# Annual Report 2023

CEN NO TECHOLOGICO DEL MAR

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# ENTRO TECNOLÓGICO DEL MAR



Editing, text and images Centro Tecnológico del Mar-Fundación CETMAR



# TABLE OF CONTENTS

1. Prologue	5
2. Figures	7
3. Projects and services	11
4. Team	
5. Quality	

# Prologue



The *Centro Tecnológico del Mar-Fundación CETMAR* (CETMAR Foundation) worked throughout 2023 on a total of 63 projects and services, mostly of international scope. The aim was continuing to fulfil our mission since the creation of this institution in 2001: the protection and improvement of the marine environment, its resources and all the sectors depending on it.

The execution of these 34 projects and 29 services was possible thanks to the financial support of the European Union, the *Xunta de Galicia* and the National Government. Through different public calls and funding channels they provided the necessary funds to develop the actions proposed by CETMAR and its partners in the different partnerships created.

Up to 226 institutions and entities, mostly research centers, worked side by side with our technicians throughout 2023. Universities, companies, administrations, representatives of the maritime and fishing sector, international and national foundations and technology centers teamed up with the CETMAR Foundation in the search for, among other common objectives, solutions to marine pollution, measures against climate change and actions to ensure the growth of the blue economy.

We set up partnerships with institutions from 32 countries around the world, from France to Georgia, Iceland, Costa Rica, Senegal and the Faroe Islands, and we were able to coordinate a significant part of them based on our experience in project and service management.

We also made progress in meeting the ambitious objectives of the Galician Marine Sciences Program, in which we keep on working hand in hand with all the public institutions with a research activity in marine sciences in Galicia. We coordinate the Program together with the *Consejo Superior de Investigaciones Científicas-CSIC* (Spanish National Research Council) and with the University of Vigo. Just like the Galician Marine Science Program, many of the actions that we performed in 2023 will continue their journey in 2024 and some beyond that horizon. This task will keep active the more than fifty professionals integrating the CETMAR staff, with experts from different disciplines.

Contributing to a healthy marine environment and the sustainable growth of coastal communities and marine professionals is at the core of our daily work. Today we make a stocktaking exercise, but the work continues.

Paloma Rueda Crespo Managing Director Centro Tecnológico del Mar-Fundación CETMAR

# IGURES

## ACTIONS



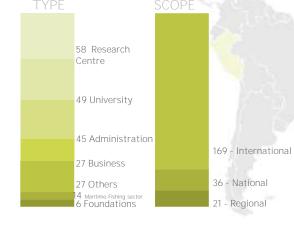
CETMAR CENTRO TECNOLÓGICO DEL MAR



### 226 PARTNERS

DISTRIBUTION BY COUNTRIES

DISTRIBUTION BY COUN	IRIES
Spain	61
Portugal	26
United Kingdom	20
France	18
Greece	11
Denmark	10
Germany	9
Italy	9
Ireland	8
Turkey	8
Norway	7
Netherlands	5
Bulgary	4
Finland	4
Latvia	2
Iceland	2
Perú	2
Polonia	2
Czech Republic	2
Romania	2
Ukraine	1
Sweden	1
Senegal	1
Russia	1
Namibia	1
Moldavia	1
Malta	1
Feroe Islands	1
Hungary	1
Georgia	1
Costa Rica	1
Chipre	1



# **PROJECTS AND SERVICES**



### <u>CLEANATLANTIC</u>

As a result of human activities, marine waste is a serious threat for the marine environment and public health. This project aims to protect biodiversity and the services of the marine ecosystem, improving capacities to prevent, control and remove marine waste from the Atlantic Area by regional cooperation. The Project will contribute to raising awareness between maritime actors and to improve management systems.

### CIRCAZUL

Its general objective is to prevent and fight marine pollution, through capitalization of existing information and knowledge, development and demonstration of waste collection and recovery systems (especially plastic) from the fishing sector. The project also aims to the promotion of partnerships between the different sectors and agents, in line with the principles of the circular economy and with the zero pollution objectives of the Green Deal.

For this, the knowledge created in previous projects will be extracted and valued and access to these projects will be eased. Also knowledge about waste from fishing and port activity and current management systems will be improved.

### ORDEA MAR LIMPO

Technical assistance in the evaluation and monitoring of actions for the protection and recovery of the biodiversity of ecosystems through the collection of marine waste within the framework of the European Maritime and Fisheries Fund.

### PERIOD: 2016/2023

BUDGET: 3.249.241,04 euros

FINANCER: Programa de Transnacional Espacio Atlántico.

Cooperación

Ciear

# Atlantic

PERIOD: 2022/2023

BUDGET: 295.938,19 euros

FINANCER: Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente (MAPAMA).



PERIOD: 2021/2023

BUDGET: 307.698.13 euros

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FINANCER: Xunta de Galicia. Consellería do Mar.



### **BLUEWWATER**

The BlueWWater project aims to improve the quality of fluvial, transitional and coastal water bodies. through the control, monitoring and reduction of emissions of microplastics and emerging pollutants (ECs) into the aquatic environment, through the improvement of the efficiency of urban wastewater treatment stations (WWTP) in both regions, thus guaranteeing a sustainable use of water resources and contributing to the implementation of community regulations.

### PT PROTECMA

Technology Platform whose aim is to develop and implement a research, technological development and innovation strategy for protection of the coast and the marine environment. as well as for prevention, response and mitigation of marine pollution caused by anthropogenic activity, and control and improvement of marine, coastal and transitional waters. This strategy intends to improve the technological capacity and competitiveness of the Spanish organizations which carry out their activity in this field and to contribute to the implementation of the environmental legislation in force and the regional and international agreements for sea and coastal protection.

### MANIFESTS

The MANIFESTS project aims to increase and improve the awareness and capacity of emergency response teams, through the development of advanced methodologies that support training and exercises, as well as improve detection, monitoring, forecasting and response to marine pollution, particularly around gaseous and volatile HNS. It also seeks to improve responsiveness, training and learning for a better response to incidents that these substances may cause on our coastlines.

