# INDEX

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MESSAGE FROM THE BOARD</td>
<td>5</td>
</tr>
<tr>
<td>ABOUT CIIMAR</td>
<td>6</td>
</tr>
<tr>
<td>RESEARCH LINES</td>
<td>9</td>
</tr>
<tr>
<td>RESEARCH STRUCTURE</td>
<td>10</td>
</tr>
<tr>
<td>TECHNOLOGY PLATFORMS</td>
<td>11</td>
</tr>
<tr>
<td>FACTS &amp; FIGURES</td>
<td>15</td>
</tr>
<tr>
<td>PROJECT HIGHLIGHTS</td>
<td>25</td>
</tr>
<tr>
<td>SCIENTIFIC OUTPUTS</td>
<td>69</td>
</tr>
</tbody>
</table>
The year 2018 was very relevant for the promotion of scientific employment at CIIMAR, with the awarding of 60 positions for full-time researchers (DL57/2016, Institutional and Individual FCT contracts and Competitive R&D Projects). The setting of more fair and stable contracts, will certainly led to an increasing productivity of our research staff in term of fundraising, students supervision and productivity indicators.

CIIMAR continued the implementation of our strategic projects INNOVMAR (NOVELMAR, INSEAFOOD, ECOSERVICES), CORAL, MARINFO. In 2018, we got significant funds from the approval of 38 new FCT projects, as well as several projects POCTEP, Sudoe and Atlantic Interreg, and H2020 (SponGES, Ignite, Fattycyanos and Emertox). Two large Mobilizing Program projects led by industry – MarValor and MobFood – started also in 2018. In 2018, the sum of the projects in implementation in CIIMAR raised to 25 million euros.

CIIMAR members published 420 papers in internationally peer-reviewed journals and successfully contributed to the graduation of 21 PhD and 82 MSc students.

In 2018, six international patents and one national were submitted, reflecting the increasing impact of our research and the success of the implementation of the measures to increase the technology transfer. A Spin off from CIIMAR – Inclita Seaweed Solutions - was created in 2018.

CIIMAR coordinated the process of application of the CoLAB – Collaborative Laboratory for the Blue Economy (B2E) that was approved by FCT in July 2018. Its implementation is in its way. CIIMAR outreach activities, both indoors and outdoors impacted about 100 000 people.

CIIMAR will strength the brand OCEAN of our university and its role as a major research center in this area, at national and European/International levels.

The director of the Board of CIIMAR

Vitor Vasconcelos
ABOUT CIIMAR

CIIMAR was established in 2000 at the University of Porto and mobilises a multidisciplinary, highly skilled and motivated team that works at the frontier of Ocean Knowledge and Innovation.

CIIMAR fosters an integrated approach to Ocean and coastal areas promoting the understanding and knowledge on physical, chemical and biological dynamics of these environments and the impact of natural and human disturbances, aiming to unravel links between these processes, grasp Ocean and ecosystems functioning and responses to global changes.

CIIMAR uses this knowledge-base to promote the natural capital and the sustained management of marine resources through monitoring of ecosystems health, optimization of aquaculture, and biotechnological exploitation of the resources for environmental and human health applications.

CIIMAR provides innovative solutions and products responding to actual economic and societal challenges. Among them are the demand for high-quality seafood, new drugs and marine products for industrial and medicinal needs, water quality, sustainable fisheries, preparedness for and mitigation of oil and HNS spills, environmental monitoring & risk assessment, preservation of ecosystems services, ocean & coastal management and Ocean Literacy.
Mission
The CIIMAR mission is to promote transdisciplinary research, technological development and training, contributing to advances in scientific knowledge and sustainability of the marine and coastal environments. We provide innovative solutions towards ocean’s sustainability, driving oceans value to tackle tomorrow’s societal needs. To deliver our mission and build a shared understanding and valorisation of the ocean, CIIMAR is strongly involved in partnerships, public engagement and literacy.

Social Organs
CIIMAR social organs were composed in 2018 as follows:

<table>
<thead>
<tr>
<th>GENERAL ASSEMBLY</th>
<th>BOARD</th>
<th>FISCAL COUNCIL</th>
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<tbody>
<tr>
<td>President</td>
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</tr>
<tr>
<td>João Coimbra</td>
<td>Vitor Vasconcelos</td>
<td>Luisa Bastos</td>
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<tr>
<td>Chairs</td>
<td>Board members</td>
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<td>Aires Oliva Teles</td>
<td>› Luisa Valente</td>
<td>› José Fernando Gonçalves</td>
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<tr>
<td>Fernando Veloso Gomes</td>
<td>› Maria Natividade Vieira</td>
<td>› Helena Peres</td>
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<tr>
<td>Aurélia Saraiva</td>
<td>› Filipe Castro</td>
<td></td>
</tr>
<tr>
<td>Ana Paula Mucha</td>
<td>› Miguel Alberto Santos</td>
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Headquarters

CIIMAR’s new state-of-the-art facilities for research, training and services are located at the heart of the maritime industry and services in the Northern region of Portugal (Leixões harbour). The Centre features well-equipped laboratories for marine and maritime research, technological core platforms, high scale micro- and macroalgae cultivation and animal experimental facilities for freshwater and marine organisms approved by the Portuguese Veterinary Authority.

Besides its headquarters, CIIMAR comprises other partner facilities at five Units from U. Porto - Abel Salazar Biomedical Sciences Institute, and Faculties of Sciences, Engineering, Pharmacy and Law – and at Porto Polytechnic Institute, University of Madeira, CIIMAR-Madeira, FECFP, IPMA, ELA – EMSA, SRAP and CMVNC. CIIMAR is an integral research Centre of CIMAR - Associated Laboratory, together with CCMAR - University of Algarve.

Innovation and Technology Transfer

CIIMAR follows a market driven approach to support the development of a sustainable blue economy, while tackling important societal challenges. Through the implementation of Large Scale Mobilizing R&D Programs, R&D projects in co-promotion with companies and the CIIMAR’s Blue Business Development Platform, the Centre promotes the transfer of knowledge, fostering the development of new technologies, products and services with a strong technology and innovation component.

Disruptive ideas and technologies are driven to acceleration programmes, such as BIP – Business Ignition Programme and Blue Bio Value, enabling knowledge value creation through entrepreneurship.

CIIMAR is a founding member of the National Maritime Cluster – Forum Oceano, the Blue Bio Alliance, and more recently, the B2E CoLAB – Collaborative Laboratory for Blue Economy.

Science and Society

CIIMAR has an extensive Outreach Program addressed to all society sectors, including students, teachers and general public. CIIMAR develops and coordinates several science dissemination and Ocean Literacy campaigns, such as the Ocean Action, Ponds with Life and CIIMAR at School. CIIMAR is also responsible for various Traveling Exhibitions (“Plastic Sea”, “Marine Monsters”, “Amphibians: a paw on land, another on earth”) and participates in numerous public events and science communication displays aimed to promote the dissemination of CIIMAR’s research to society. CIIMAR Open Day, coinciding with Leixões Port Day at 15 September 2018, constituted a major dissemination event, with over 25,000 visitors.

CIIMAR is also responsible for the scientific management of two Environmental Monitoring and Interpretation Centres (CMIAs) through cooperation protocols with the City Councils of Vila do Conde and Matosinhos.
Marine Biotechnology

Top research is also focused on the exploration of a wealth of Ocean resources for the discovery and characterization of new bioactive compounds with ecological, pharmaceutical or other industrial applications. The study of emerging toxins, development of biosensors for early detection systems, and development of bioremediation and phytoremediation tools for ecosystem recovery are other main goals of this research line.

PI. Vitor Vasconcelos

Biology, Aquaculture and Seafood Quality

Development of new aquaculture species, products, and innovative culture methods are central approaches to tackle societal challenges related to human nutrition and seafood quality. High impact scientific knowledge and innovation in these areas are provided through basic and applied research and transferred to end-users and the industry.

PI. Luísa Valente

Global Changes and Ecosystems Services

CIIMAR provides basic knowledge and tools to support the protection and management of marine, estuarine and freshwater ecosystems. Sustainable exploitation of ocean resources with production of valuable goods and services is fostered. Work is done in close collaboration with SMEs, international and local authorities, and stakeholders.

PI. Lúcia Guilhermino
<table>
<thead>
<tr>
<th>RESEARCH LINES</th>
<th>RESEARCH GROUPS</th>
<th>RESEARCH TEAMS</th>
</tr>
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<tbody>
<tr>
<td>MARINE BIOTECHNOLOGY</td>
<td>EVOLUTIONARY GENOMICS</td>
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<td>BLUE BIOTECHNOLOGY AND ECOTOXICOLOGY</td>
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</tr>
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<tr>
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CIIMAR Platforms developed under various European Marine Sciences Infrastructure Networks (e.g. EMBRC and EMSO) represent a new strategic axis of the Centre to grant access from other institutions in the European Research Area and companies. These Platforms provide access and offer support and expertise to a wide range of experimental services and equipment.

The Blue Business Development Platform supports knowledge-based value creation, contributing to the competitiveness and sustainability of the blue economy.
The main objective of the B2E CoLAB is to create highly-skilled jobs and increase economic and social value through the development of knowledge-based activities supported by the implementation of research and innovation agendas. The B2E CoLAB is complementing and reinforcing the current landscape of R&D units, already part of the present consortium, by stimulating an active participation of scientific/academic, business and public communities in the analysis and solution of large scale and complex problems sustainably associated with the use of marine bio-resources. This challenge will be successfully addressed through a multidisciplinary, interdisciplinary and multi-institutional approach to address the following goals and priorities:

- Creation of highly-skilled jobs to enhance the economic and social value of two of the Blue Growth sectors with the highest potential: Biotechnology and Aquaculture;
- Establish synergies and multi-/interdisciplinary activities among complementary partners acting in the sustainable use of marine bio-resources to improve the technological intensity level and knowledge of the goods and services produced;
- Contribute to policy making on the strategic management of wild marine species harvest assuring marine ecosystem health;
- Fostering marine biorefinery frameworks securing full valorisation of biological resources.

- **BIORESOURCES AND BIOECONOMY**
- **SUSTAINABLE AQUACULTURE 4.0**
- **TOOLS FOR SEAFOOD SAFETY AND CERTIFICATION**
- **CIRCULAR ECONOMY AND BLUE GROWTH**
- **HIGHLY-SKILLED JOBS IN BLUE BIOECONOMY**
B2E CoLAB
Research & Innovation fields

NATURAL RESOURCES
New uses and valorisation

MARINE BIOTECHNOLOGY
Sustainability and new products

SUSTAINABLE AQUACULTURE
Species diversification and enabling technologies

B2E CoLAB
Participating Entities

Sea Economy Cluster
> Fórum Oceano

Business Association
> BlueBio Alliance

Universities, R&D centres & Associate Laboratories
> CIIMAR
> University of Porto - UP
> University of Aveiro - CESAM
> University of Minho - ICVS/3B’s

Private Companies
> A2O
> BIOTREND
> Ingredient Odyssey
> SAVINOR
> SAFISTELA
> SONAE
> SORGAUD
> SPAROS

State Laboratory
> IPMA

Technology Interface Centre
> INESC TEC

Public Company
> DOCAPESCA
**TOTAL STAFF**

- **PHD HOLDERS** 189
- **NON-PHD HOLDERS** 229
- **UNIVERSITY STAFF** 58
- **SUPPORTING SERVICES AND ADMINISTRATION** 4
- **OTHER PROFESSIONAL SITUATIONS** 13
- **POST-DOCTORAL FELLOWS** 48
- **FULL-TIME RESEARCHERS** 67
- **OTHER FELLOWS/STUDENTS** 103
- **PHD FELLOWS/STUDENTS** 105
- **INTEGRATED PHD HOLDERS** 189
- **NON PHD HOLDERS** 229

**TEAM**
SCIENTIFIC PRODUCTIVITY

OVERALL

- SCIENTIFIC PUBLICATIONS: 468
  - Books and book chapters: 34
  - Edited special issues of journals: 14
  - Publications in peer reviewed journals: 420
- Training courses: 30
- Organisations of congresses/meetings and workshops: 30
- Advanced training: 103
- Completed PhD theses: 21
- Completed MSC theses: 82
- New materials, products, software, and algorithms: 9
- Patents: 7
**NR OF PUBLICATIONS IN PEER REVIEWED JOURNALS [2012-2018]**

IF = Mean impact factor

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<th>Year</th>
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<td>2012</td>
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<td>2014</td>
<td>360</td>
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<td>2016</td>
<td>398</td>
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<td>2018</td>
<td>420</td>
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**COMPETITIVE R&D PROJECT FUNDING**

Total competitive funding attributed to CIIMAR in R&D projects in execution during 2018

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<tr>
<th>Grant Scheme</th>
<th>Funding (€)</th>
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<td>Other European Grants</td>
<td>1,698,237</td>
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<tr>
<td>Horizon 2020</td>
<td>4,360,644</td>
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<td>Norte 2020</td>
<td>6,169,554</td>
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<td>Portugal 2020 FCT</td>
<td>14,223,288</td>
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OUTREACH ACTIVITIES

LECTURES & DEBATES

EXHIBITIONS

PUBLIC EVENTS

SCIENCES WORKSHOPS

SEMINARS

VISITS TO CIMAR

OUTDOOR ACTIVITIES

WEB NEWS

NEWSPAPERS

RADIO

TELEVISION

528

OUTREACH ACTIVITIES

180 | 98,034 PARTICIPANTS

528
JAN

- HiTech Program Presentation
- Euromarine General Assembly Meeting at CIIMAR
- Workshop “Sharing best practice in marine conservation and research”, in collaboration with ZSL
- Workshop “INSEAFOOD - Innovation and Valorization of Marine Food Resources”
- BLUEHUMAN Project Kick-off
- Workshop “Science Communication at the Digital Crossroad”

FEB

- Launching of CIIMAR Spinoff ISS – Inclita Seaweed Solutions
- Launching Session 3rd edition of Business Ignition Programme (BIP) and “Blue Ocean Strategy” Bootcamp
- MOSES Project Kick-off
- Competition Splash! by Mermaid Investments
- Expedition "Our Sea, Our Life", Mozambique

MAR

- 18th CIIMAR Anniversary
- CIIMAR at EOOS Forum "Integrated and Sustained Ocean Observing: a European Strategy", Brussels
- Workshop "NOVELMAR - Novel marine products with biotechnological applications"
- CIIMAR at "Conservation of Oceans and Marine Ecosystems", Photo Ark Project, National Geographic

