material Technologies, Poland)

Marine Algal Omics and Biotechnology focuses on the study of marine algae through omics technologies, such as genomics, proteomics, and metabolomics. This theme explores the genetic and biochemical properties of algae to unlock their potential for applications in biotechnology, medicine, and agriculture for example. It emphasizes the development of sustainable bioprocesses and products derived from marine algae. The goal is to harness algal diversity for innovative solutions in various industries.



Pr. Izabela Michalak received her MSc in Biotechnology (2005) and PhD in Chemical Technology (2010) with specialization in Biotechnological processes from Wroclaw University of Science and Technology (Poland). She currently works as a full-time professor at the same University. She is the author of over 170 peer-reviewed papers in international journals/books and 8 patents. Her h-index is 41 (according to SCOPUS). She was listed in World's Top 2% Scientists ranking of Stanford University in 2021, 2022, 2023, 2024. She is/was the principal investigator and co-investigator of several externally funded research projects. She collaborates with national and international universities all over the world. Her research interests include the valorization of waste biomass (especially seaweed) into bio-based products using processes such as extraction, sorption, pyrolysis. The obtained bio-products (e.g., biostimulants of plant growth, biosorbents, biochar) are tested in agriculture and environment protection.



Dr. Matthieu Garnier is a researcher in marine microbiology at ifremer (France - Nantes), specialising in the study of phytoplankton, and head of the Microalgae Genomics Laboratory (GENALG). His past and present work has focused on the study of microalgae of biotechnological interest, as well as harmful and toxin-producing species. He is leading genomics and functional genomics research to gain a better understanding of the cellular mechanisms and biotic interaction strategies used by microalgae to cope with nutrient limitation in photobioreactors. The results are both fundamental in terms of a better understanding of how phytoplankton function, and biotechnological in terms of optimising the production of certain molecules of biotechnological interest (DHA; pigments; active biocompounds).

FRIDAY 11th July

To IUEM in Plouzané

9.00am – 10.00am **Plenary Conference**

10.00am – 12.00 am **Special Master Class**

Special Master Class Ingredients and Cosmetic

Conveners: Dr. Laurence MESLET-CLADIÈRE, LUBEM, UBO

The Earth is covered by 70% seas and oceans. This marine environment is a source of considerable economic wealth. This wealth could be significantly higher if we had a deeper understanding of this largely unexplored environment. A 2015 WWF study on the Ocean economy, "Reviving the Ocean Economy" indicated that if the seas and oceans were a country, it would rank as the 7th largest economic power in the world (Marine Cosmetics, 2024). Oceans and seas also serve as a source of inspiration for cosmetic products. Today, consumers are increasingly looking for healthy and innovative everyday products driving the search for new ingredients from the marine environment. Brittany is the leader in marine cosmetics in France with over 250 companies involved in the cosmetics industry, ranging from the search for new ingredients to the manufacture of cosmetic products and thalassotherapy centers utilizing marine products. Additionally, Brittany plays a key role in providing a marine ingredient to the international market.

This Master Class on marine cosmetics is an opportunity to bring together manufacturers from Brittany's marine cosmetics sector and participants of the IMBC 2025 congress. Discussions will focus on topics such as the search for innovative new ingredients or new tests of cosmetic products in connection with marine biotechnology.



Laurence Meslet-Cladière is an associated professor at LUBEM (University Laboratory of Biodiversity and Microbial Ecology). She specializes in the study of the biotechnological potential of fungi, particularly marine fungi. She is looking for innovative enzymes to overproduce molecules with strong antimicrobial and anticancer activities. She teaches at ESIAB, an engineering school in Microbiology and Quality. Ten years ago, she opened an option in the final year on quality control of cosmetic and personal hygiene products. She has established many solid contacts with manufacturers in the cosmetics sector in France.

Special Master Class Challenges of a multidisciplinary approach to innovation: exploring Arctic microalgae together

Conveners: Dr. Yohann Lavaud (CNRS, LEMAR, IUEM) et Dr. Betty Queffelec (AMURE, IUEM)

Innovation means working at the frontiers of current knowledge and science, meaning a lot of unknowns. It relies on successfully mobilising the natural sciences to gain better knowledge of the natural environment, medical sciences to test out potential medical applications, and economics to assess factors that could foster or hinder innovation capacity. A good understanding of the legal framework allows to integrate conservation, innovation and benefit sharing involving stakeholders and rightholders. The purpose of this workshop is to address the challenges of such a good dialogue between academic disciplines through an illustration: Arctic microalgae in the framework of the ArDco project.



