

Project Name	Application Code	Project Code	Promoter	Partner	Donor State Partner	NUT II	Sector	Project Abstract	Project Typology	Total Approved Expenditure	Eligible Expenditure Approved	Grant Rate Approved	Approved Fund	Co-Financing Approved
Seaforests for blue carbon - natural capital from nature-based solutions	EEA.BG.CALL4.012.2020	PT-INNOVATION-0081	Centro de Ciências do Mar do Algarve	+ATLANTIC, Associação para um Laboratório colaborativo do Atlântico Câmara Municipal de Cascais CASULO UNIPessoal LDA CIIMAR - Centro Interdisciplinar de Investigação Marinha e Ambiental Instituto Politécnico de Leiria Universidade Nova de Lisboa WaveC Offshore Renewables	SINTEF Ocean AS	Algarve	Research	BlueForests brings together a team of Portuguese scientists, a Norwegian multidisciplinary research institute, Portuguese SMEs specialized in seaweed aquaculture and ocean engineering solutions and a collaborative laboratory between academic and industrial communities to face climate change and environmental sustainability, to advance science and test technological innovations to rebuild Portuguese marine forests and to value their ecosystem services. It will contribute to build a sustainable blue economy based on resilient and abundant marine natural capitals. New technologies to restore Portuguese marine forests, including oceanography-ecosystem modelling and GIS-based multi-criteria decision analysis to reveal the best locations for seaforestation and offshore hotspots of organic matter deposition, will be used. Novel techniques of planting will be developed, tested and optimized and seaforestations will be monitored. The outwelling of organic matter from Portuguese marine forests to offshore hotspots of accumulation within the sediments will be quantified and characterized by a series of techniques, including eDNA. The ecosystem services delivered by Portuguese marine forests will be economically valued as this is a key step to halt biodiversity loss and the degradation of ecosystems in the EU. An important dissemination effort will be done not only to the scientific community but also to the general public, stakeholders and managers. The implementation of this operation will contribute for the reversal of the loss of marine forests, rebuilding a key marine life support system along the Portuguese coast that delivers fundamental global and regional ecosystem services, such as climate change mitigation, support of biodiversity, including fisheries resources, water purification, protection of the coastline and disease control. The impact of the project will be both regional and global not only taking in considerations the novel methodologies for seaforestation that may be applied elsewhere but also of its future consequences in terms of the enhancement of marine forest ecosystem services.	Marine natural capital and ecosystem services	985,220.00 €	985,220.00 €	95.18%	937,685.00 €	47,535.00 €
Climate Resilient Marine Forests for a Sustainable Future	EEA.BG.CALL4.026.2020	PT-INNOVATION-0077	CIIMAR - Centro Interdisciplinar de Investigação Marinha e Ambiental	CASULO UNIPessoal LDA Instituto Politécnico de Leiria Associação Biopolis	AKVAPLAN-niva AS Norwegian Institute for Water Research	Norte	Research	The ocean provides vital ecosystems services, threatened by anthropogenic and climate pressures. Their undesirable impacts can be mitigated if ecosystem-based management, adaptive marine spatial planning, and habitat restoration strategies were implemented. BLUEFORESTING builds upon these approaches with the aim to provide climate change ready nature-based solutions (NBS) for successful sustainable management of the most iconic coastal habitats, Marine Seaweed Forests. Although threatened, they are biodiversity rich ecosystems, recognized as cost-effective NBS with potential to mitigate climate change effects. Their capacity to deliver a wide range of key ecosystem services and to support blue growth makes them natural blue infrastructures. Fostering healthy marine forests means promoting regional fisheries, recreational activities, and cultural traditions, but also fighting biodiversity loss and climate change. In this context, BLUEFORESTING will develop science-based guidance for preserving marine forest functions and services, by assessing baseline information (genetics, processes, functions, services and conditions), by identifying species diversity and sensitivity and climate refugia areas. BLUEFORESTING will develop models and will implement tools for vulnerability assessments by promoting the co-development of effective and climate ready NBS. Expected results are of paramount importance as scientific foundations to support future marine protection and reforestation actions in a cost-effective and sustainable way. BLUEFORESTING lines up with the EU Blue Growth agenda as it proposes sustainable ecosystem-based management actions that can help to proactively protect and increase the resilience of marine forests under climate change, guaranteeing the provision of associated services. BLUEFORESTING represent an excellent opportunity to prove how science-based governance may promote sustainability of marine habitats and services. The established partnership will promote bilateral knowledge transfer and dissemination, strengthening international cooperation and cooperation in the sector, while increase value creation and sustainable growth in the Portuguese blue economy.	Marine natural capital and ecosystem services	979,811.00 €	979,811.00 €	96.18%	942,407.00 €	37,404.00 €