2018 AT A GLANCE

JUL

- CIIMAR at 4th GEO Blue Planet Symposium, France
- CIIMAR at Encontro Ciência 2018 – Science and Technology Summit in Portugal
- Scientific Merit Medal awarded to Professor João Coimbra at Encontro Ciência 2018
- CIIMAR at Junior University and Bandeira Azul Program
- CIIMAR and Chouaib Doukkali University (Morocco) Cooperation Agreement
- CIIMAR at Belém All-Atlantic Ocean Research Forum, Brazil
- Approval of CoLAB B2E: Collaborative Laboratory for Blue Bioeconomy

AUG

- Scientific expedition to the Kronebreen glacier at the Arctic Ocean onboard the RV LANCE, Norwegian Polar Institute
- Teachers Formation course “Experimental Education on Marine Sciences”
- Scientific expedition “Exploiting and Conserving Deep-Sea Genetic Resources” to the Irish slope canyons, onboard RV Celtic Explorer, NUI Galway

SEP

- CIIMAR Open Day and Leixões Port Day
- CIIMAR at Oceans Meeting 2018 and AQUAPORTE 2018
- Advanced Course “Statistics and Programming with R for Biological Sciences”
- 31th ESCPB Congress at CIIMAR
- CIIMAR at the Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction, UN
- Online Course "Oyster Production Technologies"
APR

CIIMAR at Mostra UP

EMERTOX Project Kick-off, Workshop and international conference, Cape Verde

Workshop "Scientific, Technical and legal challenges of deep sea mining. A vision for Portugal"

BIP Final Pitch Day 3rd Edition: Snack for Fish wins first prize, IDENTIFICA winds second prize

Workshop "Modelling Ocean Plastics Litter in a Changing Climate: Challenges and Mitigations"

MAY

Advanced Course "Laboratory Aquatic Animal Sciences" (CAL-AQUA)

Rapporteurs of the Strategic Think Tank "The Portuguese Blue Bioeconomy’s Role: National solutions for global challenges"

Teachers Formation Course "Ponds with Life"

Expedition "Exploring Front with Multiple Robots" in a subtropical front in Pacific, onboard RV FALKOR, Schmidt Ocean Institute

CIIMAR integrates European Projects ALERTOX-NET and ENHANCE MICROALGAE

NOV

Advanced Course "High Throughput Screening and Safety"

CIIMAR at Business2Sea 2018

Workshop SpilLess "First-line response to oil spills based on native microorganisms cooperation"

Final Workshop INNOVMAR "Innovation and Sustainability in the Management and Exploitation of Marine Resources"

CIIMAR at ASPIRE Workshop, USA

CIIMAR at Our Atlantic Ocean for Growth and Well-being, Cape Verde

CIIMAR at 4th High Level Industry-Science-Government Dialogue, Gran Canaria

Exhibition "Plastic Sea" at Moita

JUN

CIIMAR at GreenFest, Braga

Launching of "Oyster Cultivation and Good Practices in Portugal Manual"

Advanced Course "Marine Natural Products: Discovery and Structure Elucidation"

MarinEye Project awarded Honourable Mention Prize "The Best of Technological Portugal"

Exhibition "Plastic Sea" at Observatory of the Environment of Azores

Launching of BYT 5th edition

OCT

BLUEandGREEN Legacy Conference "Adding value to Marine Bioresources"

CIIMAR at Biobusiness Convention 2018

CIIMAR Annual Meeting 2018

SpilLess Project wins Atlantic Project Awards 2018 for promotion of entrepreneurship and innovation

MARINER Project wins Atlantic Project Awards 2018 for international cooperation

Symposium "Aquaculture: building bridges between industry and research"

DEC

CIIMAR researcher Anake Kijjoa distinguished as Honorary Doctorate on Pharmaceutical Sciences in Thailand

Workshop AqualImprove

Final Workshop "CORAL – Sustainable Ocean Exploitation"

CIIMAR at #24HoursofReality "Protect Our Planet, Protect Ourselves"

Snack for Fish wins Born from Knowledge (BfK) Ideas 2018

Advanced Course "Laboratory Aquatic Animal Sciences (CAL-AQUA)"
PROJECT HIGHLIGHTS
Known, but mostly novel natural products (NPs) are in high demand – these are used in drugs, cosmetics and agrochemicals and serve also as research tools to probe biological systems. NP structures inspire chemists to develop new syntheses, and NP biosynthetic enzymes add to the metabolic engineer’s toolbox. The advent of next generation DNA-sequencing has revealed a vastly rich pool of NP biosynthetic gene clusters (BGCs) among bacterial genomes, most of which with no corresponding NP.

Hence, opportunities abound for the discovery of new chemistry and enzymology that has the potential to push the boundaries of chemical space and enzymatic reactivity. Still, we cannot reliably predict chemistry from BGCs with unusual organization or encoding unknown functionalities, and, for molecules of unorthodox architecture, it is difficult to anticipate how their BGCs are organized. It is the valuable, truly novel chemistry and biochemistry that lies on these unexplored connections, that we aim to reveal with this proposal. To achieve it, we will work with a chemically-talented group of organisms – cyanobacteria, and with a specific structural class – fatty acids (FAs) – that is metabolized in a quite peculiar fashion by these organisms, paving the way for NP and enzyme discovery. On one hand, we will exploit the unique FA metabolism of cyanobacteria to develop a feeding strategy that will quickly reveal unprecedented FA-incorporating NPs. On the other, we will scrutinize the intriguing biosynthesis of three unique classes of metabolites that we have isolated recently and that incorporate and modify FA-moieties. We will find the BGCs for these compounds and dissect the functionality involved in such puzzling modifications to uncover important underlying enzymatic chemistry. This proposal is a blend of discovery- and hypothesis-driven research at the NP chemistry/biosynthesis interface that draws on the experience of the PI’s work on different aspects of cyanobacterial NPs.
BLUEandGREEN – BOOSTING SCIENTIFIC EXCELLENCE AND INNOVATION CAPACITY IN BIOREFINERIES BASED ON MARINE RESOURCES

The exploitation of the ocean unraveled a huge diversity of organisms producing innovative compounds used as pharmaceuticals, nutraceuticals, cosmeceuticals and antifoulings. The aim of BLUEandGREEN is to strength the performance of CIIMAR - Interdisciplinary Centre of Marine and Environmental Research, from the low performing Member State Portugal, in the emergent area of marine biotechnology. This will be done by the establishment of a scientific strategy for stepping up and stimulating scientific excellence and innovation capacity in partnership with four internationally-leading counterparts at the EU level: the University of Helsinki, Finland, the University of Bergen, Norway, GEOMAR, Helmholtz Centre for Ocean Research Kiel, Germany, and Fundación MEDINA, Spain. BLUEandGREEN scientific strategy includes: to review the latest research and innovation advances in the sector; identify and address institutional network gaps and deficiencies; to raise staff’s research profile and excellence by training and mentoring; to increase stakeholder interaction and mobilization to research and innovation partnerships; to guide research to contribute to economic growth; to deliver a framework for strengthening a long-term research and innovation environment in marine biotechnology. The network enhancement will enforce cluster dynamics in close interaction with industrial partners to contribute to regional, national and EU Blue Growth strategies, especially to marine biotechnology industry. The implementation of brokerage with stakeholders and market-oriented projects will dismantle trade barriers, increase the ways of communication among partners and promote knowledge enhancements and its conversion in business. Being Portugal, especially North Portugal, a peripheral region, this will contribute to the change its economic landscape, giving new opportunities for development and job creation and reinforcing the role of marine biotechnology in the economic development of Europe.
Seaweed, or "macro-algae", has long been recognised as a valuable source of diverse bioactive compounds and has great potential to be used in pharmaceuticals, nutraceuticals and functional foods. However, until now, seaweed has been underexploited in Europe due to the challenges of expanding seaweed biomass production: costs need to be reduced, scales of production need to be increased, quality improved, and seaweed biomass needs to be successfully refined into multiple useful products. If these issues can be addressed, seaweed biomass production could become more economically and environmentally sustainable.

The overall objective of the GENIALG project is to boost the European Blue Economy by designing high-yielding seaweed cultivation systems. GENIALG aims to increase the production and sustainable exploitation of two high biomass yielding species of European seaweed: the brown algae (or sugar kelp) *Saccharina latissima* and the green seaweed (or sea lettuce) *Ulva rigida*. GENIALG is the first industry-driven project bringing together pioneering companies in large-scale integrated European biorefineries and experts in seaweed cultivation, genetics and metabolomics to boost the seaweed industry. GENIALG will combine available knowledge in seaweed biotechnology with reliable eco-friendly tools and methods to scale up current small cultivation seaweed operations.

Two pilot pre-industrial seaweed biorefinery plants will provide vital seaweed compounds for a wide range of products such as cosmetics, pharmaceuticals, food and feed ingredients, fine and specialty chemicals, additives and blends such as gels, as well as precursors for biodegradable plastics. GENIALG will help lead the way in the Blue Biotechnology sector in Europe, while addressing social acceptability and competition for maritime space.
In the last decades, an increasing number of antibiotic resistant bacterial pathogens have become an important problem worldwide. This includes also biofilm-associated pathogens, causing prosthetic devices infections, and requiring costly implant replacement. Biofilm formation is especially important in infections related to implants and catheters. Although some of these colonizing microorganisms do not cause infection, they can promote an immune reaction giving rise to inflammation at underlying tissue. This finally causes a release of the implant, which must be removed and replaced by a new one. These surgical interventions entail an increase in antibiotic consumption, together with healthy cost of about 50,000-90,000 per infection episode.

Taking both problems in account, the search of new antimicrobial agents that will be effective against bacteria in their two stages of life (planktonic and biofilm), is a priority need in the clinical practice. Overall objective of this project is to search for such bioactive compounds from EU microalgae collections, which will be useful in the treatment of these kinds of infections and will be incorporated in the manufacturing of medical prosthetic devices.

The NOMORFILM project introduces a new concept to tackle biofilm infections which combines the two major antibiofilm strategies in use: high throughput screening and coating. NOMORFILM makes use of microalgae as the source of compound libraries. 6,800 Microalgae species coming from diverse ecosystems and different continents will be screened and cultured in order to maximize their potential for production of antibiofilm molecules. Thus, each microalgae species will act as a natural multireactor producing a large number of compounds and microalgae biodiversity, which is very high, will increase significantly the degree of structural diversity of the different families of compounds.

The new lead compounds discovered will be incorporated into functionalized nanoparticles and applied for coating prosthetic devices. These novel bionanomaterials will certainly make a breakthrough to the infection control and thus will make a great impact in the growing field of nanomedicine.
SEAFOODTOMORROW - NUTRITIOUS, SAFE AND SUSTAINABLE SEAFOOD FOR CONSUMERS OF TOMORROW

SEAFOODTOMORROW aims to strengthen the European seafood production and processing industry by providing validated, commercially viable, and eco-innovative solutions that will improve seafood quality and safety, minimise environmental impacts, and drive socioeconomic development within the seafood industry.

Meeting the growing market need for safe, sustainable seafood is a formidable challenge for the European seafood industry. With European seafood imports presently reaching almost 70%, and global food demands projected to increase by 80-100% by 2050, it is vital to source and validate environmentally friendly and innovative seafood production and processing methods that will reduce European dependency on imports. Such solutions need to underpin seafood security in-line with market demand, whilst maintaining quality and traceability throughout the value chain to support consumer confidence.

Expected Results:

• Validation of nutritional and safety aspects of eco-innovative seafood solutions through certified methodologies carried out by independent partners.

• Easily-accessible database with seafood innovative products validation data for the implementation of a digital traceability tool linked to quality labels.

• Improved understanding of market acceptance of eco-innovative seafood solutions in different European regions and demographics.

• Validation of sustainable solutions from economic and environmental perspectives.

• Benchmark for certification schemes of seafood quality and traceability for industry to strengthen consumer confidence and trust in European seafood.

• Reduction of public health risks and promotion seafood consumption through transparent and responsible communication, dissemination, knowledge transfer and exploitation of the outcomes to the different stakeholders.
The objective of SponGES is to develop an integrated ecosystem-based approach to preserve and sustainably use vulnerable sponge ecosystems of the North Atlantic. The SponGES consortium, an international and interdisciplinary collaboration of research institutions, environmental non-governmental and intergovernmental organizations, will focus on one of the most diverse, ecologically and biologically important and vulnerable marine ecosystems of the deep-sea - sponge grounds - that to date have received very little research and conservation attention. Our approach will address the scope and challenges of EC’s Blue Growth Call by strengthening the knowledge base, improving innovation, predicting changes, and providing decision support tools for management and sustainable use of marine resources. SponGES will fill knowledge gaps on vulnerable sponge ecosystems and provide guidelines for their preservation and sustainable exploitation. North Atlantic deep-sea sponge grounds will be mapped and characterized, and a geographical information system on sponge grounds will be developed to determine drivers of past and present distribution. Diversity, biogeographic and connectivity patterns will be investigated through a genomic approach. Function of sponge ecosystems and the goods and services they provide, e.g. in habitat provision, benthic-pelagic coupling and biogeochemical cycling will be identified and quantified. This project will further unlock the potential of sponge grounds for innovative blue biotechnology namely towards drug discovery and tissue engineering. It will improve predictive capacities by quantifying threats related to fishing, climate change, and local disturbances.

SponGES outputs will form the basis for modeling and predicting future ecosystem dynamics under environmental changes. SponGES will develop an adaptive ecosystem-based management plan that enables conservation and good governance of these marine resources on regional and international levels.
Invertebrates, i.e., animals without a backbone, represent 95% of animal diversity on earth but are a surprisingly underexplored reservoir of genetic resources. The content and architecture of their genomes remains poorly characterised, but such knowledge is needed to fully appreciate their evolutionary, ecological and socio-economic importance, as well as to leverage the benefits they can provide to human well-being, for example as a source for novel drugs and biomimetic materials.

Europe is home to world-leading expertise in invertebrate genomics and IGNITE will gather together this European excellence to train a new generation of scientists skilled in all aspects of invertebrate genomics. We will considerably enhance our knowledge and understanding of animal genome knowledge by generating and analysing novel data from undersampled invertebrate lineages and by developing innovative new tools for high-quality genome assembly and analysis.

