





The European broker for Marine Science and Technology

EurOcean, the European Centre for Information on Marine Science and Technology, is an independent, non-profit, scientific organisation, funded in 2002 by the Portuguese Foundation for Science and Technology (FCT) and the French Research Institute for Exploitation of the Sea (Ifremer). EurOcean aims to support European Marine Science and Technology advances, by fostering information exchange, cooperation and collaboration among its members, the ocean community and society.

EurOcean has two types of members. Full members are public or non-profit European marine research, innovation and entrepreneurship, funding and outreach organisations. Cooperating members are organisations, with a regional or global reach, involved in activities complementary to those of EurOcean.



This time of the year is the perfect time to take stock of the year gone by, remembering the importance of the ocean and its pivotal role in controlling and shaping global climate. A similar message can be found in annual reports of other marine organisations around the world, as leaders issue calls to action to work to protect the ocean.

Are these calls to action to any avail, one may ask? Fortunately, it seems so, as new and relevant plans and actions are emerging globally. The most strategic action, encompassing most of the interfaces between human activity and the ocean, is the UN Decade of Ocean Science for Sustainable Development (2021 - 2030), which started taking shape in 2019. Also, the global ocean community came together to mark the decadal event Ocean Obs'19.

True and rapid progress was seen in marine

EurOcean has developed its Strategic Plan to 2025, with the aim to position the organisation as a well recognised and important centre for information exchange in Europe in the field of marine science and technology.

infrastructures, research technology, technology and methods of data acquisition and processing that seems to meet forthcoming challenges.

EurOcean, as always, is accompanying progress in marine science and marine science policy, and is ready to continue to support and promote its principles.

Under the new Executive Director, Sérgio Bryton, EurOcean has developed its Strategic Plan to 2025, with the aim to position the organisation as a well recognised and important centre for information exchange in Europe in the field of marine science and technology, with relevance at national, regional and global scales.



SÉRGIO BRYTON Executive Director

All the above evidence well EurOcean's increasing relevance and capacity in the fields of marine information management, science communication, cooperation and collaboration, as well as the vitality, dynamism and strength of its network.

EurOcean is readier

and more committed

than ever to face a

technology.

remarkable decade

for ocean science and

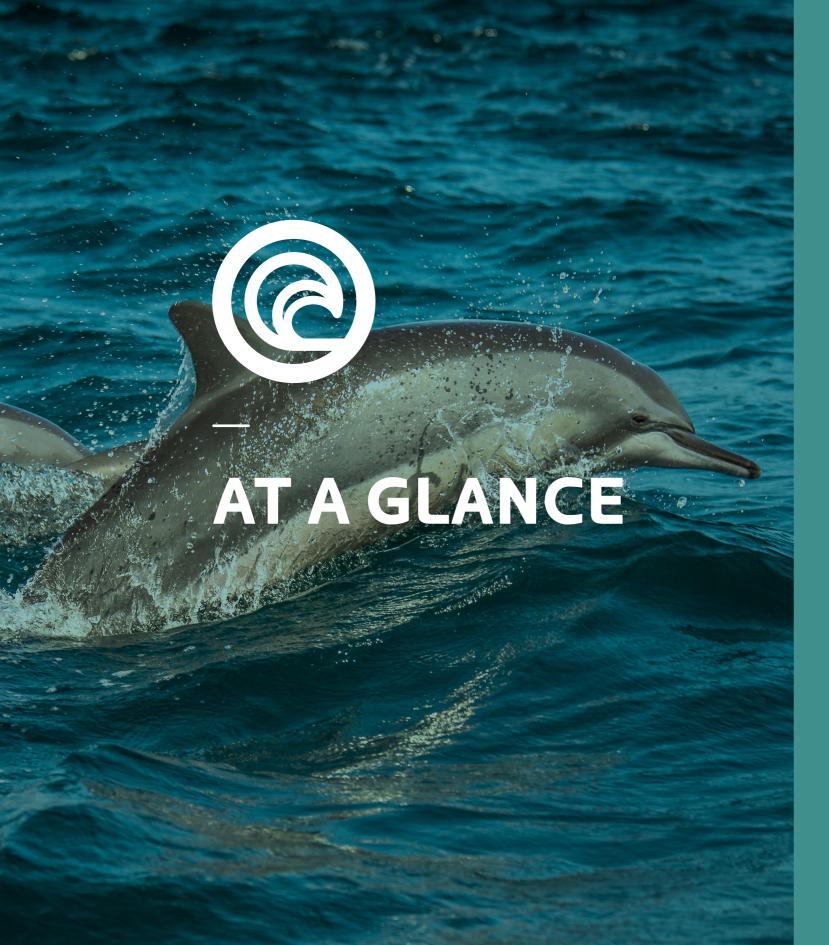
Last, but not least, EurOcean developed its 2025 strategic plan, aiming for a renewed EurOcean - modern, innovative, acknowledged, relevant, useful, and a great place to work.