### PERIOD: 2023/2026

BUDGET: 2.095.847.24 euros



blue water PERIOD: 2020/2023

BUDGET: 80.000 euros

FINANCER: Ministerio de Ciencia e Innovación. Agencia Estatal de Investigación.



PERIOD: 2020/2023

BUDGET: 1.028.456,18 euros

FINANCER: European Commission's Humanitarian Aid and Civil Protection department (ECHO).



### MANIFESTS GENIOUS

MANIFESTS Genius aims to strengthen preparedness and response capabilities for integrated management of coastal water pollution. The main focus will be on the release of HNS, including alternative fuels such as HVO, ammonia, methanol and LNG, which could form a toxic gas cloud and potentially drift towards the impact shoreline and local communities. Two scenarios will be considered: 1) a subsurface leak from a pipeline and 2) a leak at water surface from a port fuelling station or a coastal facility...

PERIOD: 2023/2025

BUSGET: 929.583 euros

FINANCER: European Commission's Humanitarian aid and Civil Protection department (ECHO).

### Free-LitterAT

Free-LitterAT will achieve litter-free coastal communities by combining knowledge, tools and technology with pilot actions with multistakeholder engagement. It tackles marine litter, a transnational challenge demanding an integral approach involvina prevention, monitoring and removal if feasible of accumulated marine litter. The objective is to protect biodiversity by implementing innovative approaches to prevent and reduce marine litter, emphasizing ALDFG and microplastics, contributing to reduce inputs, locate sources and hotspots, enhance monitoring capabilities and raise awareness. Outputs include guidance, tools and joint solutions for waste management, marine litter monitoring, modelling, clean-up and removal. and action plans transferred competent to the authorities and maritime stakeholders.

PERIOD: 2023/2026



BUDGET: 3.765.474,20 euros

FINANCER: Programa de Cooperación Transnacional Espacio Atlántico.

### POEM-PEPA

Royal Decree 363/2017 establishes a framework for the management of the maritime space, which includes a plan for management (POEM) for each of the five marine demarcations. Among others, the MITERD has to carry out an inventory of existing and future uses. Regarding what is related to aquaculture and fishing, Galicia is collaborating with the MITERD through JACUMAR, which made a proposal to the Ministry integrating information from the Regional Communities. CETMAR collaborates with the *Consellería do Mar* by preparing an analysis of interactions of the uses of the coast, organizing workshops with the fishing and aquaculture sectors, developing a tool to support decision-making in maritime spatial planning and with a socioeconomic evaluation of aquaculture in Galicia.

PERIOD: 2020/2022

BUDGET: 198.726,86 euros

FINANCER: Xunta de Galicia. Consellería do Mar.



### PLATICAS

The general objective of PLATICAS is focused on the development of an inter-territorial platform to support standardization, integration, the management, communication and transfer of know-how on sustainable blue growth in the regions of the Spanish Atlantic coast. This platform aims to serve as a reference to optimize the sustainable management of fishing and aquaculture activity, to promote trans-sectoral and interinstitutional collaboration, to seek joint solutions to common problems in these sectors in all regions and to establish the roadmap for future development of knowledge spaces on blue growth

### REGINA

This project aims to improve the participation of regions and local authorities in the preparation of maritime spatial planning, as well as in the implementation of a comprehensive and complementary framework for such planning at national, regional and local levels. Likewise, the integration of initiatives from the different administrative levels and the stakeholders in this process will be eased, in accordance with the principles of the European Green Deal, and promoting greater cooperation at the level of marine basins. CETMAR will develop three case studies: offshore aquaculture planning; integration of tourism in the Maritime Space Management Plans (POEM) and determining the necessary information to integrate underwater noise in the POFM.

### PERIOD: 2022/2023



BUDGET: 475.002,17 euros

FINANCER: Ministerio de Agricultura, Pesca y Alimentación (MAPA).

### PERIOD: 2022/2025

BUDGET: 1.958.144 euros

FINANCER: European Climate, Infrastructure and Environment Executive Agency (CINEA).

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### MARINE TECHNOLOGIES UNIT

CUI BIODIVERSIDAD

The service will focus on improving payload technologies enabling mission autonomous systems with USV. The main activity is the evolution and improvement of the payment load for the control of water quality in emergency situations by means of: Support in the definition of the biodiversity missions with the USV and Identification of the appropriate sensor for the biodiversity missions. Integration of the teams and analysis of the collected data: Inclusion of multiparameter. BABCOCK's Integration of complementary sensors. Surface water sampling system for the subsequent evaluation of biodiversity parameters, and supporting the calibration of the multiparameter measurements. Integration of CETMAR's Side Scan Sonar and evaluation of the use to distinguish different types of habitats.

PERIOD: 2021/2025

BUDGET: 147.200 euros



FINANCER: Xunta de Galicia. Axencia Galega de Innovación.

### ENCOMENDA DXCASCC

The purpose is coordinate the service of the actions and management of the Observatorio Costeiro of the Xunta de Galicia. The evolution of this Observatory opens a new stage to consolidate it as a reference point for Galicia aligned with the main strategies both international (Decade of Ocean Sciences for Sustainable Development, Agenda 2030, European Union Mission: Restore our oceans and waters) and regional (Galician Strategy for Climate Change and Energy 2050, Galicia Digital Strategy 2030, Galician Strategy for Artificial Intelligence 2030 or the future Galician Strategy for blue economy)

### ENCOMENDA OBSERVATORIO COSTEIRO

Acquisition of oceanographic and meteorological information relevant to the sustainable management of the aquaculture sector in Galicia within the framework of the Coastal Observatory. Objective: Obtaining relevant information for the sustainable management of Galician aquaculture by improving the network of automatic platform stations (Cortegada, Ribeira, Cíes, A Guarda, Rande Station, Muros) in Galician coastal waters. It will be achieved acquisition, through the commissioning and monitoring of equipment measurement that provides data to assess the models and management support tools.