The well-trained genomicists emerging from IGNITE will be in great demand in universities, research institutions, as well as in software, biomedical, agrofood and pharmaceutical companies. Through their excellent interdisciplinary and intersectoral training spanning from biology and geobiology to bioinformatics and computer science, our graduates will be in a prime position to take up leadership roles in both academia and industry in order to drive the complex changes needed to advance sustainability of our knowledge-based society and economy.
**EMERTOX - EMERGENT MARINE TOXINS IN THE NORTH ATLANTIC AND MEDITERRANEAN: NEW APPROACHES TO ASSESS THEIR OCCURRENCE AND FUTURE SCENARIOS IN THE FRAMEWORK OF GLOBAL ENVIRONMENTAL CHANGES**

EMERTOX aims at mapping the actual situation in emergent marine toxins and the producing organisms, developing new approaches to assess their occurrence and predicting the possible future scenarios in the framework of global warming. The partnership, formed by a multidisciplinary team, will produce a joint research and innovation project that will exploit the complementary expertise of the participants and will create synergies among them. The main objectives are:

- to assess the current situation on potentially harmful algae and bacteria and the relevant emerging toxins in 8 countries belonging to different but geographically connected areas (Mediterranean Sea and North Atlantic);
- to develop innovative approaches to sample, and analyze the producing organisms and their toxins by chemical and biological methods including immunoassays and sensors;
- to estimate different future scenarios based on molecular data (routes of dispersion) and modelling.
The overarching objective of AtlantOS is to achieve a transition from a loosely-coordinated set of existing ocean observing activities producing fragmented, often monodisciplinary data, to a sustainable, efficient, and fit-for-purpose Integrated Atlantic Ocean Observing System (IAOOS). This will be achieved through research and innovation activities focused on: defining requirements and systems design, improving the readiness of observing networks and data systems, engaging stakeholders around the Atlantic, as well as strengthening Europe’s contribution to the Global Ocean Observing System (GOOS), a major component of the Group on Earth Observations (GEO), its Global Earth Observation System of Systems (GEOSS), and specifically on its emerging “Oceans and Society: Blue Planet” initiative. AtlantOS contributes to blue growth by merging new information needs relevant to key sectors such as transport, tourism, fisheries, marine biotech, resource extraction and energy with existing requirements. AtlantOS significantly contributes to trans-Atlantic cooperation by integrating existing observing activities established by European, North and South American, and African countries and by filling existing gaps to reach an agile, flexible IAOOS and associated ocean information systems around the Atlantic.
ASSEMBLE Plus will provide scientists from academia, industry and policy with a quality-assured programme of access to the marine biological station facilities and resources. These stations offer a wide variety of services, including access to marine ecosystems, unique marine biological resources, state-of-the-art experimental and analytical facilities with integrated workflows, historical observation data, and advanced training opportunities. The goal of the project is to stimulate European fundamental and applied research excellence in marine biology and ecology, thereby improving our knowledge and technology-base for the European bioeconomy, policy shaping and education.

ASSEMBLE Plus brings together 32 marine stations and institutes with modern research infrastructures and track-records of unique service provision, from 14 European and two associated countries, under the leadership of the European Marine Biological Resource Centre (EMBRC), an ESFRI consortium developed from the previous ASSEMBLE (FP7) partnership.

The sum of the actions envisaged in ASSEMBLE Plus, including Access, Networking and Research will ultimately increase the number of users of marine biological stations and shape novel strategic development perspectives of the partners, to be based on effective integration and efficient complementarities, resulting in a key contribution to their long-term sustainability.
Sea Change is an EU H2020 funded project that aims to establish a fundamental "Sea Change" in the way European citizens view their relationship with the sea, by empowering them, as Ocean Literate citizens, to take direct and sustainable action towards a healthy ocean, healthy communities and ultimately a healthy planet.

By using the concept of Ocean Literacy, Sea Change will create a deeper understanding amongst European citizens of how their health depends on the health of our seas and ocean. Sea Change will move to bring about real actions using behavioural and social change methodologies. Building upon the latest social research on citizen and stakeholder attitudes, perceptions and values, the Sea Change partnership will design and implement mobilisation activities focused on education, community, governance actors and directly targeted at citizens. These actions will be assessed for their effectiveness which, in turn, will allow the project to improve its techniques and spread a "Sea Change" in behaviour across Europe.
A considerable fraction of human populations inhabit coastal regions and crucially depend on the resources and services provided by marine ecosystems. Historically, fisheries have been a central resource providing a substantial fraction of the human dietary intake, namely vital nutrients for human health. More recent developments have opened new horizons for Oceanic resource exploitation, namely those related with discoveries in biotechnology or new mineral non-hydrocarbon sources in deep-sea ecosystems. The later has been more and more often recognized as an important source of minerals and biotech-molecules. The limited available information on deep-sea environments implies a great effort on the acquisition of baseline scientific knowledge to ensure a sustainable and responsible exploitation of deep-sea resources. In this context, the development of adequate technological tools and sensors is a fundamental task. The project devised by CIIMAR and INESC TEC, CORAL - Sustainable Ocean Exploitation: Tools and Sensors, sets as central objective to address the sustainable exploitation of marine resources towards filling societal needs and to propose challenge-driven solutions in deep-sea environments. This implies the improvement of the knowledge of the natural processes governing ocean dynamics and ecosystem functions, as well as the major forces driving ecosystems changes, both on regional and global scales. This approach is also directly linked with our capacity to "measure" resources and the impact of their exploitation, and finally to exploit with minimal environmental impact. Our ability to interpret this conceptual "triad", Ecosystem - Resources-Environment, is largely dependent with the capacity to develop new tools to in situ measure resources, to collect samples at distance for analysis, to develop new standards for environmental assessment in new frontiers such as deep sea, and thus develop sensing abilities capable of diagnosing vital variables for living organisms in rearing conditions (e.g. aquaculture), but also to exactly anticipate negative impacts in humans and wildlife via the development of biological sensors.
INNOVMAR – INNOVATION AND SUSTAINABILITY IN THE MANAGEMENT AND EXPLOITATION OF MARINE RESOURCES

INNOVMAR – Innovation and Sustainability in the Management and Exploitation of Marine Resources aims to develop and consolidate the main research lines of CIIMAR through the implementation of 3 projects: INSEAFOOD, NOVELMAR and ECOSERVICES. INNOVMAR will unravel novel marine products with biotechnological applications; promote innovation and valorization of seafood products, in especial new aquaculture species and assess the environmental quality, vulnerability and risks for the sustainable management of NW coast natural resources and ecosystem services.

INSEAFOOD – Innovation and valorization of seafood products: meeting local challenges and opportunities – aims to enhance CIIMAR scientific competences in the area of Aquaculture and Seafood Quality that are relevant for the implementation of the North Portugal Smart Specialization Strategy. Research effort will be focused on economically important and well established shellfish (Pacific oyster, *Crassostrea gigas*) and finfish species (European seabass, *Dicentrarchus labrax*) that play a major role in the Portuguese aquaculture sector. The project will also monitor marine algae and natural populations of sea urchin (*Paracentrotus lividus*). The production and promotion of innovative seafood products of high value is expected, such as high quality sea urchin gonads or added nutritional value fish, in order to better exploit Portuguese marine resources and boost the economic and social sectors.
NOVELMAR – Novel marine products with biotechnological applications – aims to strengthen and consolidate CIIMAR know-how and competence in the area of marine biotechnology in special on the use of marine organisms (e.g. cyanobacteria, bacteria, fungi and other organisms) bioactive products that may have pharmacological, nutraceutical, cosmeceutical, antifouling and other industrial applications. The main innovation this research line will be the use of a double approach – a genomic and a bioassay-guided approach, to study a diversity of industrial applications using a biorefinery pipeline concept, aiming to produce zero residues. We will apply a methodology that will involve several levels of biological organization from the DNA (sequencing and survey of gene clusters that produce some of the compounds and further heterologous expression) to the organisms.

ECOSERVICES – Assessing the environmental quality, vulnerability and risks for the sustainable management of the NW coast natural resources and ecosystem services in a changing world, is aligned CIIMAR’s research line: Global Changes and Ecosystem Services. The central goal of ECOSERVICES is to strengthen and consolidate CIIMAR expertise and competence to assess environmental quality, vulnerability and risks providing knowledge, technology and solutions for the sustainable management of natural resources and ecosystem services. One of the main innovations of ECOSERVICES is the assessment of the effects, pressures and risks of a wide range of abiotic and biotic factors (exotic invasive species, pathogens, chemical contamination, physical and other alterations due to global climate changes) acting together. This will be achieved through a multidisciplinary approach including endpoints at different levels of biological organization (from molecular to the ecosystem level), physical, chemical and other system parameters, supported and integrated through robust integration modelling with distinct components.
MarInfo is a project where CIBIO/InBio (ICETA), CIIMAR, SYSTEC and LSTS (FEUP) collaborate to implement an Integrated Platform for Marine Data Acquisition and Analysis, aiming to collect, mobilize, store, synthesize, and ultimately provide both physical and biological data gathered from the marine environment.

MarInfo takes an interdisciplinary approach involving a technological push, driven by experts in engineering and automation, and an application pull, driven by oceanographers and marine biologists. It comprises two distinct, complementary research lines. The first focuses on the development of technology to ease the acquisition of data in the marine environment. Its main objective is to integrate observation and communication technologies to assess specific information such as physical/environmental data or species diversity and behavior, considering the particular regional Atlantic Ocean conditions and dynamics. Autonomous vehicles will be used to overcome limitations to the sustained (systematic) collection of data in the vast and harsh marine environment, and cheap miniaturized loggers will be developed and deployed, at fixed sites or attached to large marine animals, to obtain information on several physical parameters of interest.

The second line focusses on the integration of large volumes of already available data and of newly acquired physical, chemical and biological information into a cohesive framework. Oceanographic data from multiple sources (fixed stations, autonomous vehicles, large predators, benthic sensors) shall be coupled with remote sensing data and fed into regional oceanographic models, allowing forecasts of climate induced environmental changes and assessment of regional dynamics. New bioinformatic tools will be designed and implemented to generate biological diversity datasets (using metabarcoding/NGS technology) and energetics and trophodynamics datasets, to integrate knowledge at the ecosystems level.

The data acquired and derived information will allow a deeper understanding of the mechanisms coupling oceanographic and biogeochemical processes, unraveling interactions between them and, therefore, supporting decisions towards a sustained use of the marine resources.
The project ValorMar is leaded by a reference institution – SONAE - and integrates 20 enterprises and 16 Research and Development institutions, being CIIMAR the R&D leader of the project, with a wide national geographical distribution. ValorMar will develop innovative technological solutions that potentiate the valorization and efficient use of marine resources by the integration of the value chains using the circular economy concept and integrating: food industry, biomedical, pharmaceutical, cosmetics and aquaculture.

ValorMar main objective is the valorization of marine resources thorough research, development and demonstration of new products and the improvement of the productive processes, proposing innovative solutions that lead to the creation of new healthy food products using innovative, efficient and sustainable technologies. The products, processes and services will be produced in the framework of a transversal mobilization of human resources with extensive curricula and experience in the development and implementation of R&D projects in the thematic areas of ValorMar.
MobFood project is the result of an open debate carried out by several agents from the agribusiness that aims to find the right path to promote the competitiveness of the national food industry in an organized and integrated manner. It will be strategically undertaken with a close collaboration between scientific institutions and private companies grounded on economic growth measures based on R&D, innovation and technologies for new products, services and processes achievement with direct effects in all value chain. The principal aim is to make the sector totally sustainable, resilient, open, safer and with an effective utilization of resources being consumer-driven.

The main goals will be attained through the implementation of the solution in three fundamental principles: “Food Safety and Sustainability”, “Food for Health and Well-being” and “Safe Food and Quality”, embodied in the research and development for several processes, products or services.

The join-venture is composed by 47 entities that represent all Portuguese agribusiness, with participant companies from different agroindustry subsectors. R&D entities participants will bring the ability for a complete approach of the different areas of key knowledge for an acute development of the Portuguese food industry.

The MobFood project is organized in 9 areas of intervention: Emerging Technologies, Resources Valorization, Sustainable Packaging, Nutrition, Health and Well-being, Quality and Food Safety, Authenticity and Traceability of products, Logistics, Consumer and “Coordination, implementation, dissemination and exploitation of results”.

MobFood - MOBILIZING SCIENTIFIC AND TECHNOLOGICAL KNOWLEDGE IN RESPONSE TO THE CHALLENGES OF THE AGRI-FOOD MARKET
MARINALGAE4AQUA – IMPROVING BIO-UTILISATION OF MARINE ALGAE AS SUSTAINABLE FEED INGREDIENTS TO INCREASE EFFICIENCY AND QUALITY OF AQUACULTURE PRODUCTION

Global population growth and increase in living standards will push up the demand for fish-derived protein in the future. However, resource scarcity (feed, water and energy), environmental impacts, and changes in climate and growing conditions can seriously hamper aquaculture that supplies a significant proportion of human food. New sustainable protein and lipid sources and improved technologies to increase bio-availability of existing sources will be needed to ensure adequate supply of aquafeeds to ensure growth of aquaculture. On the other hand, the growth of the industry has caused environmental concerns. Interestingly, aquaculture effluents can be an excellent medium for algal growth, although they are not usually reused since they contain residual organic compounds, minerals and other micro-pollutants. MARINALGAE4aqua is an innovative research project that targets the development of strategies to increase efficiency of important European farmed fish species (Atlantic salmon and European sea bass) and reduce the environmental impact using micro- and macro-algal biomass as feed ingredients by:

• Culturing marine algae under optimized technological processes to remove organic compounds and minerals from fish farm effluents, and producing high value products for aquafeeds while recycling nutrients; thus improving the water body quality and reducing the environmental impact.

• Identifying novel feed additives to improve fish digestive capacity and nutrient metabolism upon using the selected algae.

• Improving fish growth and end product quality, reducing time to slaughter and providing a safe and healthy food item with wide consumer acceptance.

MARINALGAE4aqua aims to tackle the sustainability challenges of the aquafeed industry by developing cost-effective and resource-efficient alternatives to FM and FO. MARINALGAE4aqua is innovative and cutting edge - it adopts a multidisciplinary approach, integrating molecular (genomics, proteomics) and traditional tools to address physiological, nutritional and environmental challenges in modern aquaculture – providing state-of-the-art knowledge to identify strategies to increase efficiency of farming important European fish species.
SpilLess aims to implement an innovative ‘laboratory’ (Blue Lab) to pilot new and viable solutions to tackle with one of the most damaging sources of maritime pollution: oil spills. These solutions will be based on the production of native microbial consortia with bioremediation capacity, and the adaptation of unmanned and autonomous vehicles for in-situ release of autochthonous microorganisms (bioaugmentation) and nutrients (biostimulation).

This Blue Lab will have a multidisciplinary profile. It will be established by a team of young scientists, and supported by senior researchers from three institutions (CIIMAR, INESC TEC and the University of Vigo) and experienced business tutors from three private companies (ACSM, Biotrend and MARLO). Besides, the R&D team will be advised and mentored by a stakeholder’s platform that includes several public and private entities. SpilLess will be implemented in the region of the Atlantic Ocean, with potential for transferability to other regions facing similar challenges.