The United Nations Decade of Ocean Science for Sustainable Development (2021 - 2030) is under preparation. The European Commission presented, last December, the European Green Deal, and the new Horizon Europe (2021 - 2027) is taking shape. EurOcean is readier and more committed than ever to face a remarkable decade for ocean science and technology.

Last year was a good year for EurOcean.

New members strengthened the network and augmented its execution and outreach capacities. New projects were started and approved, new service contracts awarded, and new versions of our information services were released. EurOcean contributed to the success of the United Nations World Oceans Day and to the European Maritime Day, while showcasing its members.

EurOcean's website, social media channels and information services saw the number of visitors and followers rise to unprecedented levels. EurOcean was invited to speak at various events related to ocean science and technology, and provided information for relevant initiatives. EurOcean Skills was launched, right at the end of the year, with an edition focused on science communication for the social media.



The Centre	
Membership	
-	• • • • •
Full Members	
• • • • • • • • • • • • • • • • • • • •	• • • • •
Cooperating Members	

THE CENTRE









Researchers®



Projects⁽²⁾



Information Management



Science Communication



Knowledge Transfer



Project Management

Costal Zone Management



Research **Expeditions**



Naval Military Sciences



MAIN AREAS



Environmental Sciences





Marine and Naval Radioelectronics



Funding

Mechanisms



Writing

Strategy and **Decision Support**



Ocean

Governance

Marine **Biology**

Information

Technologies



Ocean Literacy



Nautical **Engineering**



Research Funds



Organisational Management

 $^{^{(1)}}$ Researchers involved in marine science and technology initiatives.

⁽²⁾ Marine science and technology research projects in the last 5 years (2015 - 2019) as partner.



FULL MEMBERS

Countries



+ 150 Infrastructures⁽¹⁾



+ 3,150 Researchers (2)



+400 Projects⁽³⁾



Biodiversity and **Environmental Stressors**



Cumulative Effects and Impact Assessment



History and Cultural Heritage in

Coastal and Maritime Regions

Light **Pollution**



Marine Spatial

Planning

Fisheries Sustainability and Seafood Value Chain



Marine Renewable Energy



Aquaculture



Alternative

Resources

Multi-uses

of the Sea

Climate Change



Citizen

Science

Polar Research



Geo-archaeology



Research Vessels



Ocean

Monitoring

Acoustic Telemetry and Animal Tracking



and Observatories



Underwater Munition

MAIN AREAS OF EXPERTISE



Biotechnology

Data

Autonomous

Vehicles

Vessel Energy

Efficiency



Noise and **Plastics Pollution**



Sensors and Sensing



Artificial Intelligence



Economy



Youth **Engagement**



Tsunami Prediction



Ecological Risk Assessment



Ecosystem Services



Human and Ocean Health (1) Marine science and technology research infrastructures owned or supported.

(2) Researchers employed or supported involved in marine science and technology initiatives.

(3) Marine science and technology research projects in the last 5 years (2015 - 2019) as partner or funder.

12

13

COOPERATING MEMBERS

14



Countries



+500 Infrastructures⁽¹⁾



+800 Researchers (2)



Projects⁽³⁾





Energy



Deep-ocean Exploration



Migration



Submarine Warfare



Ocean Governance



Electronic Warfare





Organisations⁽⁴⁾

MAIN AREAS OF EXPERTISE



Outreach Monitoring



Maritime **Affairs**



Cohesion **Policy**



Maritime

Secutiry

Ship Repair, Shipbuilding and Naval Engineering



Marine Applied

Communication

Fisheries and Aquaculture



Space Observation

Technologies

Oceanography



Transport and Accessibility



Tourism



Climate

Knowledge of **Coastal Areas**



Marine Biology and Ecology



and Training

⁽¹⁾ Marine science and technology research infrastructures owned or supported.