### PERIOD: 2023/2025

BUDGET: 201.776,56 euros

FINANCER: Xunta de Galicia. Consellería de Medio Ambiente, Territorio e Vivenda.

PERIOD: 2022/2025

BUDGET: 190.000 euros

FINANCER: Xunta de Galicia. Consellería do Mar. Fondo Europeo Marítimo y de Pesca (FEMP).



### MARINE TECHNOLOGIES UNIT

### PATRULLERAS 2022

CETMAR supports the Consellería do Mar by monitoring the design and construction of two patrol boats suitable for inspection and fishing surveillance, control and support to the Galician fishing fleet. These vessels will collaborate in maritime search and rescue operations, in addition to participating in activities to combat marine pollution. The center will provide technical support to the Subdirección Xeral de Gardacostas de Galicia, a unit dependent on the Consellería do Mar and in charge of surveillance, search, rescue and protection of the marine environment in Galician waters, in all the construction phases of the patrol boats, coordinating their execution and verifying their adequacy to the offer...

### ENCOMENDA GARDACOSTAS

The Directorate General of Fisheries, Aquaculture Technological and Innovation, of the Consellería do Mar, has placed an order with the CETMAR Foundation to cover the technical office service for the monitoring of the file "Development and acquisition of innovative solutions for the improvement of public emergency services and management of marine resources of the Xunta de Galicia (Civil UAVs Initiative). Lot 3. Maritime research and fishing related services" as support to the sustainable management of the aquaculture activity..

### ENCOMENDA APROMEX

Assigned by the Consellería do Mar to give support through CIMA. Objectives: Support to the development and fine-tuning of systems for the analysis of mussel populations in rocky intertidal habitats. Use of low-cost geospatial techniques. Evaluation of the usefulness and performance of longlines with collecting ropes in mussel production areas. Mussel production under controlled hatchery conditions for introduction into pan culture. Dissemination and extension of work and results.

### PERIOD: 2021/2025

BUDGET: 147.200 euros

FINANCER: Xunta de Galicia. Axencia Galega de Innovación.

### PERIOD: 2022/2023

BUDGET: 65.994,36 euros

FINANCER: Fondo Europeo Marítimo y de Pesca (FEMP).

### PERIOD: 2022/2023

BUDGET: 319.808,05 euros

FINANCER: Xunta de Galicia. Consellería do Mar y Fondo Europeo Marítimo y de Pesca (FEMP).

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### MARINE TECHNOLOGIES UNIT

### <u>CAPTA</u>

Most human activities lead to greenhouse gas emissions, while nature offers us carbon sinks such as salt marshes or seagrass meadows known as "Blue Carbon Ecosystems". These high- biodiversity ecosystems offer traditional services such as fishing or shellfish gathering, which already today become affected by climate change. CAPTA aims to establish the basis for the development of joint policies and planning instruments to achieve climate neutrality and strengthen coastal ecosystem services, improving their resilience. CAPTA will allow the creation of a framework for crossborder cooperation, making available homogeneous procedures and comparable information on climate risks so as to define joint actions. .

PERIOD: 2022/2026



BUDGET: 2.452.183,79 euros

FINANCER: Fondo Europeo de Desarrollo Regional FEDER- Programa Interreg V-A España-Portugal (POCTEP).





### <u>BRIDGE</u>

The project aims to know the situation of the Black Sea marine ecosystem, to evaluate its resilience and to create the necessary mechanisms to manage these ecosystems sustainably. BRIDGE-BS is based on a unique concept that links oceanographic dynamics to resilience, services, ecosystem multiple stressors and blue innovation. The results of the project will be intended to demonstrate how a resilient ecosystem in the Black Sea can be sustained while promoting the development of blue economy sectors. The Centro Tecnológico del Mar-Fundación CETMAR co-leads knowledge transfer activities with a special focus on the connection between science public and management.

### PREP4BLUE

Framed in the "Oceans, Seas and Waters Mission" of the European Union, the objective of the PREP4BLUE project is to develop the necessary R&D implementation modalities to achieve the objectives of the Mission and facilitate a successful first phase (2022-2025). The results of the project will allow the missions to develop and pilot technological and social innovation, business models and governance; emphasizing the methodologies that will allow the co-design and joint implementation of solutions with citizens and interested agents. To this aim work will be carried out in collaboration with the fishing and scientific sectors.

### LIFE CIBBRINA 2.0

The main objective is to minimize and, where possible, eliminate bycatch of priority endangered, threatened and protected (ETP) species through cross-border and cross-sectoral cooperation of industry, science, authorities and other stakeholders to establish coordinated mitigation, monitoring and evaluation programs at the regional level. Based on the review of current approaches and existing national programs a toolkit will be developed involving new pilot projects performed in a "safe environment" of mutual trust and cooperation among stakeholders, to integrate it into public policy improvements and the implementation of best practices.

PERIOD: 2019/2025



FINANCER: Unión Europea. Horizonte 2020.



PERIOD: 2021/2024

BUDGET: 4.997.690 euros

FINANCER: Unión Europea. Horizonte Europa.



PERIOD: 2021/2028

BUDGET: 12.511.544.24 euros

FINANCER: Programa LIFE.

CIBBR NA



# PROJECTS AND SERVICES

### FISHN'CO

Strengthening of the coordination and collaboration of the Member States of the EU regarding fishing data collection that feed the management decisions of the Common Fisheries Policy. It is intended to reinforce the Multiannual Program for fishing data collection of the EU (EU-MAP) through the development of regional work plans. The work is carried out in the context of the Regional Coordination Groups (RCGs) (North Atlantic, North Sea, Eastern Arctic, Baltic, Large Pelagics and Economic Aspects). CETMAR supports the direction and management of the project, administrative tasks and dialogue with the European Commission, consultations with data users, monitoring of expert contributions and makes results visible to public administrations.