Microfluidic sensors for rapid toxin detection in Sustainable Aquaculture	EEA.BG.CALL4.044.2020	PT-INNOVATION-0078	Universidade de Aveiro	Instituto Português do Mar e da Atmosfera, I. P.	Norges Miljø-OG Biotvitenskapelige Universitet SINTEF AS	Centro	Research	Paralytic shellfish toxins (PSTs) are potent toxins produced by some microalgae species. Accumulation of these toxins in mollusks during harmful algal blooms (HABs) may lead to grave intoxications when bivalves are consumed by humans. Apart from public health concern, HABs also represent significant economic burden for aquaculture and tourism with annual losses in EU exceeding 918 M EUR. Due to unpredictability of HABs, routine surveillance programs of toxins in commercial bivalves are established in the EEA member countries (http://data.europa.eu/eli/reg/2004/853/oj). Existing PST detection tool or expensive laboratory techniques as the official EU method or limited in the detected toxins as commercial ELISA tests. In this scenario, the multidisciplinary consortium of the COASTAL project strives to develop microfluidic system with integrated sensors for rapid detection of the main PSTs observed in the Norway and Portugal. This low-cost portable tool could be used by shellfish producers for early detection of PST contaminated shellfish batches, contributing to the sustainability and competitiveness of the sector. Donor country partner P1 contributes to the project with the development of integrated microfluidic sensors. Joined with the expertise in electrochemical sensing of the Project Promoter and expertise in PST detection of Portuguese and Norwegian National Reference Laboratories, the COASTAL consortium aims at bringing this innovative idea into practical use for shellfish producers. The COASTAL consortium will create a highly interactive and learning environment further fostering innovative ideas in the fields of marine toxins surveillance and miniaturized tools for their sensitive detection. The thematic area of the COASTAL is among European Commission's priorities for Horizon Europe (Green Deal). Partners plan continuation of the collaborative activities within environmental applications of microfluidics beyond the project targeting joint grant applications.	Sustainable fisheries, aquaculture and blue biotechnology to improve added value from fishing products and other marine resources, considering sustainability and circular principles	1,002,672.00 €	982,431.00 €	99.32%	975,751.00 €	26,921.00 €
Enzymes for improved sensory quality of MicroALGAE ingredients in foods	EEA.BG.CALL4.006.2020	PT-INNOVATION-0075	Instituto Superior de Agronomia da Universidade de Lisboa	Instituto Superior Técnico Pagarete Microalgae Solutions Sociedade Unipessoal LDA	Norwegian Research Centre	Área Metropolitana de	Research	Microalgae are emerging as an attractive biological resource for large sustainable production to support the new blue bioeconomy and are now considered one of the most promising sources of new food products. Unfortunately, many microalgae are generally unappealing to the human palate, as they keep a strong marine/fishy flavor and a deep green colour. Therefore, developing improved organoleptic traits (such as aroma, flavor, color) is the most significant biological and economical challenge for their full implementation in the human food market. YUM ALGAE aims to improve the overall sensory quality of microalgal ingredients by using enzymes, which will target two of the major organoleptic bottlenecks: the fish-like smell associated to volatile compounds and the green dark color from the microalgal pigments. YUM ALGAE engages an interdisciplinary consortium, involving expertise in food science, chemical engineering, biotechnology and molecular biology, that will develop new knowledge for the entire food value chain, from enzyme development to microalgae biomass conversion, ending with a proof-of-concept featured in two different market cases: bread and cheese making. A complete analysis of volatile compounds in different food-approved microalgal strains will broaden our understanding of smell. A full enzyme discovery pipeline will be applied to develop at least two enzymes that can convert the unappealing aroma and unattractive color into an odorless and neutral product, or a customized half-way with controlled flavor and color. A novel process will be developed for its application in two model foods: bread and cheese, involving diverse temperature and moisture processing conditions. The final products will be assessed by an independent sensory panel in terms of its improved sensory quality. If successful, YUM ALGAE will contribute to increase the added value of marine bioresources, aligning itself to the principles that define the blue biotechnology. Moreover, overcoming these hurdles will help to unleash the full potential of microalgae to meet the population's need for more sustainable food solutions and the blue growth.	Sustainable fisheries, aquaculture and blue biotechnology to improve added value from fishing products and other marine resources, considering sustainability and circular principles	1,085,219.00 €	1,017,244.00 €	97.44%	991,215.00 €	94,004.00 €