⁽²⁾ Researchers employed or supported involved in marine science and technology initiatives.

⁽³⁾ Marine science and technology research projects in the last 5 years (2015 - 2019) as partner or funder.

⁽⁴⁾ Associated organisations (i.e. network members).



Membe									
Informa	tion	Mar	nag	en	ner	nt			
Commu		ion	and	d N	et	wc	ork	in	g
Projects	;								
Services		•••		••	••				•
Finance	S								

MEMBERSHIP AND COLLABORATION

NEW FULL MEMBERS

NEW COOPERATING MEMBERS

Blue Ocean Watch Campus Mondial de La Mer Network for Plastics Monitoring in Waters

SUPPORT TO MEMBERS

Identification of opportunities and promotion of participation in project proposals

Provision of tailored information

RESEARCH
INFRASTRUCTURES
TASK GROUP
CREATED TO
ENHANCE THE RID



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PARTNERSHIP WITH TODAY WE HAVE AND IOPAN FOR

THE 2019 I LIVE BYTHE SEA INTERNATIONAL YOUTH, PHOTO AND FILM CONTEST ORGANISATION



DISSEMINATION AND PROMOTION OF MEMBERS

EurOcean Stand at the European Maritime Day 2019 EurOcean website and social media channels

Dedicated articles in the monthly newsletter



SYSTEM IN THE IMPLEMENTATION OF ITS ACTION PLAN, BY MAPPING EXISTING INFRASTRUCTURES AND CAPABILITIES

S.

PROTOCOL CELEBRATED WITH THE DIGITAL TRAINING
INSTITUTE TO DEVELOP JOINT ACTIVITIES AND TO PROVIDE
BENEFITS FOR FULL MEMBERS ACCESSING ITS SERVICES