### **SECWEB**

With the common purpose with reinforcina Fishn'co of the coordination and collaboration of the Member States of the EU in fishing data collection that feed the Community Fisheries Policy, this initiative is aimed at developing a support mechanism for planning and execution of administrative and communication tasks. CETMAR's work intended to facilitate is communication between the participants in the extensive network of involved experts to help the planning and management of international meetings and to strengthen the image and give online visibility to the work carried out by the Regional Coordination Groups (RCG). The project will also provide the basis on which to establish a longterm support structure.

### PESCANDO 4.0

Investment project for the technological development and innovation of a multiplatform blockchain solution that improves the traceability, quality and sustainability of fishery products from their extraction to their commercialization. general objective is to The demonstrate, in the value chain of the fishing sector, a safe and reliable system that guarantees the veracity and inalterability of the information associated with the traceability, food safety and sustainability of fishery products.

### PERIOD: 2020/2023

BUDGET: 700.259 euros

FINANCER: Comisión Europea. DG MARE.



PERIOD: 2020/2023 BUDGET: 245.252 euros

FINANCER: Comisión Europea. DG MARE.



PERIOD: 2021/2023

BUDGET: 695.575.69 euros

FINANCER: Fondos Next Generation (EoI).

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PESCANDO 40



### RCG SECRETARIAT

Technical assistance for: Regional Coordination Groups (RCGs) North Atlantic, North Sea and Eastern Arctic (RCG NANS&EA); Baltic (RCG Baltic); Large Pelagics (RCG Large Pelagics); Long Distance Fisheries (RCG LDF); Mediterranean and Black Sea (RCG Med&BS) and Economic Affairs (RCG ECON) to support administrative, organizational and communication By planning and procedures. administrative executing tasks. developing the branding and online visibility of RCGs and developing mechanisms and proposals the intention is to establish a long-term Technical Secretariat structure.

PERIOD: 2022/2023

BUDGET: 150.000 euros



FINANCER: Comisión Europea-DG MARE y Regional Coordination Groups (RCG).

### TENDER MARE DCF

Support service for administrative and branding tasks and online visibility of the Regional Coordination Groups (GCR) to establish a long-term support structure as the GRC Secretariat. The mechanisms have been established in the SECWEB project financed by the DGE MARE (MARE/2020/08). The reliability and accuracy of data are essential for the proper functioning of the Common Fisheries Policy (CFP). For this reason, Regulation (EU) 2017/1004 (DCF) is established to oblige Member States to coordinate their data collection activities within the same marine region. In this context, the RCGs are created with the objective of developing implementing and procedures, methods, guarantees and quality control to collect and process data for further improvement of reliability in scientific advice

### PERIOD: 2023/2024

BUDGET: 55.000 euros

FINANCER: Comisión Europea - DG MARE.

### REDUCE

REDUCE aims to reduce bycatches of marine megafauna (birds, turtles, elasmobranchs and cetaceans) and to increase the possibilities of improving the information for sustainable fisheries management in the Atlantic coasts of the Iberian Peninsula to the East Central Atlantic area off the coast of Africa. CETMAR's role in the project consists mainly in facilitating and boosting the participation of all stakeholders in the discussion processes and in the co-design of bycatch solutions, with the ultimate goal of multiplying the opportunities for the impact of the knowledge and research results generated, and their effective transfer to end users.

PERIOD: 2023/2027

BUDGET: 8.927.513,75 euros

REPORT 2023

FINANCER: Horizon Europe.



EMB

The EMB is a strategic pan-European marine science forum. It functions as independent and nonan governmental advisory body, which identifies scientific and technological challenges and opportunities through foresight activities and other studies to offer policy recommendations. CETMAR participates in the initiative representing the joint interests of the academic organizations of its board; in particular, the three Universities of Galicia and the CSIC and coordinating their efforts in this context with the IEO (with its own representation).

PERIOD: 2018/2023

BUDGET: 35.000 euros



FINANCER: Centro Tecnológico del Mar-Fundación CETMAR.





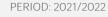
### FISHERY PRODUCTS TECHNOLOGY

### **ATLAZUL**

The objective is to identify challenges, opportunities and generate networks that promote the specialization of the cross-border area in terms of blue growth, as well as to develop innovations in the field of blue growth policies that provide new solutions with digital support, and the improvement of terrestrial and marine knowledge. The Alentejo-Algarve-Andalusia Euroregion, with the additional participation of Galicia, intends to deepen the opportunities by promoting policies that explore the synergies derived from constructive relationships between the different sectors that operate in this field: fishing, aquaculture, marine renewable energies, ports, navigation services, coastal and navigation tourism, biotechnology and coastal marine environment.

### ENCOMENDA SECTOR DEPURACIÓN

The objective of the Good Practices Guide is to serve as a reference for food operators, collecting the most widespread purification systems and handling procedures in Galicia. After its review and approval the competent authorities will take it into account during their activities. The guidelines offered in the guide will be adapted to the particular nature of Galician depuration/trading the sector. The guide will serve as a reference for mollusk purification centers and marine invertebrate dispatch centers in Galicia



PROJECTS AND SERVICES



BUDGET: 5.548.504 euros

FINANCER: Fondo Europeo de Desarrollo Regional FEDER- Programa Interreg V-A España-Portugal (POCTEP). PERIOD: 2023

BUDGET: 65.015,08 euros

FINANCER: Xunta de Galicia. Consellería do Mar.





### AQUAVITAE

Development of innovative solutions for aquaculture production and processes in the Atlantic basin. Thirty five partners from four continents study organisms at the base of the food chain through five value chains: macroalgae; integrated multitrophic aquaculture (IMTA); echinoderms; mollusks and fish. New products and species, optimised production processes and circular economy principles will be implemented in eleven case studies. CETMAR work Foundation leads on communication. training and stakeholder interaction.

### MAT4FISH

The main goal is the development and implementation of а robust, transparent and efficient virtual information infrastructure to meet the needs for mathematical modeling used for the scientific assessment of fisheries. CETMAR will work in the organization and facilitation of the working meetings with the sector. Four workshops with the sector are expected to be developed with a limited number of participants to enable the dialogue.