This solution will be environmental-friendly, will be able to act as fast first line response with low time to reaction and mission costs, will set-up holistic pollution combat and will provide environmental monitoring.
An urgent demand for new anti-obesogenic compounds is present, and marine cyanobacteria promise to be an excellent source for natural-derived molecules and novel nutraceuticals. Some strains of cyanobacteria are commercially available for consumption due to their beneficial properties to human health. Preclinical studies have been performed in various animal models and demonstrated hypolipidemic activities in rats and mice, lowering hepatic cholesterol and triglyceride levels.

In the proposed project, marine cyanobacterial strains of a culture collection will be screened for beneficial properties towards obesity and obesity-related comorbidities (obesity, fatty liver disease, diabetes, appetite and hyperlipidaemia) and the chemical structure will be elucidated. By applying an innovative biotechnological platform, the interactions from oral administration to the blood stream will be analyzed, and with different target tissues in vitro. A proof of concept regarding the improvement of metabolism will be performed in a relevant physiological model.

The general aim of the project is to develop novel nutraceuticals that have the potential to improve the quality of life for millions of people worldwide.
Industrial innovation through specific collaborations between enterprises and research centers in the context of marine biotechnological valorization - CVMar+i aims to promote industrial innovation around marine biotechnology by the proposal of new products based in marine compounds. This will be done by a synergic effort of enterprises and research enters in the transboundary area, benefiting from the complementarity of the partners.

The project will benefit from former POCTEP projects implemented by partners of this Consortium that can now be potentiated and without who’s the innovation proposed would not be possible. We will develop tools that allow the enterprises of the region to increase their investment in innovation, reinforcing the role of the region in the Blue Economy. This is in alignment with RIS3T Galicia-North Portugal, developing products based on marine resources and sub-products in the areas of health (tissue regeneration and pharmacology), food and industrial applications.
The coastal regions in Europe through their S3s acknowledge the potential of Marine Biological Resources (MBRs) and especially blue biotechnologies (technological applications that use marine biological systems, living organisms or derivates to make or modify products or processes for specific uses, as defined by the Convention on Biological Diversity) to generate and promote employment, economic and regional development, contributing to growth and cohesion.

MBRs are one of the main services provided by marine ecosystems. Culture collections of MBRs are key to the systematic research of interesting and unique genes, bioactives and biomaterials from the marine environment with potential for commercial development and job creation in coastal regions.

The EMBRC BioBank (EBB) will set the basis for the common operation of the distributed marine biobanking facilities of the European Marine Biological Resource Centre (EMBRC) by:

- Setting up technological tools and common procedures for the ex-situ maintenance of MBRs along the whole phylogenetic tree of life; and:

- The application of best practice guidelines throughout the EBB collections to ensure compliance with regulatory framework that sets the rules on access and benefit sharing (ABS) on the use of marine bioresources for commercial and academic research.

- The development of innovation use cases involving industrial end users and administrations at the national and European level with competence in regulating ABS for the production of a set of best practice guidelines for ABS compliance when using MBRs for innovation purposes.

The EBB will ultimately facilitate sustainable access to Atlantic marine biodiversity, its associated data, and extractable products for local and international academia and industry users.
This project aims to develop strategies and water treatment technology for removal of particulate organic matter (POM) in land-based closed containment recirculation systems for aquaculture (LBCC-RAS). This will increase efficiency by reducing waste products, off-flavour compounds and carrying capacity of bacteria. Removal of POM is the key to improve the production and product quality of fish produced in LBCC-RAS. Organic matter is the determining factor of the amount of heterotrophic bacteria that can be sustained in the LBCC-RAS. Nitrification efficiency of the bio-filter is affected by the competition for space and oxygen with heterotrophic bacteria. In addition, high amounts of organic matter reduces the efficiency of both UV and ozone disinfection. Heterotrophic bacterial degradation affect the consumption of O₂, the production of CO₂ and ammonia, contribute to water colour and bacteria producing off-flavour compounds, eventually reducing the value of fish and caviar. The effects of high and low removal efficiency of organic matter on the effects on dissolved CO₂, bacteria and off-flavour prevalence will be investigated. Both tank dynamics and water treatment in the RAS loop will be used to obtain high removal efficiency. Multiple drains with optimized geometry and hydraulics will be designed for early particles collection and to be used as a strategy in combination with techniques such as advanced membrane filtration. The effectiveness of a membrane is dependent on several ambient conditions and fouling is a challenge for membrane performance. We will aim to adapt the membrane technology, optimize the operation and maintenance in a LBCC-RAS. A close collaboration with fish-producing companies safeguard that the project is applicable for commercial aquaculture.
REWATER - SUSTAINABLE AND SAFE WATER MANAGEMENT IN AGRICULTURE: INCREASING THE EFFICIENCY OF WATER REUSE FOR CROP GROWTH WHILE PROTECTING ECOSYSTEMS, SERVICES AND CITIZENS’ WELFARE

Water is a natural resource vital for social wellbeing and agriculture economy. Yet, during the past decades, geographic and climatic features, as well as active release of man-made chemicals, have been driving to water depletion and a loss of quality. This creates a major need for water reuse in increasingly situations, such as in agriculture. Wastewater treatment plants (WWTP) are crucial sources for water reuse, since they promote the removal of unwanted substances. However, one of the major challenges restricting wastewater (WW) reuse is the presence of emerging contaminants (ECs), as they are usually not properly managed by conventional treatment technologies. These technologies still need urgent innovative development and integrated solutions, in order to promote sustainable water reuse and safety.

REWATER proposes to develop an innovative joint research and application of technologies producing a final integrated solution for reuse of WW for agricultural purposes, and their economic and environmental evaluation with a Life Cycle Assessment. This systematic approach, inspired in technological, organizational and bio-based economy, will minimize negative impacts of WW reuse in the environment, decreasing the undesirable introduction of ECs in agriculture and aquatic systems and reducing their spread within the food chain.

REWATER provides a unique interdisciplinary expertise of consortium scientific partners and SMEs specialized in WW treatment. Work programme will include tuned improvement or development of: 1) biosensors for in-field rapid and selective detection of micropollutants and their corresponding metabolites and/or degradation products (MMDs), 2) treatment processes for MMDs removal through integration of electrochemical and biological technologies, 3) ecotoxicological tools to evaluate treated water for reuse and develop expeditious surveillance, and 4) analytical monitoring, scaling-up and environmental/economic assessment. REWATER will provide tools and solutions contributing to WW reuse, environmental health, and economic and social welfare. Interaction among consortium partners, allied to stakeholders of water industry, will enhance collaborative research and innovation, as well as international cooperation in the water sector, during and beyond REWATER lifespan.
Plastics, synthetic polymers virtually unknown prior to their broad commercialization in the 1950s, are nowadays ubiquitous in the environment, and their global production continues to rise. They are not biodegradable, but undergo weathering that renders their fragments more fragile, and combined to hydrodynamics produce increasingly small particles termed microplastics (MPs), within the micron to mm range, readily taken up by suspension and sediment feeders, and incorporated into the trophic webs. MPs can be toxic per se due to additives used by industry as colorants, plasticizers, flame retardants, etc. In addition, they concentrate hydrophobic chemicals, persistent pollutants (PPs), found in extremely low concentrations in seawater. The present proposal, EPHEMARE, targets (1) the uptake, tissue distribution, final fate and effects of MPs in organisms representative of pelagic and benthic ecosystems, and (2) the potential role of MPs as vectors of model PPs that readily adsorb to their surfaces. The ecotoxicological work relies on an initial study on the equilibrium kinetics of PPs on MPs conducted by a reference analytical laboratory at European level that will provide rigor and assure environmental relevance to the subsequent experimental setups. The consortium, of true trans-European composition (16 partners from 10 countries, 540 person-months), thus includes experts in biological effects of marine pollutants at molecular, cellular, physiological and organismic levels, up to-date singular facilities for aquatic toxicity testing under strict QA/QC conditions, and some of the world leading teams in MPs research. The EPHEMARE multidisciplinary consortium will allow identification of operational biomarkers with potential for MP detection in the environment, as well as omics approaches to elucidate molecular pathways causing biological effects. The composition and capacities of the partnership allow in-depth studies on fundamental mechanisms underlying these effects across the main phyla of marine organisms from bacteria to fish covering most of the trophic levels. In addition to experimental exposures, field validation studies will be performed in four areas representative of coastal ecosystems submitted to different degrees of anthropogenic pressure, thus linking the ecotoxicological findings from laboratory studies to the environmental scale. The communication and connection with private and public stakeholders, which involves 67 person-months from 14 partners, is one of the priorities of EPHEMARE in order to facilitate public awareness, pre-normative research, and implementation of European Directives.
MiningImpact2 - ENVIRONMENTAL IMPACT AND RISKS OF DEEP-SEA MINING

The MiningImpact project gathers 32 partners from 10 different countries and will set up a comprehensive monitoring programme of the impact of an industrial test to harvest manganese nodules in the Clarion Clipperton Zone, by the Belgian contractor DEME-GSR. Polymetallic nodules are mainly composed of manganese and iron oxides, but also contain economically valuable metals, such as nickel, copper, cobalt, lithium, and rare earth elements.

The DEME-GSR collector test intends to harvest nodules in approx. 0.1 km² large areas of the seabed in the Belgian and the German contract areas of the Clarion Clipperton Zone in the Eastern Equatorial Pacific Ocean. Within the lifetime of MiningImpact researchers are planning two cruises to the test areas in order to constrain the spatial and temporal dynamics of the sediment plume created by the mining test and impact on the abyssal environment.

The project will further study regional connectivity of species in the deep-sea and their resilience to impacts, and the integrated effects on ecosystem functions, such as the benthic food-web and biogeochemical processes.

In this context, key objectives of the project are:

- To develop and test monitoring concepts and strategies for deep-sea mining operations
- To develop standardization procedures for monitoring and definitions for indicators of a good environmental status
- To investigate potential mitigation measures, such as spatial management plans of mining operations and means to facilitate ecosystem recovery
- To develop sound methodologies to assess the environmental risks and estimate benefits, costs and risks
- To explore how uncertainties in the knowledge of impacts can be implemented into appropriate regulatory frameworks

MiningImpact will be able to further close existing knowledge gaps and reduce uncertainties on the environmental impacts of deep-sea mining of polymetallic nodules. The project will specifically work towards policy recommendations and has reached out to the International Seabed Authority to become a partner in the project. It will further contribute to the preparation of environmental impact assessments (EIAs) for future European deep-sea pilot mining tests that are requested by the ISA, and to the Horizon2020 technology development projects Blue Atlantis and Blue Nodules.
MarRISK aims to ensure an intelligent and sustainable growth of the Galician and Portuguese coastal zones through evaluation of the coastal risks that are most important in terms of climate change scenarios.

Floods, intensification of extreme events, toxic algae blooms and coastal erosion are examples of the risks that shall be analysed in order to improve the resilience of traditional economic sectors and of other, emerging sectors, like marine renewable energies.

This way, the adaptation of the cooperation region to potential disasters will be improved, and applications and services to guarantee a coordinated response will be developed, given that environmental risks require a cross-border approach.

MarRISK shall evaluate coastal climate evolution, at a better resolution than is presently done, and will enable monitoring and warning systems. MarRISK will deliver decision support tools to public authorities, the productive sector and the general public, to improve coastal management.
The MIGRA MIÑO - MINHO project proposes as main challenge to improve the protection and sustainable management of the natural boundary area that forms the sub-basin of the international section of the Minho River.

MIGRA MIÑO - MINHO aims to improve the protection and conservation of river habitat of the sub-basin of the river Minho, from the Frieira Dam (province of Ourense) until its mouth, with actions to improve the conservation status of river beds and migratory fish species present in the Minho River and its tributaries.

In addition to the environmental component, this project aims to solve the socio-political aspects of protecting and improving the natural state of the international river Minho, through the conservation of one of the most threatened key elements - the migratory fish species. This will contribute to the preservation and exploitation of traditional fishing activities, as well as the improvement of sustainable socio-economic development of cross-border territory, by of commercial activities such as fishing, tourism or energy sector.
The abundance of the European eel (*Anguilla anguilla*) has been declining in the last 50 years and is outside safe limits. For this reason, the European eel has been included in the IUCN Red List of threatened species.

The SUDOANG project arises to try revert several conditions that restrain the recovery of the eel stock, namely:

- The lack of data and the variability of assessment methods limit the scope and effectiveness of the population monitoring.
- Although the European eel is a single fish stock, it is assessed and managed as separate units.
- There is a lack of dialogue and common strategies between the stakeholders (scientists, managers, fishermen, NGOs) and at different levels local / regional / national).

The SUDOANG project is co-financed by the ERDF through the Sudoe program, with a total budget of 1.6 million. In order to carry out the project, a partnership has been built that includes the entire value chain related to the management of the eel in the SUDOE area: 10 research centers and 27 associated partners including local, regional and national managers, NGOs and associations of fishermen.
The MOSES objectives of the MOSES project is to examine the ‘blue’ growth path for the sustainable development of the major sectors operating in the Atlantic space as envisaged in the Atlantic Action Plan. MOSES will quantify blue growth for key marine sectors and develop a common methodology for the quantitative assessment of sectoral pressures on the marine environment and the vulnerability of marine and coastal areas. The methodology will contribute to the joint implementation of integrated marine industry sustainability assessment toolkits across the Atlantic region.

To achieve these aims the consortium will work on four major blocks:

- Evaluate the evolution of the Atlantic marine sectors using the previous Atlantic Area project MARNET framework;
- Examine the sectoral pressures on the Atlantic marine environment in order to identify best management practices;
- Assess the vulnerability of coastal marine areas/features to marine sector to the identified sectoral pressures;
- Using case studies, develop sustainable transition plans to blue growth for a number of key marine sectors and test policies for how well they manage activities to meet Marine Spatial Planning and Maritime Strategy Framework Directive goals.
EMBRC-PT is a distributed research infrastructure with nodes in Faro, Horta, Coimbra and Porto/Matosinhos where CIIMAR headquarters are located. It will allow researchers to study marine biodiversity in its habitat, in tanks and in the laboratory with the latest technologies. It is the national node of the European Marine Biological Resource Centre (EMBRC) and it is expected that the foreseen increased scientific activity will potentiate development of technologies and products with a positive impact in the regional and national economies.

CIIMAR via EMBRC-PT provides services in marine sciences: access to marine ecosystems and biodiversity, microorganism collections and model organisms, scientific diving, “omics”, bioinformatics and chemistry platforms. It will also offer access to a variety of aquaria facilities, general laboratories, and marine observatories for long term observations. The present project was designed to significantly improve the EMBRC-PT infrastructure and human resources so as to meet the excellence requirements of the European infrastructure and to remote research, training and knowledge transfer, so as to impact positively in the regional and national economy.
The deep-sea floor ecosystem, one of the largest on the planet, is poorly monitored. Challenges related to direct or indirect anthropogenic actions can only be dealt with if long lasting seafloor and water column observatories networks are deployed. EMSO is a large-scale European Research Infrastructure, of which Portugal is one of its five funding members, established with the objective of real-time, long-term monitoring of environmental processes related to the interaction between the geosphere, biosphere, and hydrosphere. It is a geographically distributed infrastructure at key sites in European waters.