COLLABORATION
WITH IOC UNESCO
TO DEVELOP THE

TO DEVELOP THE OCEAN INFO HUB CONCEPT

PROVISION OF
DATA TO THE
EUROPEAN ATLAS
OF THE SEAS

COOPERATION OF OPPORTUNITIES
WITH DG MARE

JOINT WORKSHOP WITH SUBMARINER

TO FOSTER COLLABORATION

JOINT OPEN SESSION
WITH THE EUROPEAN
MARINE BOARD ON
RESEARCH VESSELS

PARTICIPATION IN THE PROSPECTIVE COUNCIL OF THE CAMPUS MONDIAL DE LA MER 1 (

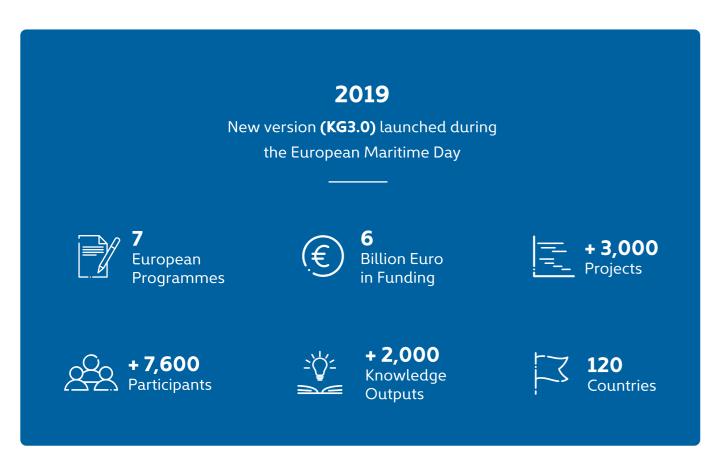
20

INFORMATION MANAGEMENT

KNOWLEDGE GATE

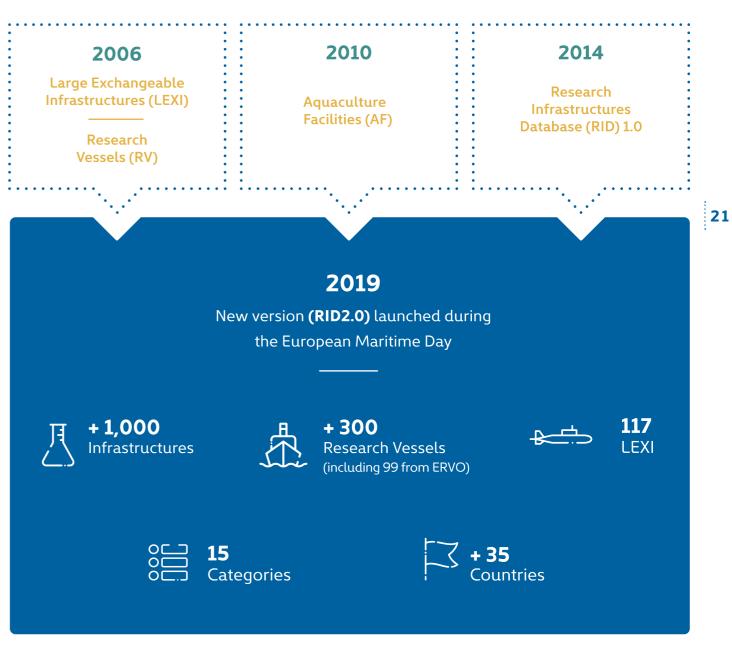
A repository of information about marine science and technology research and innovation projects funded by the European Union and the Member States programmes (FP7, H2020, INTEREG IV, INTEREG V, LIFE, FP6, INTERREG III).

2007	2012	. 2013
MaP	KG 1.0	. KG 2.0



RESEARCH INFRASTRUCTURES DATABASE

A repository of information (technical, scientific and operational) about European marine science and technology research infrastructures (research vessels, underwater vehicles and large equipment, mobile ocean observatories, satellites for sea and ocean observation, flumes and test labs for ocean engineering, marine biology stations, fixed point open ocean observatories, aquaculture research facilities, marine neocosms facilities, in situ tests for ocean renewable energy, deep ocean drilling research facilities, marine data providers, basins, coastal observatories).



COMMUNICATION AND NETWORKING

WEBSITE & SOCIAL MEDIA REACH

WEBSITE





210% Increase in Users



200% Increase in Sessions



180% Increase in Pageviews

FACEBOOK



2+

30%Increase
in Followers



60% Increase in Posts



80%Increase in Likes



110% Increase in Shares

TWITTER



125% Increase

in Followers



560% Increase in Posts



420% Increase in Likes



300% Increase in Shares

LINKEDIN



560%Increase
in Followers

EUROPEAN MARITIME DAY

I Stand

Launch of RID2.0 and KG3.0

Organisation of the AANCHOR stand and workshop

Co-organisation of the AQUA-LIT workshop on marine litter

CO-ORGANISATION OF THE
I LIVE BY THE SEA PHOTO
EXHIBITION COINCIDING WITH
THE EUROPEAN MARITIME DAY
AND THE WORLD OCEAN'S DAY



AND PLASTIC POLLUTION AT ST JULIAN'S SCHOOL, PORTUGAL

SPEAKER AT THE
CAMPUS MONDIAL
DE LA MER GENERAL
ASSEMBLY

CONFERENCE OF OCEANS GOVERNANCE IN ARCHIPELAGIC REGIONS

CONFERENCE STRESS IN THE
OCEAN. FROM MULTIDISCIPLINARY
APPROACHES TO
TRASNSDISCIPLINARY RESEARCH



ROUND TABLE MODERATOR IN CIÊNCIA VIVA'S EVENT COMMEMORATING THE 500TH ANNIVERSARY OF THE CIRCUM-NAVIGATION JOURNEY

PROJECTS

AANCHOR

All Atlantic Cooperation for Ocean Research and Innovation



www.allatlanticocean.org

Aim: To support the implementation of the Belém Statement by building the All-Atlantic Ocean Research Community and to identify concrete collaborative research and innovation activities across the whole Atlantic basin, from pole to pole.

- WP 9 leader - Communication and dissemination.

Major Achievements:

- Development of the All-Atlantic Ocean Research Portal and the Communication Plan.
- EMD Stand and Workshop.

www.aqua-lit.eu

Aim: To provide a sustainable toolbox of innovative ideas and methodologies to prevent marine littering from aquaculture activities and remove and recycle litter from the aquaculture facilities both before litter enters the sea and for litter already existing at sea.