### ENCOMENDA OPPS

Assignment of the Consellería do Mar to make up an independent opinion of the processing body of the Consellería do Mar responsible to manage and evaluate the work submitted by the Producers' Organizations of Galicia in the framework of their work plans. Experts from CETMAR or, where appropriate, external experts from research centers, with a recognized prestige in the Galician maritimefishing field will make the evaluations. Proposal of recommendations to improve the technical quality of the evaluated studies and the competitive position of the OPPs.

PERIOD: 2017/2024

BUDGET: 8.000.000 euros



PERIOD: 2021/2023

IFO

BUDGET: 15.000 euros

FINANCER: Instituto Español de Oceanografía-

Math 4fish

PERIOD: 2023

BUDGET: 59.654,23 euros

FINANCER: Fondo Europeo Marítimo y de Pesca (FEMP).

REPORT 2023

FINANCER: Unión Europea. Horizonte 2020.



### <u>EMODNET</u>

The main objective of EMODnet Human Activities is to make available the necessary information about the geographic location, spatial extent and the characteristics of a wide range of marine and maritime human activities across Europe. Particular attention is paid to providing, where possible, historical time series to indicate the temporal variation of activities such as fishing, shipping density, and port traffic. The web allows users to view, query and download data and metadata from public and private sources across Europe, through a single entry point.

### REMAP-MSP

Facilitating the application of the Marine Spatial Planning Directive (MSP) in the European Union by developing innovative responses to face specific challenges in each of the Member States (MS) is the objective of this action, which focuses on the follow-up, evaluation and review of the plans presented by each of the MSs. Given the shared nature of the challenges of the MSP, the proposals that come out of this call must be able to be applied at a European maritime demarcation level. CETMAR's main actions focus on developing a module for monitoring socioeconomic and governance aspects and co-development activities with stakeholders, as well as communication and dissemination of project results.

### <u>EUMOFA</u>

Participation in the network of market experts from the European Aquaculture Fisheries and Observatory. EUMOFA is a market intelligence tool aimed at increasing its transparency and efficiency, analyzing the dynamics of community markets, supporting business decisions and the creation of policies. EUMOFA allows direct monitoring of volumes, values and prices of seafood products, from the first sale to the retail stage, including imports and exports. The data come from countries of the European Union, Norway, Iceland and European institutions and are updated every day.

PERIOD: 2020/2025

BUDGET: 1.000.000 euros

FINANCER: Comisión Europea. DG MARE.





BUDGET: 1.917.105 euros

PERIOD: 2021/2025

Remap

FINANCER: European Climate, Infrastructure and Environment Executive Agency (CINEA).

### PERIOD: 2019/2022

BUDGET: 12.000 euros

FINANCER: Comisión Europea. DG MARE.



ENCOMENDA GALPS 23-26

For the new DLP into the FEMPA program, the Ministry needs the collaboration of CETMAR to continue the analysis of this axis with the following tasks: Technical support in the development of FEMPA priority 3; monitoring of projects, indicators and activities developed in the EDLP by the GALP: identification and guantification of the effects of DLP in Galician fishing the sector: development of a framework for the activities of the GALP in the strategic axes of digital and ecological transformation and sustainability; periodic analysis of the socioeconomic impact of GALP, analysis of cooperation initiatives and dynamism in the framework of DLP, and preparation of technical reports for the Ministry

CABFISHMAN

PERIOD: 2018/2023

FINANCER:

BUDGET: 2.482.052 euros

Programa

Transnacional Espacio Atlántico.

The project is intended to facilitate the cooperation of the main actors of small-scale fisheries (SSF) to deal with transnational challenges to improve the protection of marine resources through a better spatial distribution and move towards an ecosystem management approach. At the same time, work is being done on the conservation of biodiversity through the identification and supply of a quantitative evaluation of ecosystem services and advances in knowledge about the impact of the SSF on biodiversity and said services. Finally, cooperation between different actors is addressed to propose solutions for the Atlantic to increase their capacity to develop joint proposals within the Atlantic Strategy Action Plan.

### PERIOD: 2023/2026



FINANCER: Xunta de Galicia. Consellería do Mar.



Cooperación

de

### ENCOMENDA EDLP

Development of guidelines to place EDLPs in European, national and strategic frameworks. regional through the territorial and sectoral involvement of the main strategic frameworks: Agenda 2030, Green Blue Economy, Circular Deal, Economy, Biodiversity 2030, Farm to Fork and Green Action Plan. The identification and analysis of existing literature on initiatives and recommendations for the sustainable development of the marine environment coastal and communities, along possible courses of action for EDLP are expected. Apart from the guide, the organization of a seminar on EDLPs and the European, national and regional strategic framework, the support of the technical criteria for EDLP evaluation and the evaluation of projects and activities developed will be also carried out

PERIOD: 2022/2023

BUDGET: 55.595,50 euros

FINANCER: Xunta de Galicia. Consellería do Mar.



### **BLUE OBSERVATORY**

Service requested by CINEA in the inter-institutional framework contract to support activities related to regulatory improvement, in this case, Lot 2-Sustainable blue economy and ocean affairs. The Observatory will cover all economic sectors of the EU blue economy, operating with a long-term vision and will be jointly coordinated by DG MARE and DG JRC. It aims to collect, harmonize, analyze and disseminate data and knowledge and to conduct market analysis, reports and studies on the EU blue economy to be published. It will report to policy makers on the sustainable blue economy, create an open access website with socioeconomic data on the blue economy to support decision making by public actors and companies

### PERIOD: 2022/2025

BUDGET: 1.797.250 euros

FINANCER: European Climate, Infrastructure and Environment Executive Agency (CINEA).



### EDUCATION & TRAINING

### TRANSFORMAR

Transformar will provide solutions to boost adaptation to climate change. It will promote cooperative innovation to trigger social transformation in six regions, through nature-based measures, innovative technologies, financing, insurance and governance models, awareness raising and behavioral change. In Galicia the project will develop a case study aimed at sectors regarding mussel farming and shellfish gathering.