EMSO-PT objectives are to create long term, sustainable, deep sea marine observatories integrated in the European EMSO-ERIC and in cooperation with other international similar networks. These aim at promoting long term time series of sea-floor and water column of various abiotic and biotic parameters in order to serve the international community of scientists, students, general society and stakeholders. EMSO identifies eight main scientific questions: 1) Dynamics of tectonic plates; 2) Climate and greenhouse gas cycling; 3) Ocean productivity; 4) Marine mammal and fish stocks; 5) Non-renewable marine resources; 6) Episodes, events and catastrophes; 7) Origins and limits of life; 8) marine ecosystems dynamics. All these topics are dependent on long-term, continuous, observations, able to capture data for significant episodes as they occur.

The ultimate goal of EMSO-PT is to organize the Portuguese contribution to the EMSO network. In the mainland, two sites will be considered, one deep (Cadiz) and another shallow (North Portugal). The site to be developed in North Portugal will be a test bench for emerging monitoring strategies, towards implementing sustainable monitoring operations and setting the basis for the development of new marine products and services.
The BIP – Business Ignition Programme is a hands-on technology acceleration programme designed to support the validation of business models for technologies developed in academia. The programme has three main objectives:

- Identify market opportunities for potential products/services resulting from research;
- Provide the participants with the necessary skills for the valorisation and commercialisation of technologies;
- Support the development of valorisation plans, including the creation of new technology-based companies.

BIP participants will have access to:

- Support and follow-up by one element, with business skills, who will apply their skills, experience and networking to the development of the project, as a member of the team.
- Immersive sessions in technology commercialisation according to the Business Model Canvas and Customer Development methodologies.
- In-class sessions and seminars where experienced tutors will share their experiences and strategies for delineating and validating business models.
- Meetings with mentors who will follow the evolution of teams and facilitate the validation of business models.

During the programme, Customer Development process, developed by Steve Blank, and the Business Model Canvas methodology, created by Alexander Osterwalder, will be applied to help the teams approach the market and find product/market fit. Sonae will be BIP’s business partner providing mentorship to ideas and projects with application in the retail sector.
BBMBC will create a completely new teaching programme focused on blue biotechnologies and dedicated to their application particularly in the health, nutrition and aquaculture domains. Indeed, the cutting-edge sector of marine biotechnology lacks high-skilled scientists with both academic and practical knowledge. Therefore, this unique public-private partnership involving academic organisations and Small and Medium Sized Enterprises (SMEs) from France, Portugal, Spain and the United Kingdom, along with specific structures such as the CPMR Atlantic Arc Commission, will set up Master’s degree level in this pivotal field to sustainable global development.

The Master’s curriculum will be dedicated to graduate students and workers allowing them to gain expertise in the blue biotechnology field in 10 months. Thematic courses will be scheduled intensively on a weekly basis. As well as educational courses, work-linked training will take place during the course on industrially-relevant problems, combining practical approaches to the latest scientific knowledge and research. Moreover, from the beginning of this master’s programme, each student will be associated with a project led by a blue biotechnology industrial partner and will be hosted in this structure for the duration of the apprenticeship or internship.
MALIA- MARINE LITTER AWARENESS THROUGH LEARNING BY DOING TOGETHER

Since Educational systems must change to face present XXI century challenges, teachers and students ought to acquire key competences like learning through experience, spotting opportunities and skills for teamwork and public speaking while working with community organisations and networking. MARLITALEDOT will promote those competences/skills using marine litter as shared topic within our oceans trash free.

This project has three main objectives:

• To enhance integration between four educational centers and four local civil association networks towards enhancing intercultural competences on marine science and community participatory outreach.

• To reinforce teacher role and professional development while providing an opportunity to design open educational materials linking outdoor community actions and acquisition of skills and competences from a holistic approach. Through this objective innovation on a digital era and practical science skills will be build in four countries in different environmental and cultural contexts having marine conservation practices as a common ground to be included on the official curriculum.

• To introduce a systemic approach to reinforce European educational dissemination practices by increasing synergies amongst national and international networks and developing effective and innovative challenge based learning through the use of ICT studying real life cases and outdoor community actions around marine litter and trash free seas.
More than 8 million tons of plastic reach annually the ocean, causing very significant negative impacts on marine life, economic activities and human health. Ocean Action Campaign developed different communication tools to raise awareness of school community and general public about the problem of plastic marine debris.

The traveling exhibition “Plastic Sea”, with a combination of art objects, sensory areas, multimedia and roll-up graphic panels, was exhibited so far in 12 localities. The “Marine Monsters” exhibition spread three large sculptures constructed with discarded plastics throughout different public noble spaces of Porto and neighbor cities, depicting different consequences of plastic debris on marine ecosystems. An original theatre piece “Pearl in Plastic Sea” was developed to raise awareness about marine litter and its consequences by recreating the story of the little mermaid in an adventure fraught with danger due to the ever increasing garbage that reaches the sea.

Plastic Sea project also included more conventional hands-on science activities and lectures in schools, beach cleaning activities and the production of educational videos. The combination of different communication methods aimed to encourage the critical reflection about this environmental problem of great importance and scientific complexity and the need to adopt environmentally responsible behavior by the population through the use of complementary, artistic and innovative approaches. This Campaign was awarded in 2016 with the Green Project Award for the best Mobilization Initiative.
Ocean protection is a global priority and crucial for Portugal, a country with extensive coast and notable Exclusive Economic Zone. This protection can only be achieved by increasing knowledge and integrated discussion on the great interaction existing between the ocean and humans, as well as on initiatives such as the Marine Strategy Framework Directive and its descriptors of Good Environmental Status (GES).

OceanLab proposes the creation of a specific experimental laboratory (the OceanLab) to receive young people, their teachers and family members at CIIMAR, leading them in a holistic approach to increase their Ocean Literacy. The program is dedicated to perform hands-on scientific experiments, putting young people into practice, in a laboratory context. Experiments are related to integrated management of the marine environment and maintenance of GES. OceanLab also organises science in the holidays weeks and open science events to the general public. OceanLab is supported by the "CIIMAR na Escola" programme and its associated Science Blog.
<table>
<thead>
<tr>
<th>Project</th>
<th>PI at CIIMAR</th>
<th>Leader Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>SeXomics - Sex and the environment: Genomic decoding and the perpetuation of animal life in a changing world</td>
<td>Agostinho Antunes</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>MOREBIVALVES - Molecular strategies to be applied in the depuration of commercial bivalves for elimination of toxic compounds</td>
<td>Alexandre Campos</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>NANOSED - Adsorption of metallic nanoparticles to estuarine sediments: what implication for denitrification?</td>
<td>Ana Mafalda Baptista</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>BIOREM - Bioremediation of hydrocarbon pollutants by autochthonous microorganisms in aquatic environment</td>
<td>Ana Paula Mucha</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>INFLAMMAA - Unraveling neuro-endocrine/immune modulatory roles of tryptophan during inflammation</td>
<td>Benjamin Costas</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>NITROLIMIT - Life at the Edge: Define the Boundaries of the Nitrogen Cycle in the Extreme Antarctic Environments</td>
<td>Catarina Magalhaes</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>UNNOWN - UNdiscovered Nitrogen micrOrganisms for Wastewater iNoculation: finding efficient microbial seed sludges for wastewater nitrogen removal</td>
<td>Catarina Teixeira</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>ConBiOmics - The missing approach for the Conservation of freshwater Bivalves</td>
<td>Elsa Froufe</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>ACTINODEEPSEA - Bioprospecting actinobacteria from Portuguese deep-sea waters for the production of novel secondary metabolites with pharmaceutical and biotechnological applications</td>
<td>Fátima Carvalho</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>EsCo Ensembles - Estuarine and coastal numerical modeling ensembles for anthropogenic, extreme events and climate change scenarios</td>
<td>Fernando Veloso Gomes</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>EvoDis - The Metazoan Endocrine System in the Anthropocene Epoch: from EVOlution to DIṣruption</td>
<td>Filipe Castro</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>SeeingShore - Understanding and predicting the impact of climate change on coastal habitats</td>
<td>Francisco Arenas</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>SPO3 - Development of innovative sustainable protein and omega-3 rich feedstuffs for aquafeeds, from local agro-industrial by-products</td>
<td>Helena Peres</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>Project</td>
<td>PI at CIIMAR</td>
<td>Leader Institution</td>
</tr>
<tr>
<td>------------------------</td>
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<td>--------------------</td>
</tr>
<tr>
<td>CY-SENSORS - Biosensor and biomimetic recognition element based devices for detection and separation of cyanobacteria metabolites with ecotoxicological and therapeutical applications</td>
<td>Isabel Cunha</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>nascem - Novel eco-friendly Antifouling Strategies based on Cyanobacterial bioactive Metabolites</td>
<td>Joana Reis Almeida</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>SWUAV - Mapping the intertidal zone and assessing seaweed biomass using UAV images</td>
<td>José Alberto Gonçalves</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>Val-WRACK - Wrack as a high value resource in a global warming scenario. Is it worthy to invest on it?</td>
<td>Marcos Rubal</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>Sea Antimicrobials - Antimicrobials from the sea: models for innovative agents to revert multidrug resistance</td>
<td>Emilia Sousa</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>CYANCAN - Uncovering the cyanobacterial chemical diversity: the search for novel anticancer compounds</td>
<td>Mariana Reis</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>CanAdapt - Understanding Darwinian cancer evolution at the single-cell level</td>
<td>Miguel Fonseca</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>SYMBIOMICS - Omics of marine symbioses: Metabarcoding and metagenomics characterization of host-microbe adaptation and novel biosynthetic gene clusters</td>
<td>Parthibaraj Anoop Alex</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>GLOBALED - Impacts of global change on environmentally realistic mixtures of endocrine disruptor compounds on the structure and functioning of coastal ecosystems? Implications for a sustainable environment</td>
<td>Patricia Teixeira</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>HALVERSITY - Genetic and chemical diversity of a novel halogenase class</td>
<td>Pedro Leão</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>BUSHRISK - Tracking the bushmeat: a molecular framework for tracing the African bushmeat trade and risks of emerging diseases</td>
<td>Philippe Gaubert</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>ECOS - New tools to evaluate the ecological status of rocky shores and its relationship with ecosystem services</td>
<td>Puri Veiga</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>ReDEFine - A multi-scale and multi-tiered toolbox for assessing ecosystem quality of freshwater reservoirs: bridging the gaps of the water framework directive approach</td>
<td>Sara Antunes</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>Project</td>
<td>PI at CIIMAR</td>
<td>Leader Institution</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>CRAGIAMP - Search for Antimicrobial Peptides in <em>Crassostrea gigas</em> oysters and <em>Paracentrotus lividus</em> sea urchin. Diminution of mortality rate in oyster culture; towards to a lower impact of diseases in oyster farms and search for novel compounds</td>
<td>Sergio Boo</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>FunG-Eye - A functional approach to unravel the interaction between fungicide pollution and fungi-mediated ecosystem processes</td>
<td>Sara Antunes</td>
<td>U. MINHO</td>
</tr>
<tr>
<td>a&amp;bm - The Sea and the Shore, Architecture and Marine Biology: The Impact of Sea Life on the Built Environment</td>
<td>Elsa Froufe</td>
<td>U. MINHO</td>
</tr>
<tr>
<td>NanoLegatoX - When old meets new: A novelty study on the human uptake, genotoxicity and immunotoxicity of nanoparticles and legacy contaminants mixtures</td>
<td>Miguel Santos</td>
<td>ISP - UP</td>
</tr>
<tr>
<td>MicroPlasTox - Microplastics in the marine environment: estimation and assessment of their ecotoxicological effects</td>
<td>Ruth Pereira</td>
<td>U. AVEIRO</td>
</tr>
<tr>
<td>CyanoVaccine - Cyanobacterial outer membrane vesicles as novel platforms for Vaccine technology</td>
<td>Cláudia Serra</td>
<td>IBMC</td>
</tr>
<tr>
<td>CIGUA - The rise of toxic tropical and subtropical marine dinoflagellates Gambierdiscus spp. distribution, ciguatoxins trophic transfer and risk of ciguatera fish poisoning</td>
<td>Alexandre Campos</td>
<td>IPMA</td>
</tr>
<tr>
<td>LIFELINE - Understanding temporal changes in aquatic biodiversity and their consequences for ecosystem functioning and services</td>
<td>Marina Dolbeth</td>
<td>FCIÊNCIAS.ID</td>
</tr>
<tr>
<td>E-IMUNO - Applying elasmobranch immunogenetics to fisheries management and the study of vertebrate adaptive immunity</td>
<td>Filipe Castro</td>
<td>ICETA-UP</td>
</tr>
<tr>
<td>Linguatox - Bioelectronic Tongue System for the Paralytic Toxins detection in shellfish</td>
<td>Carlos Vale</td>
<td>U. AVEIRO</td>
</tr>
<tr>
<td>MP-BITOX - Microplastics in bivalves: identification of sensitive species in Portugal and assessment of microplastic-toxin aggregates toxicity</td>
<td>Carlos Vale</td>
<td>IPMA</td>
</tr>
<tr>
<td>RemediGrass - Seagrass beds as green and blue infrastructures for ecosystem restoration</td>
<td>Marina Dolbeth</td>
<td>U. AVEIRO</td>
</tr>
<tr>
<td>ROSM - Robotic Oil Spill Mitigation</td>
<td>Ana Paula Mucha</td>
<td>ISEP</td>
</tr>
<tr>
<td>Project</td>
<td>PI at CIIMAR</td>
<td>Leader Institution</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>CyanoTox</strong> - Assessment of cyanobacterial toxins in aquatic systems: environmental impacts and development of new methodologies for their early detection</td>
<td>Cristina Moreira</td>
<td>CIIMAR</td>
</tr>
<tr>
<td><strong>SENSORY-OMICS</strong> - Animal sensory diversity: innovative genomic solutions to enhance perception of environmental stimuli</td>
<td>Agostinho Antunes</td>
<td>CIIMAR</td>
</tr>
<tr>
<td><strong>Antincrustante</strong> - Overcoming environmental problems associated with antifouling agents: synthesis of Natureinspired nontoxic biocides and immobilization in polymeric coatings</td>
<td>Marta Carvalho Guerra</td>
<td>CIIMAR</td>
</tr>
<tr>
<td><strong>ZEBRALGRE</strong> - From zebrafish to meagre: use of macro- and microalgae as functional feeds</td>
<td>Paula Enes</td>
<td>CIIMAR</td>
</tr>
<tr>
<td><strong>EICOBREAM</strong> - Effects of fatty acid source (N-6 vs. N-3) on the eicosanoid cascade and intestine inflammation in gilthead sea bream (<em>Sparus aurata</em>)</td>
<td>Aires Oliva Teles</td>
<td>CIIMAR</td>
</tr>
<tr>
<td><strong>Quimioterápicos</strong> - Navigating through marine-derived fungi: bioprospection and synthesis of bioactive secondary metabolites and analogues as chemotherapeutic agents</td>
<td>Madalena Pinto</td>
<td>CIIMAR</td>
</tr>
<tr>
<td><strong>ALGAFISH</strong> - Inclusion of microalgae in sea bass diets: boosting immunity through nutrition</td>
<td>Ana Isabel Couto</td>
<td>CIIMAR</td>
</tr>
<tr>
<td><strong>PLASTICGLOBAL</strong> - Assessment of plastic-mediated chemicals transfer and effects in food webs of deep, coastal and estuarine ecosystems under global change scenarios</td>
<td>Lúcia Guilhermino</td>
<td>CIIMAR</td>
</tr>
<tr>
<td><strong>FRESHCO</strong> - Multiple implications of invasive species on Freshwater Mussel coextinction processes</td>
<td>Elsa Froufe</td>
<td>I. P. BRAGANÇA</td>
</tr>
<tr>
<td><strong>DINOSAUR</strong> - DINOflagellates for Sustained Supply of Active compoUnds in optimized photobioReactors</td>
<td>Ana Catarina Guedes</td>
<td>FELIP</td>
</tr>
<tr>
<td><strong>QUIMIOCARDIOTOX</strong> - Poisoning the heart with anticancer drugs: is metabolic bioactivation or aging promotion the link to the cardiotoxicity of anticancer drugs?</td>
<td>Emilia Sousa</td>
<td>ICETA</td>
</tr>
<tr>
<td><strong>ACTONP53</strong> - Targeting p53 family proteins: on the route to new anticancer agents</td>
<td>Emilia Sousa</td>
<td>ICETA</td>
</tr>
<tr>
<td><strong>JELLYFISHERIES</strong> - Towards na integrated approach to enhance predictive accuracy of jellyfish impact on coastal marine ecosystems</td>
<td>Agostinho Antunes</td>
<td>I. P. LEIRIA</td>
</tr>
<tr>
<td>Project</td>
<td>PI at CIIMAR</td>
<td>Leader Institution</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>MYTAG - Integrating natural and</td>
<td>Sandra Ramos</td>
<td>U. COIMBRA</td>
</tr>
<tr>
<td>artificial tags to reconstruct fish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>migrations and ontogenetic niche</td>
<td></td>
<td></td>
</tr>
<tr>
<td>shifts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRE-NEURO-HD - Targeting huntingtin</td>
<td>Miguel Santos</td>
<td>ICETA</td>
</tr>
<tr>
<td>proteostasis and mitochondria to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prevent neuronal dysfunction in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Huntington’s disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REEuse - Recovery versus</td>
<td>Carlos Vale</td>
<td>IPMA</td>
</tr>
<tr>
<td>environmental impacts of Rare Earth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elements derived from human activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEIXEROL - Glycerol as an alternative</td>
<td>Leonardo</td>
<td>CNC- U. COIMBRA</td>
</tr>
<tr>
<td>ingredient for fish feed and its</td>
<td>Magnoni</td>
<td></td>
</tr>
<tr>
<td>potential for aquaculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NANOBINDERS - NANOpartículas</td>
<td>Ruth Pereira</td>
<td>U. AVEIRO</td>
</tr>
<tr>
<td>polimétricas Biogenéticas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>funcionalizadas para absorção de</td>
<td></td>
<td></td>
</tr>
<tr>
<td>metais em aplicações amigas do</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ambiente: bioREmediação e bioSensores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FERROCLEAN - Ferrofluidic Extensional</td>
<td>Laura</td>
<td>FEUP</td>
</tr>
<tr>
<td>Rheological Response for Ocean</td>
<td>Guimarães</td>
<td></td>
</tr>
<tr>
<td>CLEAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological producers of natural</td>
<td>Mª. Fátima</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>fluorinated compounds as a novel</td>
<td>Carvalho</td>
<td></td>
</tr>
<tr>
<td>source of relevant degrading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>microorganisms and biosynthetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mechanisms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CARDIOFISH - Effects of dietary</td>
<td>Leonardo</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>components and exercise on energy</td>
<td>Magnoni</td>
<td></td>
</tr>
<tr>
<td>use and oxidative stress in the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hearts of fish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unravelling the functional</td>
<td>Benjamin</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>importance of amino acids in the fish</td>
<td>Costas</td>
<td></td>
</tr>
<tr>
<td>neuroendocrine-immune network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Causalities between diversity,</td>
<td>Marina</td>
<td>CIIMAR</td>
</tr>
<tr>
<td>ecosystem functions and services in</td>
<td>Dolbeth</td>
<td></td>
</tr>
<tr>
<td>marine ecosystems</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BOOKS AND BOOK CHAPTERS