- WP5 leader Scaling up the tide.
- Task 3.3 leader: Monitoring and quantification of AQUA LITTER.
- Task 6.2 leader: Dissemination material.
- Task 6.3.1 leader: Target promotional campaigns, newsletter.
- Task 6.3.2 leader: Public outreach.
- Task 6.4 leader: AQUA-LIT website.

Major Achievements:

- Presentation of project AQUA-LIT results at the ECOMONDO conference.

AQUA-LIT

Preventive Measures for Averting the Discarding of Litter in the Marine Environment from the Aquaculture Industry



- EMD Marine Litter Workshop co-organisation.

MaRINET2

Marine Renewable Infrastructure Network for Enhancing Technologies 2



www.marinet2.eu

Aim: This project builds upon the achievements of the advanced community created in MaRINET FP7. MaRINET 2 will ensure the continued integration and enhancement of all leading European research infrastructure and facilities specialising in research, development and testing of offshore renewable energy systems including electrical sub systems and grid integration through a range of TRLs (1 - 7).

Roles:

- EurOcean is deploying its Marine Research Infrastructures Database (RID) as part of this elnfrastructure.

Major Achievements:

- Selection from the RID of the European marine renewable energy infrastructures related to the project.

CatRIS

Catalogue of Research Infrastructure Services



www.project.catris.eu

Aim: To develop an open, trusted and user-friendly portal to a harmonised and aggregated catalogue of services and resources provided by Research Infrastructures (RI) and Core Facilities (CF) across Europe.

- WP 6 leader: Communication, dissemination and exploitation.

Major Achievements:

- Organisation of a workshop with Research Infrastructures managers.
- Development of the Toolkit for stakeholder engagement and outreach.

www.eurofleets.eu

Aim: Facilitate open access to an integrated and advanced research vessel fleet, designed to meet the evolving and challenging needs of the user community.

- WP 9 leader Dissemination and Communication.
- Task 9.1 leader Plan and support dissemination activities.
- Task 9.5 leader News from the Ocean.
- Task 9.8 Supporting capacity-building and ocean literacy.

Major Achievements:

- Toolkit for communication for young researchers.
- Organisation of a Communication workshop during the Eurofleets+ General Assembly.

EUROFLEETS PLUS

An alliance of European marine research infrastructure to meet the evolving needs of the research and industrial communities



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MARINA

Marine Knowledge Sharing Platform for Federating Responsible Research and Innovation Communities



www.marinaproject.eu

Aim: To create the MARINA Platform, a knowledge sharing online tool aiming at bringing together existing networks, communities, stakeholders, and other platforms to engage all marine stakeholders in Responsible Research and Innovation.

- WP 4 leader Production of the Knowledge Sharing Platform.
- T2.2 leader Projects, tools and information sources identification.

Major Achievement:

- Launch of the final version of the Knowledge Sharing Platform.

www.intaros.eu

Aim: To develop an efficient integrated Arctic Observation System by extending, improving and unifying existing and evolving systems in the different regions of the Arctic.

- WP 7 co-leader Communication and dissemination.
- Task 1.3 leader: Collaboration development and establishment of Pan-Artic Observing Forum.

Major Achievements:

- Development of a new brochure describing project achievements 2016 2019.
- Organisation of a Communication workshop during the INTAROS General Assembly.