### AIXOLA 2023

Course program at the "A Aixola" Training Center to train groups that quit the fishing industry to continue working in other activities in the maritime sector. The purely technical training is complemented with activities of social inclusion and promotion of gender equality, offering support in the search for new employment opportunities, and promoting the entrepreneurial and cooperative spirit. The common feature of all training actions is the practical approach to achieve the skills required by the labor market, through workshop learning and projects arising from real needs. The Consellería do Mar is assigning CETMAR the management of this center since 2004.

### <u>CTP</u>

"Catching The Potential: Setting the standard for Sustainable fishing training". CTP will develop an international rule for skills capacity of fishermen regarding sustainable fishing, carrying out an International Cooperation framework between the extractive sector and fisheries teachers. Information will be exchanged throughout a series of seminars regarding best practices and experiences to qualify fishermen in sustainable issues.

PERIOD: 2020/2026

BUDGET: 11.872.256,88 euros

FINANCER: Unión Europea. Horizonte 2020.



PERIOD: 2022/2023

BUDGET: 232.032,99 euros

FINANCER: Xunta de Galicia. Consellería do Mar. Fondo Europeo Marítimo y de Pesca (FEMP).



PERIOD: 2019/2023

Catching F Potential

REPORT 2023

BUDGET: 746.417 euros

FINANCER: Fondo Europeo Marítimo y de Pesca (FEMP).



### **EDUCATION & TRAINING**

### DITMEP

The objective is to contribute to the development of digital skills in employment training centres aimed at training in industrial manufacturing processes. It is planned to generate dual courses, supporting practical training of manual processes with virtual or augmented reality and other innovative schemes adapted to digital training such as "gamification". These capacities will be oriented to the manufacture of composites, a promising area with a growing demand and that requires adequate preparation to minimize both its environmental impact and prevention of occupational risks.

### **GREEN DIVING**

Green Diving will promote green skills in the maritime industry, understood as capacities to reduce environmental impact, and will aim its activity to Vocational Training centres, involving students. future maritime professionals and teachers. CETMAR leads the development of a repository of materials aimed at promoting green skills in maritime training, which will be tested and evaluated by the VT centres that participate in the consortium. Innova+ will organize a teacher training action to promote green skills in the classroom. In addition, a roadmap will be drawn up to integrate these capacities in VT centres, and will promote maritime careers in VT.

### **FLORES**

Forward Looking at the Offshore RenewableS will reinforce the activity of the large-scale consortium promoting the Offshore Renewable Energy (ORE) Capability Pact. FLORES will support the most committed organizations in the promotion of ORE by stimulating the training offer. The consortium will promote training for the new jobs expected in this sector, estimated at between 20.000 and 54,000 over the next five years, and will contribute to improving training opportunities for the current ORE

### PERIOD: 2020/2023

DITMEP

BUDGET: 254.120 euros

PERIOD: 2021/2024

BUDGET: 284.810 euros



PERIOD: 2022/2026

BUDGET: 877.668 euros

FINANCER: Unión Europea. Erasmus Plus.

REPORT 2023

FINANCER: Unión Europea. Erasmus Plus.

FINANCER: Unión Europea. Erasmus Plus.



### EDUCATION & TRAINING

GREEN

GREEN, the European Network for Greener VET, aims to identify, develop, test and evaluate innovative approaches to "greener" education to reduce the environmental impact. It will identify the most relevant green skills for the labor market in six automotive. industrial sectors: energy, batteries, defense, maritime and additive manufacturing. There will be supporting tools to introduce these skills into VET programs and to test them through a training of trainers. CETMAR will coordinate the analysis of needs, reporting the skills needs for the reduction of environmental impact in maritime technologies identified by the MATES project

### AFD 22-23

Courses at the A Aixola Training Center (Marín) of the following training actions for unemployed persons, within the framework of the order of May 13, 2022: Mathematical competence N2 (138 hours), Galician language competence N2 (35 hours) and Spanish language competence N2 (138 hours). These certificates enable students to take the Level 2 Professional Certificates, such as the one for "Preparation and Maintenance of Fishing Gear" taught by the A Aixola Training Center.

### AFD 23-24

Facilitation in the Aixola Training Center (Marin) the following training actions for unemployed people, within the framework of the Order of May 13, 2022: Communication in Spanish N2 (138 hours); Communication in Galician N2 (38 hours); Mathematical competence N2 (138 hours); Auxiliary maintenance operations of structural elements and surface coating of sports and recreational boats (298 hours), and qualification for teaching in grades A, B and C of the VET (330 hours)

PERIOD: 2022/2026

BUDGET: 657.096 euros

FINANCER: Unión Europea. Erasmus Plus.



### PERIOD: 2022/2023

BUDGET: 32.442,60 euros

FINANCER: Xunta de Galicia. Consellería de Promoción do Emprego e Igualdade.

PERIOD: 2023/2024

### BUDGET: 107.128,50 euros

FINANCER: Xunta de Galicia. Consellería de Promoción do Emprego e Igualdade.



### PE1XAN MZ

Improvement of living standards and food and nutritional security in the communities of the Namaacha district (Mozambique), increasing income sources and access to food by reinforcing the fishing and aquaculture sector, strengthening the value chain and the upgrading of food safety.

### CG COMPLEMENTARIO MZ

Specialized technical assistance in the field of the productive sector linked to the fishing and aquaculture value chain in the province of Maputo. The objective is to contribute to the sustainability of the livelihoods of local communities by mitigating the consequences of the State of Public Health Emergency caused by COVID-19. It is intended to increase the income and consumption of foods of high nutritional value in a sustainable manner in the population of the Districts of Namaacha and Boane, with special attention to young people and women.

### 2022 INNOVA ABANICO

CETMAR will render professional services to the consortium made up by AeA and ANFACO, with a technicaleconomic feasibility study for the generation of dehydrated mantle, conceived as a continuous process throughout the project execution. For that purpose, an analysis of the cost structure of the new production line of mantle will be performed to establish the selling price required for the product to be economically viable. A market study will also be carried out to determine the marketing possibilities of the product obtained from the dehydration of fan shell mantle (healthy snack).