New approaches on the dietary-effects in broodfish: the role of nutrition on sustainable production of flatfish	EEA.BG.CALL4.019.2020	PT-INNOVATION-0080	Centro de Ciências do Mar do Algarve	ACUINOVA - Atividades Piscícolas, SA CIMAR - Centro Interdisciplinar de Investigação Marinha e Ambiental	AKVAPLAN-niva AS Nord University Sogn Aqua Juveniles AS	Algarve	Research	BREEDFLAT project aims to improve flatfish breeder's performance by enhancing immune system capacity, largely affected during reproductive season, and gamete quality, by providing key-role nutrients for successful reproduction. Innovative approaches on the study of dietary effects will be attained to promote a sustainable competitive production of eggs and larvae. The consortium includes two Portuguese research teams, CCMAR (promoter) and CIMAR, and the largest turbot producer, ACUINOVA. The Donor parties, Nord University, Akvaplan-niva, experienced in flatfish reproduction, and Sognaqua firm, will contribute with their experience in Atlantic halibut. This collaboration will enhance Portuguese centers (CCMAR, CIMAR) performance with technology transfer from Nord (microRNAs, epigenetics), and strengthen future bilateral collaborations. The business sector (ACUINOVA) will gain from Norway experienced Aquaculture sector. The project focus in 3 important flatfish species for aquaculture diversification in Europe, Senegalese sole, turbot and Atlantic halibut, along 6 WPs. Specific breeders' feed will be developed, considering each species' nutritional requirements and efforts dedicated to gametogenesis. A tool-set of parameters will be developed, allowing characterization of reproductive and immune system performance. These tools will be used to evaluate the efficiency of natural feed products supplementation (Methionine, Gracilaria birdiae and Phaeodactylum tricornutum) on the enhancement of reproduction and fish resistance. The final target is to achieve the improvement of offspring through a better nutrition to breeders. More robust juveniles will contribute to a next generation of breeders developed in captivity. These bases will provide a more sustainable Aquaculture diversification with high price commercial species, creating a benefit for fishfarms and feed suppliers in Europe, reducing economic and social disparities between donor and beneficiary states.	Sustainable fisheries, aquaculture and blue biotechnology to improve added value from fishing products and other marine resources, considering sustainability and circular principles	755,773.00 €	755,773.00 €	93.47%	706,439.00 €	49,334.00 €
Optimization of the control of water quality in Recirculating Aquaculture Systems	EEA.BG.CALL4.023.2020	PT-INNOVATION-0076	International Iberian Nanotechnology Laboratory	CIMAR - Centro Interdisciplinar de Investigação Marinha e Ambiental Safiestela S.A. - Sustainable Aqua Farming investments, Lda;	LetSea AS SINTEF Ocean AS	Norte	Research	Recirculating aquaculture systems (RASs) have been developed for land-based production of sea- and freshwater species. These systems are designed to provide high biomass production while reducing resource usage and maximizing control of operational parameters. Optimizing control and management of water treatment in RAS is of paramount importance. OPTIRAS will contribute to improve technology and protocols for land-based farming of sole and Atlantic cod significantly, with respect to productivity, animal health, production conditions, environmental benefits and sustainability. In particular, OPTIRAS aims at contributing to more sustainable growth in the aquaculture sector by developing innovative sensor technologies for operationally critical water quality parameters, and thus, generating new jobs related to a blue economy growth in Portugal. As a summary, OPTIRAS research will support businesses with a research, development and innovation component, strengthening RAS competitiveness in the market. This project aims at increased value creation including long-term marine and maritime economic growth, social cohesion and marine environmental protection. The main objectives of OPTIRAS are: • Investigate the changes in water chemical parameters, microbiome and physiology of fish in RAS induced by different water treatment processes as well as microorganisms balance in the different steps of water cycle. • Develop and deploy online monitoring systems for water chemical parameters relevant for the control of the water quality and the ozone demand • Test the adequacy and impact of alternative water treatment processes on fish welfare status and water quality • Demonstrate a novel water quality control system developed in RAS pilots and improved cultivation protocols for diverse fish farming stages and species • Transference of know-how and technologies in RAS between Norwegian and Portuguese companies in order to increase the sector competences, innovation and sustainability	Sustainable fisheries, aquaculture and blue biotechnology to improve added value from fishing products and other marine resources, considering sustainability and circular principles	997,275.00 €	997,275.00 €	87.21%	869,771.00 €	127,504.00 €