INTAROS

Integrated Arctic Observation System



Net Profit

SERVICES

NEW

Communication emso ERIC



Ocean Literacy





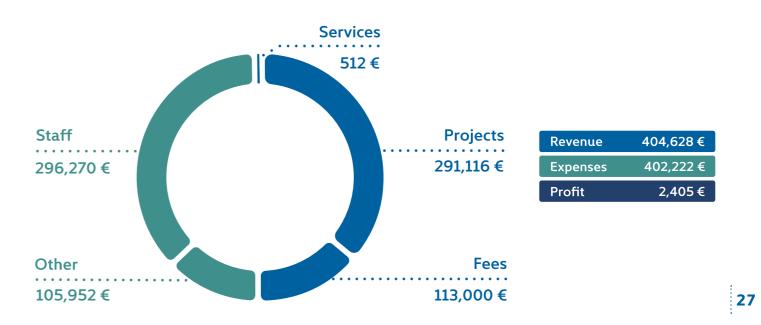
RECURRING

Communication

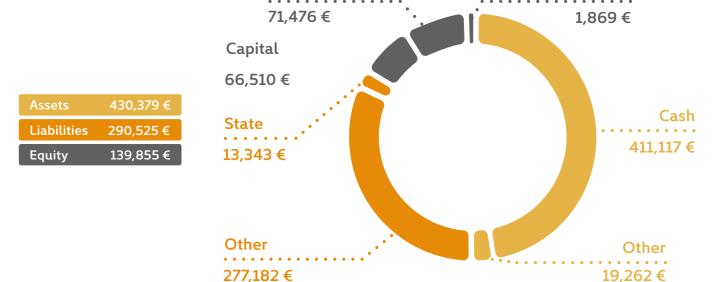


FINANCES

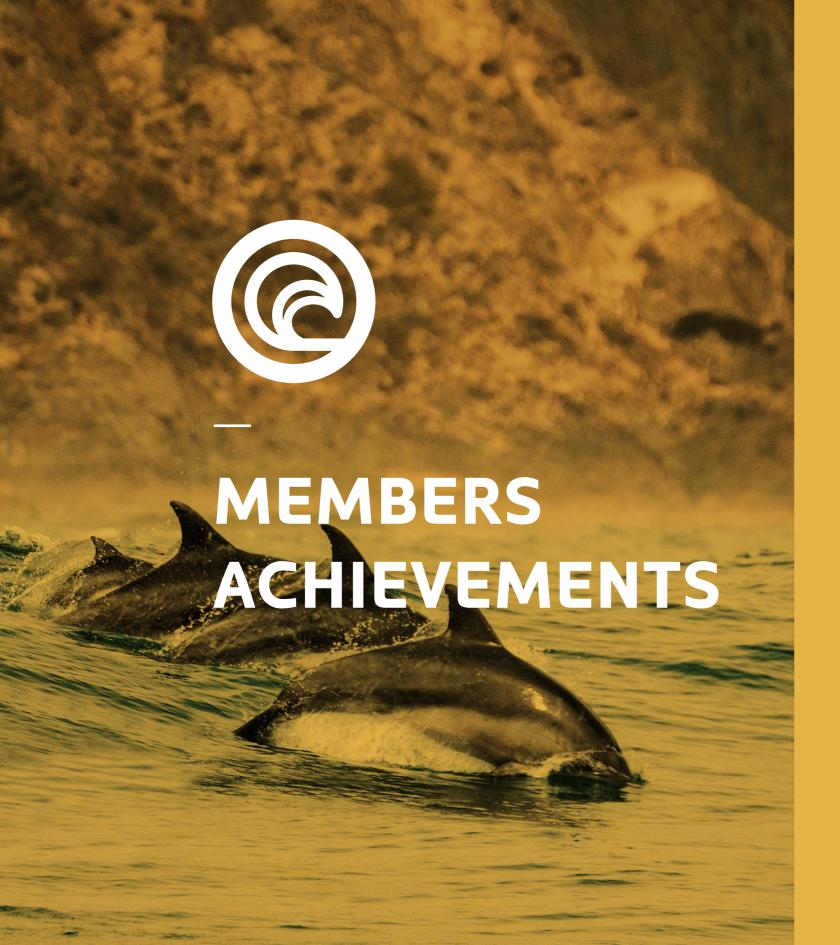
REVENUE AND EXPENSES



ASSETS, EQUITY AND LIABILITIES



Retained Earnings



Full Members

BLUE OCEAN WATCH

SWITZERLAND



During 2019 BOW recruited some important new core members to the team. These include: International Lawyer Michael Davies was brought onboard as in-house lawyer to deal with agreements and contracts. Sparrow Rogers was brought onboard as Director of Strategic Partnerships. Alain-Pierre Raynaud came onboard as Strategy Advisor. Janina Rossiter came onboard as Illustrator, Designer and Social Media developer.

In Summer 2019, our chief scientist Professor Alex More carried out an expedition in Southern Italy and Greece to research past sea levels and ancient civilisations that were affected by the rising sea. BOW videos are currently being produced on the subject.

CESAM contributed to defining a new marine protected area (Natura 2000), the first marine area exclusively dedicated to the conservation of cetaceans (published in the Portuguese 'Diário da República', 2nd series, of the 23rd of Jan 2019).