72


Treatment of real industrial wastewaters through nano-TiO2 and nano-
Fe2O3 photocatalysis: case study of mining and kraft pulp mill effluents. Environmental Technology (United Kingdom) 39(12), 1586-1596. http://dx.doi.org/10.1080/09593330.2017334093


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Stratoudakis Y., Oliveira P.B., Teles-Machado A., Oliveira J.M., Correia M.J., Antunes C. 2018. Glass eel ( Anguilla anguilla) recruitment to the river Lis:


Edited Special Issues of Journals


Calheiros C. 2018. Special Issue: Recent Progress of Constructed Wetland for Wastewater Treatment, ISSN 2074-444L.Water, MDPI.


Lopes G. 2018. Topical collection: Marine Drugs in the Management of Metabolic Diseases, Marine Drugs


Sousa E. 2018. Special Issue: Old Pharmaceuticals with New Applications, Pharmaceuticals (ISSN 1424-8247).

Sousa E., Cidade H., Afonso C. 2018 Special Issue: Xanthones: Themed Issue in Honor of Professor Madalena Pinto on the Occasion of Her 70th Birthday, Molecules (ISSN 1420-3049).
Development of new tools for the identification of plants

Thesis title: Chiara Gabriele Santos
Name: Co-Supervisor: Anake Kijjoa
Faculty/University: Graduate School of Khon Kaen University, Thailand

Development in Pharmaceuticals

Doctoral Programme/Doctoral Degree: Pharmaceutical and constituents
philoxeroides extract in menopausal-like models and its chemical
Neuropharmacological effects of alternanthera

Thesis title: Charinya Khamphukdee
Name: Co-Supervisor: Madalena Pinto
Supervisor: Anake Kijjoa
Faculty/University: FCUP, University of Porto

Completed PhD theses

Name: Alexandre Firmino Diógenes
Thesis title: Potential of corn distillers dried grains with solubles (DDGS) in diets for turbot (Scophthalmus maximus) and gilthead seabream (Sparus aurata)
Doctoral Programme/Doctoral Degree: Biology
Faculty/University: FCUP, University of Porto
Supervisor: Helena Peres
Co-Supervisor: Aires Oliva Teles
Date: July 2018

Name: Ana Vanessa Basto Regueiras
Thesis title: Symbiotic relationships between cyanobacteria and marine sponges: abundance, geographical distribution, phylogeny and chemodiversity
Doctoral Programme/Doctoral Degree: Biology
Faculty/University: FCUP, University of Porto
Supervisor: Vitor Vasconcelos
Date: December 2018

Name: Caroline Medeiros Martins de Almeida
Thesis title: Sequências didáticas eletônicas com ferramentas metacognitivas no Ensino Superior do Brasil e de Portugal: construção e avaliação
Doctoral Programme/Doctoral Degree: Teaching Sciences and Mathematics
Faculty/University: Lutheran University of Brazil, Brazil
Supervisor: Paula Tadeu Lopes
Co-Supervisor: Maria João Santos
Date: September 2018

Name: Chadaporn Prompanya
Thesis title: Study of bioactive secondary metabolites from the marine sponges and marine sponge - associated fungi
Doctoral Programme/Doctoral Degree: Biomedical Sciences
Faculty/University: FCUP, University of Porto
Supervisor: Anake Kijjoa
Co-Supervisor: Madalena Pinto
Date: September 2018

Name: Charinya Khamphukdee
Thesis title: Neuropharmacological effects of alternanthera philoxeroides extract in menopausal-like models and its chemical constituents
Doctoral Programme/Doctoral Degree: Pharmaceutical and Development in Pharmaceuticals
Faculty/University: Graduate School of Khon Kaen University, Thailand
Co-Supervisor: Anake Kijjoa
Date: January 2018

Name: Chiara Gabriele Santos
Thesis title: Development of new tools for the identification of plants using chloroplast DNA sequences
Doctoral Programme/Doctoral Degree: Biology
Faculty/University: FCUP, University of Porto
Supervisor: Filipe Pereira
Co-Supervisor: Vitor Vasconcelos
Date: May 2018

Name: Cidália Maria Teixeira Gomes
Thesis title: Molecular and evolutionary genetics of invasive bivalves
Doctoral Programme/Doctoral Degree: Biomedical Sciences
Faculty/University: ICBAS, University of Porto
Supervisor: Agostinho Antunes
Co-Supervisor: Vitor Vasconcelos, Lúcia Guilhermino
Date: May 2018

Name: Elham Davarpanah
Thesis title: Effects of microplastics, nanomaterials and other environmental contaminants on marine organisms
Doctoral Programme/Doctoral Degree: Marine and Environmental Sciences
Faculty/University: University of Porto, University of Aveiro, University of Algarve
Supervisor: Lúcia Guilhermino
Date: December 2018

Name: Eva Catarina Costa Amorim
Thesis title: Integrated approach for the evaluation of fish nursery in a temperate estuary
Doctoral Programme/Doctoral Degree: Biomedical Sciences
Faculty/University: ICBAS, University of Porto
Supervisor: Adriano A. Bordalo
Co-Supervisor: Michael Elliot, Sandra Ramos
Date: May 2018

Name: Glenise Bierhalz Voss
Thesis title: Okara (by-product of soya beverage): Potential application in food and aquafeed
Doctoral Programme/Doctoral Degree: Biotechnology
Faculty/University: FCUP, University of Porto
Supervisor: Manuela Pintado
Co-Supervisor: Luís Valente
Date: September 2019

Name: Joana Cristina da Costa Lemos
Thesis title: Using zebrafish as a biological model to study ionizing radiation effects
Doctoral Programme/Doctoral Degree: Pathology and Molecular Genetics
Faculty/University: ICBAS/FMUP, University of Porto
Supervisor: António Paulo Carvalho
Co-Supervisor: Luís Metello
Date: July 2018

Name: Márcia Lima
Thesis title: Ferramenta numérica de análise do impacto de intervenções de defesa costeira na evolução da linha de costa: custos e benefícios
Doctoral Programme/Doctoral Degree: Civil Engineering
Faculty/University: University of Aveiro
Supervisor: Fernando Veloso Gomes
Co-Supervisor: Carlos Daniel Borges
Date: May 2018

Name: Maria João Dias Peixoto
Thesis title: Seaweeds as functional aquafeed ingredients: Modulation of nutrient metabolism and stress responsiveness in aquaculture species
Doctoral Programme/Doctoral Degree: Animal Sciences

...
Faculty/University: ICBAS, University of Porto
Supervisor: Rodrigo Ozório
Co-Supervisor: José Fernando Gonçalves, Rui Pereira (Alagplus Lda.)
Date: December 2018

Name: Patrícia Alexandra Correia Oliveira
Thesis title: Effects of environmental contaminants on the exotic invasive bivalve Corbicula fluminea (Müller, 1774)
Doctoral Programme/Doctoral Degree: Marine and Environmental Sciences
Faculty/University: University of Porto, University of Aveiro, University of Algarve
Supervisor: Lúcia Guilhermino
Date: July 2018

Name: Paulo Neves Coelho
Doctoral Programme/Doctoral Degree: Law
Faculty/University: FDUP, University of Porto
Supervisor: Marta Chantal Ribeiro
Date: September 2018

Name: Pedro Miguel Macedo Geada
Thesis title: Development and optimization of cultivation systems and techniques in order to improve cyantoxin productivity and cost effectiveness
Doctoral Programme/Doctoral Degree: Bioengineering MIT Portugal
Faculty/University: University of Minho
Supervisor: Bruno Fernandes
Co-Supervisor: Vitor Vasconcelos
Date: April 2018

Name: Sisandra Lurdes de Campos Pacheco e Ruela de Sousa
Thesis title: Microscopic morphology of the liver of the guppy (Poecilia reticulata)
Doctoral Programme/Doctoral degree: Marine and Environmental Sciences
Faculty/University: University of Porto, University of Aveiro, University of Algarve
Supervisor: Eduardo Rocha
Co-supervisor: Maria João Rocha
Date: December 2018

Name: Tiago João Fazeres Ferradosa
Thesis title: Reliability analysis applied to the optimization of dynamic scour protections for offshore windfarm foundations
Doctoral Programme/Doctoral degree: Civil Engineering
Faculty/University: FEUP, University of Porto
Supervisor: Francisco Taveira Pinto
Date: September 2018

Name: Tiago Vinicius Zanella
Thesis title: A proteção do ambiente marinho e os limites à liberdade de navegação: contributo para a análise das restrições à navegação marítima internacional criadas para a proteção do meio marinho
Doctoral Programme/Doctoral degree: Law
Faculty/University: University of Lisbon
Supervisor: Fernando Loureiro Bastos
Co-supervisor: Marta Chantal Ribeiro
Date: November 2018

Name: War War May Zin
Thesis title: Bioactive secondary metabolites from marine-derived fungi
Doctoral Programme/Doctoral degree: Biomedical Sciences
Faculty/University: ICBAS, University of Porto
Supervisor: Anake Kijjoa
Co-supervisor: Madalena Pinto
Date: February 2018

Completed Master theses

Name: Adrián Delgado Ollero
Thesis title: Benthic cyanobacteria biodiversity and potential toxicity from the northern hydrographic region of Portugal
Master degree: Inland Water Quality Assessment
Faculty/University: Facultad de Ciencias, Universidad Autonoma de Madrid, Spain
Supervisor: Vitor Vasconcelos
Co-supervisor: Vitor Ramos
Date: September 2018