PERIOD: 2022/2025

BUDGET: 476.451,15 euros.

FINANCER: Xunta de Galicia. Cooperación Galega.



BUDGET: 196.176,47 euros.

FINANCER: Xunta de Galicia. Cooperación Galega. Fundación Ayuda en Acción. PERIOD: 2022/2023

BUDGET: 571.360 euros.

FINANCER: Agencia Española de Cooperación Internacional para el Desarrollo (AECID).



### 2023-SANPERÚ

Contribute to the improvement of the food and nutritional security rate of the Sechuran population through the addition of hydro-biological products in the **family's** diets. The expected results are: households in Sechura Bay will improve their use of hydrobiological products and schools in Sechura Bay will improve their training and awareness of the consumption of hydro-biological products.

### 2023 IDENTIFICACIÓN GB

This identification seeks to obtain as much information as possible on four of the main strategic areas of the V Master Plan of the Galician Cooperation on Guinea Bissau. A participatory identification based on 5 points is proposed: institutional ability to meet the needs of the sector; analysis of the national fisheries and aquaculture sector and possibilities of intervention: potential identification of beneficiaries and their socioeconomic characterization; identification of potential Galician and Spanish cooperation agents and their work lines to search for synergies, and the map of stakeholders and define their relationship strategies.

### 2023\_GIRA DE PESCADORES SV

CETMAR will render professional services to the consortium made up ACPP and AGARESO, preparing a tour following the visit of three fishermen from El Salvador to Galicia, one from CENDEPESCA and two from the artisanal fishing sector, for a better knowledge of the sector and its development. Answering to the demand for information from the Salvadoran artisanal fishing sector, CETMAR will respond to all their interests by organizing work meetings and visits to prestigious Galician institutions/agencies/organizations, regarding the topic and the interests of the participants, as well as facilitating theory sessions with experts from the sector, delivery of documentation and an evaluation of the visit.

### PERIOD: 2022/2023

BUDGET: 117.047,85 euros

FINANCER: Xunta de Galicia. Cooperación Galega.

### PERIOD: 2022/2023

BUDGET: 15.000 euros

FINANCER: Xunta de Galicia. Cooperación Galega.

BUDGET: 11.239,67 euros

FINANCER: Xunta de Galicia. Cooperación Galega.



2023 AT CUBA

Promote collaboration with the entities and communities from Bahía de Cabañas (Cuba) to strengthen their capacities in the cultivation of mangrove oyster and tilapia. Technical assistance focuses on capacity building with a training and technical support program. Three different phases are proposed: previous work at headquarters to define a training and technical assistance program; one-week fieldwork with a training on mollusk farming improvement, with a special focus on oyster farming and another on fish farming improvement, with a focus on tilapia farming. Finally, a subsequent work at headquarters to measure the level of satisfaction and prepare the final report on the training facilitated and suggestions for their expansion

### RED INVIPESCA 2022-2024

To support the growth of the INVIPESCA Network so it becomes a benchmark regarding international cooperation in marine research lined up with the following strategies: Decade of Ocean Sciences for Sustainable Development, Agenda 2030, Mission of the European Union: Restore our oceans & waters. Support will also continue for the organization of the next edition of the Ibero-American Symposium on Reproductive Ecology, Recruitment and Fisheries-SIBECORP (VI Sibecorp) to be held in 2024.

### INTERCONECTA INVIPESCA

Latin America faces major challenges to achieve SDG 14 ("Undersea Life") of the 2030 Agenda. The management of fishery resources, based on scientific knowledge, is essential for the food and nutritional security of these countries and their economic The INVIPESCA development. promotes collaboration Network between reference institutions in fisheries scientific advice in the region. It aims to establish scientificfisheries priorities, design a roadmap to implement public policies for the management and conservation of fishery resources, develop a training plan in fisheries advice and link science, administration and industry to ensure a sustainable and fair exploitation of fishery resources

### PERIOD: 2023

BUDGET: 21.000 euros.

FINANCER: Xunta de Galicia. Cooperación Galega.

### PERIOD: 2022/2024

BUDGET: 134.885,30 euros.

FINANCER: Xunta de Galicia. Consellería do Mar.



PERIOD: 2022/2023

BUDGET: 25.000 euros

FINANCER: Agencia Española de Cooperación Internacional para el Desarrollo (AECID).



### 2023\_ADELANTE2-Costa Rica

The objective of the project is to train the Costa Rican fishing sector in the use of selective and ecosystemfriendly fishing gear for the benefit of fisheries sustainability and design a training module for Costa Rican fishermen and assess the fishing gear used in the area. This training will take place in the three countries making part of this triangular cooperation: Costa Rica as beneficiary country; Peru as provider country 1 and Spain as provider country 2. Specifically in Spain, the training will be aimed at the fisheries administration and the sector focusing on marine fisheries linked to fishing gear equipment, and traceability of artisanal fishing relationship products and the between the fisheries sector and tourism

### 2023-CR-Identificación SARGAZO

Collaboration of CETMAR with AECID-Spanish Agency for International Development Cooperation, within the framework of a technical assistance service on the Sargasso problem. Although under normal climatic conditions Sargasso forms a valuable ecosystem, supporting oceanic food webs and providing refuge for endemic species, the uncontrolled increase of this marine algae has become a threat to the environment. the economy and public health. The problem of the massive arrival of Sargasso, affecting many coastal countries, has its own characteristics and the approach to the problem presents differences. CETMAR's work will focus on that.

### 2022-FONSECA 3

Collaboration with Engineers Without Borders, within the framework of technical assistance to generate knowledge based on scientific rigor allowing the analysis of the data generated to understand the causes of the mollusk mortality in the Gulf of Fonseca (Honduras) and thus propose recommendations for the recovery of This technical the resource. assistance will be in charge of: development of science-based studies on the sector to promote knowledge among institutions managing the shellfish sector and tests for sustainable recovery of bivalve mollusks in natural areas.

### PERIOD: 2023/2024

BUDGET: 100.000 euros.