CESAM also contributed to the preparation of the National Maritime Spatial Planning situation plan (PSOEM) corresponding to the mainland, Madeira and Extended Continental Shelf subdivisions, prepared with CESAM contributions.

This document was based on advanced knowledge on the functioning of the marine ecosystems of the Portuguese sea and identifies potential areas for the development of economic activities.



CNR ITALY



The Italian Oceanographic Commission, hosted by CNR, was the main organiser of the UN Decade of Ocean Science for Sustainable Development 2021 - 2030: Mediterranean Workshop, held 21st - 23rd January 2020 in Venice. Targeting specifically the Mediterranean, the aim of the event, that brought together 159 experts from 32 countries across Europe, Africa, Asia and North America region, was to define and address regional issues and science questions to contribute to the development of the Implementation Plan of UN Decade.

Within the project of Eurofleets+, CNR, leader of Work Package 8 "Foresight: Legacy and Roadmap", established a collaboration with the University of Milano-Bicocca to develop a tailored Strategic Programme for Eurofleets+. The programme was aimed at building competencies that might help beneficiaries to engage a strategic thinking process with the purpose of developing an evolutionary vision and strategy for their new organisation, a long-term sustainable fleets coordination system, and outlining the future research infrastructure developments.

IEO has been granted 63,8 million € from European structural funds to build a new global-class multipurpose and fishery Research Vessel by 2023. The vessel will be able to sail for 45 days without a pit stop, in any ocean of the planet, and will accommodate a crew of up to 25 people and 40 scientists.

The research will cover the whole spectrum of oceanic science ranging from the relationship between the atmosphere and the oceans, to sea life and how organisms in the deep seas are being affected by pollution and rising sea temperatures. The ship will be equipped with the latest technologies for navigation, fishing, surveillance and data collection with full oceanic depth capability.



IFREMER

FRANCE



2019 saw the active involvement of Ifremer scientists in European and international initiatives as well as exceptional discoveries. In May 2019, scientists from Ifremer, the "Institut de physique du globe de Paris" (IPGP), the National Center for Scientific Research (CNRS) and the Geological and Mining Research Bureau (BRGM) discovered a large active volcano, rising 800 metres (2,624 feet) from the seafloor, and sprawling up to 5 kilometres (3.1 miles) across, rising from the Indian Ocean floor between Africa and Madagascar.

On another note, Ifremer organised the international colloquium "marine aging of polymers" with the objective to establish the state of the art in both the knowledge and prediction of the mechanical response of polymers and composites in the marine environment and to propose new research orientations. Ifremer also contributed to the UN Decade of Ocean Science Development with several activities including the organisation of the "Global Ocean Social Sciences" (GLOSS) conference.

Three years of observations of water optics of the Atlantic Water inflow in the Svalbard region resulted in the construction of key bio-optical relationships to estimate chlorophyll a concentration, which is a proxy for phytoplankton abundance.

It was found that variability in optical properties in central Fram Strait is linked to wind patterns in the area, which affect the interaction between Atlantic Water and sea ice, and therefore stratification. The increased stratification stimulates the occurrence of subsurface chlorophyll a maximum that is mostly located below the depth of satellite remote sensing detection limit. In effect, the high proportion of phytoplankton biomass remains undetected by satellite observations in the Arctic Ocean.

POLAND

31





The new Norwegian polar research vessel "Kroprins Haakon" carried out its first Antarctic expedition from the 1st of December 2018 to the 27th of May 2019. During the mission, IMR led a krill survey that produced a new estimate of 60 M tons of krill in the Antarctic fisheries zone.

Another important event was the delivery in March 2019 of the final report for the International high-level panel for sustainable ocean economy co-chaired by the Prime minister of Norway and the president of Palau that was initiated in 2018.

New technology such as Unmanned Surface Vehicles (USVs) for mobile marine data collection was introduced at IMR in 2019 and at the same time a large cabled array for stationary sampling of marine data was installed in Northern Norway, both representing a new era in marine research and monitoring for IMR.