Betty Queffelec. Associate professor at University of Brest (UBO), my main topics are marine environmental law and fisheries law. I especially worked on marine biodiversity and integrated approaches such as Maritime Spatial Planning, Integrated Coastal Zone Management, Ecosystem approach from National, European and International Law perspectives.



Yohann Lavaud: scientist at the CNRS-French National Center for Scientific Research; my research activities focus on the photobiology and productivity of diatom microalgae in extreme environments (coastal sediments and arctic sea-ice).

Special Master Class MARINE CO-PRODUCTS: CREATING TOGETHER VALUE CHAINS FOR A SUSTAINABLE BLUE ECONOMY

Conveners: Jean-Pascal BERGÉ, Upcyclink, France and Franck HENNEQUART, Algaia, France

The valorization of marine co-products, whether of animal or plant origin, represents tremendous potential for innovation and transformation in the maritime industry. By combining our complementary expertise in algae processing and marine resource valorization, we will explore how to collectively build new sustainable value chains. This workshop will highlight the multiple valorization possibilities - from functional ingredients to innovative biomaterials - while examining the conditions for successful collaboration between industry stakeholders. The focus will be on potential synergies and development opportunities to transform these resources into economically viable and environmentally responsible solutions.



Franck Hennequart is an Engineer, graduated in the Marine Biology and Biotechnology Laboratory of the University of Caen (Normandy, France), specialised in the valorisation of marine resources. Franck initiated his career in France with several aquaculture research and lecturing contracts; he worked then for 3 years in British Columbia in Canada as R&D project assistant for a Provincial organisation promoting partnership between Industry and Research groups for technological transfer in aquaculture. Back in Europe, Franck worked as a consultant for the seaweed industry and has been then appointed Project Coordinator in the Molecular Glycobiotechnology Group of the Dept. of Biochemistry at National University of Ireland Galway. In parallel, he participated to the creation and the setup of OGT, an Irish company developing novel seaweed extracts. After 5 years in his academic position, Franck has then joined OGT full time as Technical Director. His role in OGT was to assist technical and new product development as well as support any client towards technical applications. Due to the acquisition of OGT by the Spanish company Tradecorp International from the Sapec Group in June 2014 (Now Rovensa Next), Franck became global seaweed project manager for the whole group. Since 2016, Franck took a new challenge co-creating the start-up ALGAIA, specialised in producing texturizing and bioactive ingredients from French seaweed and providing consultancy, analyses and bioactivity tests for the valorisation of algae in many sectors of activities. He is the Director of Research and Innovation in Algaia's research centre based on St Lô in Normandie. Franck is also share-holder of a French consulting company called SEANEO specialised in management of aquaculture, artificial reefs and Marine Protected Areas.



Jean-Pascal Bergé, holding a PhD in Marine Biology (University of Nantes, 1996) and a Habilitation (University of Bretagne Sud, 2004), is a marine biotechnology expert with over 30 years of experience. His career began at Ifremer and IRD, followed by a position as R&D Director at Laboratoires Science & Mer. He then spent 15 years at Ifremer, leading a team of 25 people and focusing on marine resource valorisation. As Scientific Director of IDMer (2014-2017), he developed market-oriented innovations before founding BioThoT in 2018 and UPCYCLINK in 2021, companies specialising in marine biotechnology and resource valorisation. With 71 international publications (H-index=34), 3 patents, and over 60 conferences, he serves as treasurer of the European Society of Marine Biotechnology."

10.00am – 12.00 am [The Sustainable Blue Economy Partnership SBEP conference](#)

The Sustainable Blue Economy Partnership represents an unprecedented effort of 74 Partner institutions from 30 countries and the European Commission to pool research and innovation investments and align national programmes at pan-European scale. As a Horizon Europe co-funded partnership, its strategy takes into consideration the R&I agendas of the sea basins (Mediterranean, Black Sea, Baltic and North Sea) and the Atlantic Ocean and builds on lessons learned from previous initiatives.

Margherita Cappelletto, Internationalisation of Research, Directorate General for Internationalisation and Communication, Ministry of Universities and Research (MUR)

12.30am – 1.30pm Lunch

2.30pm – 3.30pm Closing ceremony Prizes

Presentation and visit IUEM (ISBlue, Biodimar, Lipid Ocean Platform, LEMAR)