FINANCER: Fondo de cooperación triangular Unión Europea–América latina y el Caribe.

### PERIOD: 2023/2024

BUDGET: 5.900 euros.

FINANCER: Agencia Española de Cooperación Internacional para el Desarrollo (AECID).

PERIOD: 2022/2028

BUDGET: 250.000 euros

FINANCER: Xunta de Galicia. Cooperación Galega.



### NATMIRC IV

The project aims to improve NatMIRC's capacity on fishery resources and their fisheries, and favor their sustainable management by a scientific alternative for the historical data of the ICSEAF era. Searching for alternative information and making a reconstruction of the historical series of catches. Exploring a size assessment model with the review of existing assessment models, implementation of the chosen model and analysis of the results obtained. Providing advice on the MSC certification process.

PERIOD: 2023/2025

BUDGET: 99.123,56 euros

FINANCER: Xunta de Galicia. Consellería do Mar.





### MARINE SCIENCIES PROGRAM OF GALICIA

The Marine Sciences Program of Galicia is a unique opportunity for the coordination of Galician marine research and for the reinforcement of its capabilities and results at the service of society. This initiative is inclusive and participatory, conceived from the perspective of involving all stakeholders in these works (quintuple-helix) and under the paradigm of what is known as RRI or Responsible Research and Innovation.

This program has a budget of 10,000,000 with euros, the participation and boost of 250 researchers from multiple disciplines from the three universities of the Galician University System, the four centres of the Higher Council for Scientific Research (IEO, IIM and INCIPIT) and the six technological or research centres of the Xunta de Galicia (CETMAR, INTECMAR, CIMA, IGaFA, CESGA and METEOGALICIA), as well as the Department of the Sea.

The protection and sustainable management of the marine ecosystems services is the main cha

Ilenge of the Marine Sciences Program of Galicia via three main action lines: observation and monitoring of marine and coastal environment; sustainable, intelligent and precise aquaculture and innovation and opportunities of blue economy.

These three great action lines are developed throughout 11 work packages with 38 actions that require 132 activities and 293 tasks that will result in 172 deliverables and 233 milestones, all with the participation of 89 research groups.

L. A.1. Observation and monitoring the marine and coastal environment

The aim of this first action line of the Marine Sciences Program is to create a strategy to monitor the marine ecosystem in Galicia in all its dimensions, with the ultimate goal of achieving the necessary information to guarantee a better and more sustainable use of its resources and services.

The intention is to have a multidisciplinary and interdisciplinary set of highly innovative and efficient tools and technologies to substantia-

Ily improve monitoring and observation of the sea.

Thus, the construction of an integrated data platform in the Galician Supercomputing Centre is planned, as well as the use of heterogeneous information integration tools based on complex modelling, data science and artificial intelligence.

L.A.2. To enhance precise and sustainable aquaculture production

Within the framework of this second line of action, advanced research in genomics will be developed to improve crops and tools for the sustainable supply of seed in bivalve mollusk aquaculture.

At the same time, the aim is to improve strategies for the diagnosis, prevention and control of pathologies and the study of new sustainable farming systems based on integrated multitrophic aquaculture.

L.A.3. Blue Economy. Innovation and opportunities

REPORT 2023

The aim of this third action line of the





Marine Sciences Program of Galicia is to enhance social and economic changes, the transfer, knowledge training and capitalization towards a truly sustainable blue economy, with greater response and transformation capacity to adapt to challenges of the ecological and digital transition in a global change context.

To this end, research will be promoted from the field of social sciences integrated with disciplines from the fields of physics, chemistry, mathematics, biology or geology, among others, to achieve sustainable and resilient development of the Galician coastline.

Measures for adaptation and relief of the pressures and vectors of change that are taking place will also be investigated and concrete proposals will be made to help all stakeholders make decisions.

Finally, the development of an integrated management model for the flow of scientific knowledge in

marine sciences is also planned, specifically adapted to the environmental, sociocultural, economic and institutional context of Galicia.

#### Context

The Marine Sciences Program of Galicia is part of the Joint Program in Marine Sciences -in which the autonomous communities of Galicia, Andalusia, Cantabria, the Region of Murcia and the Valencian Community collaborate- to deploy a joint research and innovation strategy in marine sciences to sustainably address the new challenges in monitoring and observing the marine environment, climate change, aquaculture and other sectors of the blue economy

The Marine Sciences program is one of the eight programs described in the Complementary Plans between the Ministry of Science and Innovation and the autonomous communities, with the aim of creating synergies, aligning the implementation of funds and setting common priorities. The Supplementary Plans are Investment 1 of Component 17 of the Recovery and Resilience Mechanism of the Next Generation EU funds.





MINISTERIO DE CIENCIA E INNOVACIÓN







# TEAM



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Andrea Díaz Rey





The *Centro Tecnológico del Mar*-CETMAR *Fundación*, has a Management System based on the UNE-EN ISO 9001:2015 Regulation that is applied for the following processes regarding use and preservation of the marine environment and its resources.

-Management and coordination of research, development and innovation programs, as well as cooperation for development.

-Services and technical, economic and social surveys.

-Design and implementation of training and spreading activities.

The Management of the *Centro Tecnológico del Mar-Fundación* CETMAR (CETMAR Foundation) is firmly committed to quality standards, to innovation, to security and safekeeping of the information and knowledge managed by this Foundation. CETMAR has a Quality Management System based on ISO 9001:2015. To this end, the Management assumes its involvement in organizing effectively human, material and economic resources to ensure the functioning proper of the Management its System and continuous improvement. CETMAR stands up for prevention rather than correction, as well as for participation and collaboration of all workers as a key element to satisfy the interests of our employees, customers and all organizations interested in our activity.

The Management is responsible for the implementation of the guidelines set out in the quality policy, as well as for its periodic review in order to adapt it to the aims of the organization. The Management is also in charge of communicating the contents of the Management System to all staff and stakeholders.

All this aims to guarantee a quality service subject to continuous improvement.

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001 =



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