Name: Adriana Maria dos Santos Ferreira
Thesis title: Desenvolvimento de um algoritmo para a deteção automática de ondas internas no oceano para altímetros no modo SAR (Sentinel-3A)
Master degree: Surveying Engineering
Faculty/University: FCUP, University of Porto
Supervisor: José Carlos da Silva
Co-supervisor: Meric Srokosz
Date: November 2018

Name: Agatha Gil
Thesis title: Cetáceos na Zona Económica Exclusiva Continental Portuguesa: distribuição espaço-temporal e registo de novas ocorrências
Master degree: Ecology and Environment
Faculty/University: FCUP, University of Porto
Supervisor: Isabel Sousa Pinto
Date: December 2018

Name: Alessandra Alves Muniz
Thesis title: Population structure of chub mackerel (Scomber scolias) in the northeast Atlantic inferred from natural tags
Master degree: Environmental Sciences and Technology
Faculty/University: FCUP, University of Porto
Supervisor: Alberto Teodorico Correia
Co-supervisor: Paulo José Talhadas dos Santos
Date: December 2018

Name: Alexandra Gonçalves Meira
Thesis title: Predation of freshwater bivalves by invasive crayfishes
Master degree: Ecology
Faculty/University: University of Minho
Supervisor: Randaldo Sousa
Co-supervisor: Francisco Arenas
Date: 2018

Name: Ana Almeida Aguilar
Thesis title: Avaliação do estado ecológico da orla litoral no município de Ovar: o caso de estudo da monitorização de anfíbios da Barrinha de Esmoriz/Lagoa de Paramos e da caracterização da Interface Mar-Barrinha  
Master degree: Biological Aquatic Resources  
Faculty/University: FCUP, University of Porto  
Supervisor: Natividade Vieira  
Co-supervisor: Paulo Silva  
Date: November 2018

Name: Ana Beatriz Teixeira Ribeiro  
Thesis title: Determination and risk evaluation of PAHs and PCBs in seawater samples collected at north and south of the Vila do Conde ornithological reserve  
Master degree: Marine Sciences - Marine Resources  
Faculty/University: FFUP, University of Porto  
Supervisor: Maria João Rocha  
Co-supervisor: Eduardo Rocha  
Date: December 2018

Name: Ana Cristina Rafael Joice Coutinho  
Thesis title: Development and characterization of pH-sensitive fucoidan-chitosan nanoparticles for oral delivery of methotrexate to lung cancer cells  
Master degree: Pharmaceutical Chemistry  
Faculty/University: FFUP, University of Porto  
Supervisor: Maria de La Salette Rodrigues  
Co-supervisor: Carlos Afonso  
Date: July 2018

Name: Ana Filipa Moreno Contente Costa  
Thesis title: Too warm for the seas urchin? The effect of temperature on the metabolism and fitness of the European purple seachurch, Paracentrotus lividus  
Master degree: Marine Sciences - Marine Resources  
Faculty/University: ICBAS, University of Porto  
Supervisor: Francisco Arenas  
Co-supervisor: Vânia Freiras  
Date: December 2018

Name: Ana Luísa Fernandes Silva  
Thesis title: Estudo de seca na Península Ibérica usando o Google Earth Engine  
Master degree: Surveying Engineering  
Faculty/University: FCUP, University of Porto  
Supervisor: Nelson Ribeiro Pires  
Co-supervisor: Maria Joana Fernandes  
Date: December 2018

Name: Ana Margarida Rijo Vieira Fernandes  
Thesis title: The role of microplastics and bacteria in host-pathogen interactions  
Master degree: Environmental Contamination and Toxicology  
Faculty/University: ICBAS/FCUP, University of Porto  
Supervisor: Benjamin Costas  
Co-supervisor: Lúcia Guillermino  
Date: December 2018

Name: Ana Margarida Subtil Campos  
Thesis title: Azorean macroalgae (Petalonia binghamiae, Halopteris scoparia and Osmundea pinnatifida) bioprospection: A study of composition and bioactivity  
Master degree: Faculty of Sciences, University of Lisbon  
Supervisor: Carlos Cardoso  
Co-supervisor: Maria Teresa Rebelo  
Date: October 2018

Name: Ana Sofia de Castro Lavrador  
Thesis title: Molecular tools for labelling and monitoring Bacillus subtilis probiotics in vivo  
Master degree: Biological Aquatic Resources  
Faculty/University: FCUP, University of Porto  
Supervisor: Claudia R. Serra  
Co-supervisor: Aires Oliva Teles, Ana Couto  
Date: December 2018

Name: Ana Sofia Ferreira de Almeida Ramos  
Thesis title: Exploiting the bioactive potential of microbial small molecules for the development of next generation antimicrobials  
Master degree: Biological Aquatic Resources  
Faculty/University: FCUP, University of Porto  
Supervisor: Claudia R. Serra  
Co-supervisor: Aires Oliva Teles  
Date: December 2018

Name: Ana Sofia Pereira de Brito  
Thesis title: Development of cultivation methods for Ulva intestinalis and Laminaria ochroleuca, native seaweed species with commercial value  
Master degree: Biological Aquatic Resources  
Faculty/University: FCUP, University of Porto  
Supervisor: Isabel Sousa Pinto  
Co-supervisor: Isabel Azevedo, Tânia Pereira  
Date: December 2018

Name: Ana Visković  
Thesis title: Evaluation of health status in European sea bass (Dicentrarchus labrax L.) juveniles fed diets with partial replacement of fish meal by microalgae meal  
Master degree: Mariculture  
Faculty/University: Department of Aquaculture, University of Dubrovnik, Croatia  
Supervisor: Ana Couto  
Co-supervisor: Francisco Guardiola, Kruno Bonačić (UNIDU), Vlasta Bartulović (UNIDU)  
Date: September 2018

Name: Ana Sofia Cordeiro Silva  
Thesis title: Efeito do fotoperíodo e da temperatura no desenvolvimento embriônario e larvar de diferentes espécies marinhas: Argyrosomus regius, Diplodus sargus, Solea senegalensis e Sparus aurata  
Master degree: Marine Sciences - Marine Resources  
Faculty/University: ICBAS, University of Porto  
Supervisor: Pedro Pousão Ferreira  
Co-supervisor: José Fernando Gonçalves  
Date: December 2018

Name: André Couto Cardoso  
Thesis title: Grazing preferences on native and non-native macroalgae  
Master degree: Biological Aquatic Resources  
Faculty/University: FCUP, University of Porto  
Supervisor: Francisco Arenas  
Co-supervisor: João Franco, Isabel Sousa Pinto  
Date: November 2018

Name: Bárbara Marlene Pinheiro  
Thesis title: Ecotoxicology of Deep-sea Environments  
Master degree: Environmental Contamination and Toxicology  
Faculty/University: ICBAS/FCUP, University of Porto  
Supervisor: Miguel Santos  
Co-supervisor: Luís Filipe Castro  
Date: October 2018
Name: Carlos Diogo Moraes da Costa  
**Thesis title:** Evaluation of the Soil Quality of the Douro Vineyard region: the effect of different modes of production  
**Master degree:** Ecology and Environment  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Ana Bela Cachada  
**Co-supervisor:** Ruth Pereira  
**Date:** December 2018

Name: Carolina Cristina Guimarães da Costa  
**Thesis title:** Medical-veterinary intervention in zoological parks and in the clinical approach of new companion animals  
**Master degree:** Veterinary Medicine  
**Faculty/University:** University of Trás-os-Montes and Alto Douro (UTAD)  
**Supervisor:** José Manuel Almeida  
**Date:** December 2018

Name: Luísa Valente  
**Thesis title:** Enantioselective studies of biodegradation and ecotoxicity of tramadol and its metabolites.  
**Master degree:** Pharmaceutical Chemistry  
**Faculty/University:** University of Porto  
**Supervisor:** Maria Eugénia Pinto  
**Co-supervisor:** Honorina Cidade  
**Date:** November 2018

Name: Célio Dinarte Sousa Neves  
**Thesis title:** Search for new antimicrobial agents: from old pharmaceuticals to new synthetic compounds  
**Master degree:** Pharmaceutical Chemistry  
**Faculty/University:** University of Porto  
**Supervisor:** Maria Eugénia Pinto  
**Co-supervisor:** Honorina Cidade  
**Date:** November 2018

Name: Celso Eduardo Dias Cardoso  
**Thesis title:** Recovery of rare earths from natural waters using carbon-based nanomaterials  
**Master degree:** Chemistry  
**Faculty/University:** University of Aveiro  
**Supervisor:** Cláudia Batista Lopes  
**Co-supervisor:** Maria Eduarda Pereira, Tito Trindade  
**Date:** July 2018

Name: Cláudia Isabel Nunes Coutinho  
**Thesis title:** Manutenção e reprodução em peixe zebra (Danio rerio)  
**Master degree:** Marine Sciences - Marine Resources  
**Faculty/University:** ICBAS, University of Porto  
**Supervisor:** Hugo Santos  
**Co-supervisor:** Luísa Valente  
**Date:** November 2018

Name: Célia Cristina Gonçalves da Costa Santos  
**Thesis title:** Enantioselective studies of biodegradation and ecotoxicity of tramadol and its metabolites.  
**Master degree:** Environmental Contamination and Toxicology  
**Faculty/University:** ICBAS/FCUP, University of Porto  
**Supervisor:** Maria Elizabeth Tiritan  
**Co-supervisor:** Lúcia Guilhermino, Cláudia Ribeiro  
**Date:** November 2018

Name: Diana Maria da Rocha Lopes Rego  
**Thesis title:** Clinic and management of wild animals in zoos and recovery centers and their role in wildlife conservation  
**Master degree:** Veterinary Medicine  
**Faculty/University:** University of Trás-os-Montes and Alto Douro (UTAD)  
**Supervisor:** José Manuel Almeida  
**Date:** October 2018

Name: Diana Santiago dos Santos  
**Thesis title:** Characterization of brown trout fitness and gonadal maturation along the reproductive cycle  
**Master degree:** Marine Sciences - Marine Resources  
**Faculty/University:** ICBAS, University of Porto  
**Supervisor:** Tânia Vieira Madureira  
**Co-supervisor:** Eduardo Rocha  
**Date:** December 2018

Name: Diogo Filipe Carneiro Coelho  
**Thesis title:** Clorobacterias e microalgas autóctones como potenciadoras de crescimento e melhoradoras da estruturas do solo  
**Master degree:** Functional Biology and Biotechnology of Plants  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Paula Gomes  
**Co-supervisor:** Paula Tamagnini, Ruth Pereira  
**Date:** December 2018

Name: Diogo Vilela Pinto Moreira  
**Thesis title:** Contributos para o Plano Estratégico de Gestão de Ativos de um Sistema Multimunicipal de Abastecimento de Água  
**Master degree:** Civil Engineering  
**Faculty/University:** FEUP, University of Porto  
**Supervisor:** Fernando Veloso Gomes  
**Date:** February 2018

Name: Fernanda António Pereira Gonçalves  
**Thesis title:** Aquaculture in Portugal - Principais fatores que contribuíram para a sua estagnação e perspetivas futuras  
**Master degree:** Marine Sciences - Marine Resources  
**Faculty/University:** ICBAS, University of Porto  
**Supervisor:** José Fernando Gonçalves  
**Date:** December 2018

Name: Filipe José Martins Rocha  
**Thesis title:** Recovery of platinum-group elements using graphene nanocomposite  
**Master degree:** Chemical Engineering  
**Faculty/University:** University of Aveiro  
**Supervisor:** Cláudia Batista Lopes  
**Date:** 2018

Name: Gisela Gonçalves Canelas  
**Thesis title:** Efeitos da exposição crónica à diclofenac ao longo de uma cadeia trofica simulada em ambiente marinho. Mestrado Integrado em Ciências Farmacêuticas  
**Master degree:** Pharmaceutical Sciences  
**Faculty/University:** University of Aveiro  
**Supervisor:** Fernando Pessoa  
**Co-supervisor:** Alberto Teodorico Correia  
**Date:** December 2018

Name: Gonçalo Miguel Sousa Coelho  
**Thesis title:** Optimização do Conversor de Energia das Ondas CECO  
**Master degree:** Civil Engineering  
**Faculty/University:** FEUP, University of Porto  
**Supervisor:** Paulo Jorge Rosa Santos  
**Co-supervisor:** Francisco Taveira Pinto  
**Date:** October 2018

Name: Inês Alexandra Martins de Sá  
**Thesis title:** Fishmeal substitution for microalgae in diets for European sea bass (Dicentrarchus labrax) juveniles: effect on growth and feed utilization  
**Master degree:** Biological Aquatic Resources  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Helena Peres  
**Co-supervisor:** Ana Couto  
**Date:** November 2018

Name: Inês Sofia Madeira Duarte  
**Thesis title:** A importância da avifauna selvagem na perspetiva one health  
**Master degree:** Veterinary Medicine  
**Faculty/University:** University of Trás-os-Montes and Alto Douro
Name: João Filipe Guimarães Pinto  
**Thesis title:** Zooplankton dynamics and water quality of the reservoirs from the Alqueva Irrigation System  
**Master degree:** Ecology and Environment  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Rubim Almeida  
**Co-supervisor:** Sara Antunes  
**Date:** November 2018

Name: João Manuel da Silva Mendes  
**Thesis title:** Estudo laboratorial do comportamento da cabeça de um espóran recorrendo a dois tipos de blocos artificiais. caso de estudo: Espinho  
**Master degree:** Civil Engineering  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Fernando Veloso Civil  
**Date:** October 2018

Name: João Paulo Moreira da Silva  
**Thesis title:** Diversity and toxicity and biotechnological potential of subaerial cyanobacteria  
**Master degree:** Biology and Management of Water Quality  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Vitor Ramos  
**Co-supervisor:** Vitor Vasconcelos  
**Date:** December 2018

Name: João Pedro Ribeiro dos Santos  
**Thesis title:** Use of environmental bacteria as plant growth promoters  
**Master degree:** Functional Biology and Biotechnology of Plants  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Olga Maria Lage  
**Co-supervisor:**  
**Date:** October 2018

Name: João Pedro Soares Pereira do Carmo  
**Thesis title:** Enantioresolution, chiral recognition mechanisms and binding of xanthone derivatives on immobilized human serum albumin by liquid chromatography  
**Master degree:** Pharmaceutical Chemistry  
**Faculty/University:** FFUP, University of Porto  
**Supervisor:** Carla Fernandes  
**Co-supervisor:** Carlos Afonso  
**Date:** November 2018

Name: José Carlos Moreira Borges  
**Thesis title:** Criação de bases de dados cadastrais e estudo de transformação de coordenadas do concelho de Matosinhos  
**Master degree:** Surveying Engineering  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Clara Lázaro  
**Co-supervisor:** Elsa Severino  
**Date:** July 2018