In 2019 FCT has co-organised together with DGPM the OECD Conference Innovation for a Sustainable Ocean: Observatories and Knowledge Networks, where the OECD Report Rethinking Innovation for a Sustainable Ocean Economy was launched. In the area of marine science and technology indicators, FCT has contributed to the project SEAMInd - Monitoring and Indicators to Support the National Ocean Strategy Considering a Sustainable Development Perspective. FCT continues its strong involvement in science diplomacy efforts in the scope of transatlantic cooperation in marine issues namely through the support to the AIR Centre and the coordination of the AANChOR project.





In 2019, the Azores Regional Fund for Science & Technology (FRCT) has been strongly committed to supporting Scientific & Technologic Literacy in the Azores Region. FRCT has promoted several initiatives and projects that boosted society engagement through different dynamics and approaches such as Science Communication Hackathon, International Stakeholder Workshop, Ocean Literacy Conference, Science Fair. The consolidation of FRCT's in the European R&I Agenda allowed FRCT to strengthen its strategy for the internationalization of the Azores Scientific and Technological System (SCTA).

In May 2019, GeoEcoMar organized the "Sustainable Development at the Black Sea" (SUST-BLACK) Conference, at the House of the Romanian Parliament (Bucharest). During this important event, the "Bucharest Declaration" of the scientific community was issued, launching the Strategic Research and Innovation Agenda (SRIA) for the Black Sea. GeoEcoMar is one of the main authors of SRIA, which will play a major role in better knowing the marine basin itself, its opportunities for Blue Growth and for healthier and wealthier coastal communities.

An important part of the GeoEcoMar research activity carried out in 2019 was also focused on preparing for the implementation of the future pan-European research project DANUBIUS-RI - interdisciplinary studies in the river - delta - sea systems.



A team of Irish-led international scientists on board the RV Celtic Explorer have completed the third and final leg of an extensive offshore reef study, after a 21 day expedition investigating sensitive deep-sea habitats at the outer extent of the continental shelf off the southwest of Ireland.

The three year project, called SeaRover (Sensitive Ecosystem Assessment and ROV Exploration of Reef) is led by the Marine Institute and INFOMAR, the national seabed mapping programme, and funded by the European Maritime and Fisheries Fund (EMFF) and the National Parks and Wildlife Service (NPWS). During that time at sea the survey team have mapped 154 separate locations within Ireland's marine territory, in one of the most significant deep-water benthic habitat assessments undertaken in Ireland.

The data and findings will contribute to good fisheries practice and the sustainable management of Ireland's marine biodiversity. The survey utilised the Marine Institute's Remotely Operated Vehicle, ROV Holland 1 to capture high-definition footage of reef habitats up to 3000 m deep, and to recover biological and sediment samples from 52 locations along the continental margin.



NAUSICAA

FRANCE



Heroes of the Sea was the common link of Nausicaá's 2019 activities. Nausicaá redesigned the spaces devoted to the North and Mediterranean Seas, located in the exhibition "Mankind and shores", launched the Blue Living Lab and participated in many European funded projects.

Nausicaá also organised and hosted the European Union of Aquarium Curators congress, organised various events within the Mr. Goodfish program, and signed a partnership agreement with the University of Lille and the CNRS for the development of a new pilot for mass production of microalgae, copepods, rotifers and artemia as well as the larval breeding of fish and invertebrates with high potential.

In 2019 the SUBMARINER network has continued to build up its accelerator and innovation programme to develop concrete blue economy products and services. More than 30 entrepreneurs have received support by SUBMARINER mentors and infrastructures to turn their ideas into real business.

The SUBMARINER website has been revamped to serve as the pan-Baltic blue information platform. Through a series of workshops all members are currently engaged in designing our roadmap of future priority actions. Among others we expect to put attention to novel food and feed products; consumer demands; cross-sector integration; skills development as well as effective deployment of new technologies.



VLIZ

BELGIUN



At the end of 2019 VLIZ celebrated its 20th anniversary. On the 28th November 2019 the festive year 2020 was kicked off. In order to celebrate the anniversary with its extensive network, VLIZ will organise various activities throughout 2020 with the central theme 'VLIZ breaks boundaries'.

EurOBIS - The European Ocean Biogeographic Information System – is hosted by VLIZ and was also celebrated in 2019. For 15 years EurOBIS has been striving to collect as much biogeographical data as possible from European seas or by European researchers outside Europe. 15 years after its creation, the system included no less than 24 million observations for 62,299 species.