Name: José Miguel Reis de Brito e Castro  
**Thesis title:** Transportes Marítimos Internacionais e Implicações nas Infraestruturas Portuárias  
**Master degree:** Civil Engineering  
**Faculty/University:** FEUP, University of Porto  
**Supervisor:** Fernando Veloso Civil  
**Date:** July 2018

Name: Laura Almeida Felício  
**Thesis title:** Study of suspected cases of anticoagulant rodenticides intoxication in dogs.  
**Master degree:** Veterinary Medicine  
**Faculty/University:** University of Trás-os-Montes and Alto Douro (UTAD)  
**Supervisor:** José Manuel Almeida  
**Co-supervisor:** Justina Oliveira  
**Date:** June 2018

Name: Leonor do Amaral Silva Ferreira  
**Thesis title:** Bioactivity screening of cyanobacteria for the isolation of novel anticancer compounds using 2D and 3D cell culture models  
**Master degree:** Environmental Contamination and Toxicology  
**Faculty/University:** ICBAS/FCUP, University of Porto  
**Supervisor:** Ralph Urbatzka  
**Co-supervisor:** Vitor Vasconcelos  
**Date:** November 2018

Name: Luís Ferreira Sousa  
**Thesis title:** Antibiotic effect of manuka honey on *Staphylococcus pseudintermedius* biofilms  
**Master degree:** Veterinary Medicine  
**Faculty/University:** University of Trás-os-Montes and Alto Douro (UTAD)  
**Supervisor:** Paulo Martins da Costa  
**Date:** July 2018

Name: Luís Miguel Forte de Faria Pinto da Silva  
**Thesis title:** Avaliação da qualidade microbiológica de águas da bacia hidrográfica do Rio Minho  
**Master degree:** Biology and Management of Water Quality  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Natividade Vieira  
**Date:** November 2018

Name: Luís Tiago Ferreira Fernandes  
**Thesis title:** Modelação Numérica do Desempenho Hidráulico do Bloco de Proteção Costeira SWED-Block  
**Master degree:** Civil Engineering  
**Faculty/University:** FEUP, University of Porto  
**Supervisor:** Francisco Taveira Pinto  
**Co-supervisor:** Paulo Jorge Rosa Santos  
**Date:** September 2018

Name: Marco António Alves Amaral  
**Thesis title:** Reprodução e cultura de ostra plana (*Ostrea edulis*) em Portugal  
**Master degree:** Biological Aquatic Resources  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Sara Antunes  
**Co-supervisor:** António Correia  
**Date:** October 2018
Name: Maria del Pilar Escribano Rodríguez
Thesis title: Mucosal immune response in skin mucus from ocellar and blind sides of Senegalese sole (Solea senegalensis Kaup) after bacterial challenge
Master degree: Marine Sciences - Marine Resources
Faculty/University: FCUP, University of Porto
Supervisor: Benjamin Costas Refojo
Date: October 2018

Name: Maria Luís de Vilar Correia Brito Bóto
Thesis title: Development of a georeferenced library of native microbial consortia for bioremediation of oil spills
Master degree: Biodiversity, Genetics and Evolution
Faculty/University: FCUP, University of Porto
Supervisor: Ana Paula Mucha
Co-supervisor: Catarina Magalhães
Date: November 2018

Name: Mariana Girão Silva Martins
Thesis title: Endophytic Actinobacteria from Laminaria ochroleuca: a new source of bioactive compounds
Master degree: Cell and Molecular Biology
Faculty/University: FCUP, University of Porto
Supervisor: Fátima Carvalho
Co-supervisor: Pedro Leão
Date: November 2018

Name: Mariana Peneda Paiva Cubal de Almeida
Thesis title: Produtos de Confeitaria: Investigação e Desenvolvimento
Master degree: Veterinary Medicine
Faculty/University: University of Trás-os-Montes and Alto Douro (UTAD)
Supervisor: Paulo Martins da Costa
Date: March 2018

Name: Mariana Pereira dos Santos
Thesis title: A congelação de peixe na produção de conservas: avaliação físico-químicas na Fábrica de Conservas Ramirez
Master degree: Food Science and Technology
Faculty/University: FCUP, University of Porto
Supervisor: Paulo Vaz-Pires
Co-supervisor: Victor Freitas, Margarida Lopes (Ramirez)
Date: November 2018

Name: Mariana Silva Gonçalves
Thesis title: Cultivation of Codium tomentosum and Osmundea pinnatifida, native seaweed species with commercial potential
Master degree: Biological Aquatic Resources
Faculty/University: FCUP, University of Porto
Supervisor: Isabel Sousa Pinto
Co-supervisor: Isabel Azevedo, Tânia Pereira
Date: December 2018

Name: Marta Filipa Peniche da Costa
Thesis title: Efeitos de concentrações ambientalmente relevantes de omeprazol em Sparus aurata: abordagem baseada em biomarcadores
Master degree: Pharmaceutical Sciences
Faculty/University: University Fernando Pessoa
Supervisor: Alberto Teodorico Correia
Date: December 2018

Name: Natália Gonçalves da Silva
Thesis title: Bioactivity screening of marine cyanobacteria for the isolation of novel compounds for obesity related co-morbidities
Master degree: Environmental Contamination and Toxicology
Faculty/University: ICBAS/FCUP, University of Porto
Supervisor: Ralph Urbatzka
Co-supervisor: Mariana Reis, Vítor Vasconcelos
Date: November 2018

Name: Nelly Brugeronelle de Fraissinet
Thesis title: Bioassay-guided discovery of antifouling compounds from cyanobacteria
Master degree: Applied Blue Biotechnology
Faculty/University: University of La Rochelle
Supervisor: Pedro Leão
Date: June 2018

Name: Pedro Oliveira Braga Moreira Biscaia
Thesis title: Estudo de um Sistema Fotovoltaico Flutuante na Reserva de Pesca da Ribeira de Cima
Master degree: Renewable Energy
Faculty/University: FEUP, University of Porto
Supervisor: Paulo Jorge Rosa Santos
Co-supervisor: Francisco Tavares Pinto
Date: March 2018

Name: Pedro Sousa Cruz
Thesis title: Toxicity of mixtures of cyanobacteria and microplastics in aquatic organisms.
Master degree: Environmental Contamination and Toxicology
Faculty/University: ICBAS/FCUP, University of Porto
Supervisor: Vítor Vasconcelos
Co-supervisor: Lúcia Guilhermino
Date: December 2018

Name: Ricardo Jorge Jesus Costa Garcia
Thesis title: Influence of urbanization in an intertidal ecosystem engineer: Chthamalus barnacles and their associated epifauna
Master degree: Marine Sciences - Marine Resources
Faculty/University: FCUP, University of Porto
Supervisor: Purificação Veiga Sánchez
Co-supervisor: Maria João Rocha
Date: December 2018

Name: Ricardo Nuno Costa Luís
Thesis title: Avaliação dos métodos de indução de desova e desenvolvimento larvar do ouriço-do-mar comum, Paracentrotus lividus
Master degree: Biological Aquatic Resources
Faculty/University: FCUP, University of Porto
Supervisor: Maria João Rocha
Date: December 2018
Lividus (Lamarck, 1816)

**Master degree:** Aquaculture  
**Faculty/University:** Superior School of Tourism and Technology of the Sea, Politecnical Institute of Leiria  
**Supervisor:** Silvia Lourenço  
**Co-supervisor:** Ana Margarida Pombo  
**Date:** November 2018

Name: Rinke Corinne Michelle de Groot  
**Thesis title:** Removal of As and Hg from groundwater using the magnetic graphene-based nanocomposites  
**Master degree:** Biology and Management of Water Quality  
**Faculty/University:** University of Porto  
**Supervisor:** Cláudia Batista Lopes  
**Co-supervisor:** Vitor Vasconcelos  
**Date:** 2018

Name: Rita Maria Nunes de Figueiredo  
**Thesis title:** Isolamento e caracterização de estirpes de cianobactérias relevantes do ponto de vista biotecnológico e ambiental  
**Master degree:** Ecology and Environment  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Rita Maria Nunes de Figueiredo  
**Co-supervisor:** Ana Margarida Pombo  
**Date:** November 2018

Name: Sara Raquel Ferreira Araújo  
**Thesis title:** Degradation of oxytetracyclins by process oxidatives avanzados solas utilizing reatores inovadores and respetiva análise ecotoxicológica  
**Master degree:** Environmental Engineering  
**Faculty/University:** FEUP, University of Porto  
**Supervisor:** Raquel Oliveira Cristovão  
**Co-supervisor:** Vitor Vilar, Maria Teresa Neuparth  
**Date:** July 2018

Name: Sofia Gaça Aranha Carvalho Ramos  
**Thesis title:** Diet and trophic position of deep-sea sharks in the South-West Coast of Portugal using stable isotopes analysis and nucleic acids ratios (RNA/DNA)  
**Master degree:** Marine and Coastal Systems  
**Faculty/University:** University of Algarve  
**Supervisor:** Ester Dias  
**Co-supervisor:** Sofia Martins Dias  
**Date:** December 2018

Name: Sofia Martins Dias  
**Thesis title:** Establishment of a feeding protocol to improve survival and growth of whiteleg shrimp (Penaeus vannamei) at RiaSearch  
**Master degree:** Biological Aquatic Resources  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Marisa Almeida  
**Co-supervisor:** Carlos Rocha Gomes  
**Date:** July 2018

Name: Tiago Miguel de Sousa Foz  
**Thesis title:** Phyto remediation of pharmaceuticals by estuarine salt marsh plants  
**Master degree:** Environmental Engineering  
**Faculty/University:** FEUP, University of Porto  
**Supervisor:** Helena Peres  
**Co-supervisor:** Aires Oliva-Teles, Renata Serradeiro  
**Date:** November 2018

Name: Vanessa Alexandre Teixeira de Sá Queiros  
**Thesis title:** Feeding inhibition tests as a tool for seston quality evaluation in lentic ecosystems: salinization impact  
**Master degree:** Ecology and Environment  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Sara Antunes  
**Co-supervisor:** Paulo Jorge Rosa Santos, Hugo Guedes Lopes  
**Date:** July 2018

Name: Tomás Barreira Calheiros Barbosa Cabral  
**Thesis title:** Avaliação do desempenho de um sistema híbrido de aproveitamento da energia das ondas para o quebramar norte do Porto de Leixões  
**Master degree:** Civil Engineering  
**Faculty/University:** FEUP, University of Porto  
**Supervisor:** Francisco Taveira Pinto  
**Co-supervisor:** Paula Borges, Filipe Pereira  
**Date:** November 2018

Name: Sandra Isabel Madureira Nogueira  
**Thesis title:** Avaliação da qualidade da água na Albufeira do Torrão: dinâmica do zooplâncton como biomarcador  
**Master degree:** Ecology and Environment  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Sandra Isabel Madureira Nogueira  
**Co-supervisor:** Sara Antunes  
**Date:** November 2018

Name: Sofia Maria Filipe Amaral  
**Thesis title:** Avaliação do desempenho de um sistema híbrido de aproveitamento da energia das ondas para o quebramar norte do Porto de Leixões  
**Master degree:** Civil Engineering  
**Faculty/University:** FEUP, University of Porto  
**Supervisor:** Heleni Peres  
**Co-supervisor:** Aires Oliva-Teles, Renata Serradeiro  
**Date:** November 2018

Name: Sandra Isabel Madureira Nogueira  
**Thesis title:** Avaliação da qualidade da água na Albufeira do Torrão: dinâmica do zooplâncton como biomarcador  
**Master degree:** Ecology and Environment  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Sandra Isabel Madureira Nogueira  
**Co-supervisor:** Sara Antunes  
**Date:** November 2018

Name: Sara Catarina Moreira Nogueira  
**Thesis title:** Feeding inhibition tests as a tool for seston quality evaluation in lentic ecosystems: salinization impact  
**Master degree:** Ecology and Environment  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Sara Antunes  
**Co-supervisor:** Paulo Jorge Rosa Santos, Hugo Guedes Lopes  
**Date:** July 2018

Name: Ana Margarida Pombo  
**Thesis title:** Establishment of a feeding protocol to improve survival and growth of whiteleg shrimp (Penaeus vannamei) at RiaSearch  
**Master degree:** Biological Aquatic Resources  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Marisa Almeida  
**Co-supervisor:** Carlos Rocha Gomes  
**Date:** July 2018

Name: Tiago Miguel de Sousa Foz  
**Thesis title:** Phyto remediation of pharmaceuticals by estuarine salt marsh plants  
**Master degree:** Environmental Engineering  
**Faculty/University:** FEUP, University of Porto  
**Supervisor:** Helena Peres  
**Co-supervisor:** Aires Oliva-Teles, Renata Serradeiro  
**Date:** November 2018

Name: Sofia Martins Dias  
**Thesis title:** Establishment of a feeding protocol to improve survival and growth of whiteleg shrimp (Penaeus vannamei) at RiaSearch  
**Master degree:** Biological Aquatic Resources  
**Faculty/University:** FCUP, University of Porto  
**Supervisor:** Marisa Almeida  
**Co-supervisor:** Carlos Rocha Gomes  
**Date:** July 2018

Name: Vânia Gonçalves Carvalhido  
**Thesis title:** Development of an Ecotoxicological Test with Soil Microalgae Species  
**Master degree:** Biology and Management of Water Quality  
**Faculty/University:** University of Porto  
**Supervisor:** Sara Antunes  
**Co-supervisor:** Paulo Jorge Rosa Santos, Hugo Guedes Lopes  
**Date:** July 2018
New materials, devices, products and processes, software, computer codes and algorithms

Prototype – GeniuSampler: an autonomous biosampler to capture in situ aquatic microbiomes.


Lopes, C.L., Caetano, M., Santos, M.M., Iglesias, I., Bastos, L.: 3D hydrodynamical numerical model + lagrangian tool for the Azores region based on the ROMS and ICHTHYOP models.

Pires, N.: Development, implementation and validation of sea state bias estimations based on new algorithms and models for global multi-mission satellite altimeter data.

Santos Ferreira, A. M., da Silva, J.C.B.: Computer code (Matlab) for automatic detection of high-frequency events in synthetic aperture radar (SAR) Altimetry for Sentinel-A and B missions. The algorithm is based on wavelets and on the computation of the mean square slope of ocean wind waves.


Pinto, J., Mendes, R.: A java script code was developed to run onboard of an autonomous underwater vehicle (AUV) to autonomously detect, track and survey coastal fronts (i.e. Douro River Plume).

Santos, C., Carneiro, J., Pereira, F.: PlantAligDB: A database of curated nucleotide sequence alignments for plants (http://plantaligdb.portugene.com/cgi-bin/PlantAligDB_home.cgi)
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