ANNUAL REPORT 2019
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.
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.

“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 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.

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.

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.

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."
THE CENTRE

3 Nationalities

2 Researchers(1)

13 Projects(2)

(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.

MAIN AREAS OF EXPERTISE

- Information Management
- Science Communication
- Knowledge Transfer
- Project Management
- Coastal Zone Management
- Research Expeditions
- Naval Military Sciences
- Geology
- Environmental Sciences
- Marine and Naval Radioelectronics
- Proposal Writing
- Ocean Governance
- Funding Mechanisms
- Strategy and Decision Support
- Marine Biology
- Ocean Literacy
- Nautical Engineering
- Information Technologies
- Research Funds
- Organisational Management
FULL MEMBERS

11 Countries  + 150 Infrastructures(1)  + 3,150 Researchers(2)  + 400 Projects(3)

MAIN AREAS OF EXPERTISE

Biodiversity and Environmental Stressors  History and Cultural Heritage in Coastal and Maritime Regions  Marine Spatial Planning
Cumulative Effects and Impact Assessment  Light Pollution  Fisheries Sustainability and Seafood Value Chain
Aquaculture  Citizen Science  Marine Renewable Energy
Climate Change  Polar Research  Geo-archaeology
Alternative Resources  Ocean Monitoring  Research Vessels and Observatories
Multi-uses of the Sea  Acoustic Telemetry and Animal Tracking  Underwater Munition
Tsunami Prediction  Vessel Energy Efficiency  Ecological Risk Assessment
Human and Ocean Health  Ecosystem Services

(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.
COOPERATING MEMBERS

11 Countries
+ 500 Infrastructures(1)
+ 800 Researchers(2)
+ 65 Projects(3)
+ 80 Organisations(4)

MAIN AREAS OF EXPERTISE

Outreach Monitoring
Maritime Affairs
Cohesion Policy
Ship Repair, Shipbuilding and Naval Engineering
Fisheries and Aquaculture
Knowledge of Coastal Areas
Marine Biology and Ecology
Education and Training

Marine Energy
Deep-ocean Exploration
Submarine Warfare
Ocean Governance
Maritime Security
Marine Applied Communication
Space Observation Technologies
Oceanography

(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).
MEMBERSHIP AND COLLABORATION

NEW FULL MEMBERS
- Blue Ocean Watch

NEW COOPERATING MEMBERS
- 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

PARTNERSHIP WITH TODAY WE HAVE AND IOPAN FOR THE 2019 I LIVE BY THE 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

COLLABORATION WITH THE EUROPEAN OCEAN OBSERVING SYSTEM IN THE IMPLEMENTATION OF ITS ACTION PLAN, BY MAPPING EXISTING INFRASTRUCTURES AND CAPABILITIES

PROTOCол COLLABORATION WITH THE EUROPEAN OCEAN OBSERVING SYSTEM IN THE IMPLEMENTATION OF ITS ACTION PLAN, BY MAPPING EXISTING INFRASTRUCTURES AND CAPABILITIES

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 OCEAN INFO HUB CONCEPT

PROVISION OF DATA TO THE EUROPEAN ATLAS OF THE SEAS

EXPLORATION OF COOPERATION 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

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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, INTERREG IV, INTERREG V, LIFE, FP6, INTERREG III).

<table>
<thead>
<tr>
<th>Year</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>MaP</td>
</tr>
<tr>
<td>2012</td>
<td>KG 1.0</td>
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<tr>
<td>2013</td>
<td>KG 2.0</td>
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<tr>
<td>2019</td>
<td>KG3.0</td>
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</table>

2019
New version (KG3.0) launched during the European Maritime Day

- 7 European Programmes
- 6 Billion Euro in Funding
- +3,000 Projects
- +7,600 Participants
- +2,000 Knowledge Outputs
- 120 Countries

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).

<table>
<thead>
<tr>
<th>Year</th>
<th>Infrastructures (LEXI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Research Vessels (RV)</td>
</tr>
<tr>
<td>2010</td>
<td>Aquaculture Facilities (AF)</td>
</tr>
<tr>
<td>2014</td>
<td>Research Infrastructures Database (RID) 1.0</td>
</tr>
</tbody>
</table>

2019
New version (RID2.0) launched during the European Maritime Day

- +1,000 Infrastructures
- +300 Research Vessels (including 99 from ERVO)
- 117 LEXI

- 15 Categories
- +35 Countries
COMMUNICATION AND NETWORKING

WEBSITE & SOCIAL MEDIA REACH

WEBSITE
- 210% Increase in Users
- 200% Increase in Sessions
- 180% Increase in Pageviews

FACEBOOK
- 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
- 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

LESSON ON OCEAN LITERACY AND PLASTIC POLLUTION AT ST JULIAN’S SCHOOL, PORTUGAL

SPEAKER AT THE CAMPUS MONDIAL DE LA MER GENERAL ASSEMBLY

SPEAKER AT THE INTERNATIONAL CONFERENCE OF OCEANS GOVERNANCE IN ARCHIPELAGIC REGIONS

SPEAKER AT THE INTERNATIONAL CONFERENCE STRESS IN THE OCEAN. FROM MULTIDISCIPLINARY APPROACHES TO TRANSNSDISCIPLINARY 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**

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.

Roles:
- 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.aallatlanticcocean.org**

**AQUA-LIT**

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

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.

Roles:
- WP5 leader - Scaling up the tide.
- Task 3.3 leader: Monitoring and quantification of AQUA LITTER.
- Task 6.2 leader: Dissemination material.
- Task 6.2.1 leader: Target promotional campaigns, newsletter.
- Task 6.3.2 leader: Public outreach.
- Task 6.4 leader: AQUA-LIT website.

Major Achievements:
- EMD Marine Litter Workshop co-organisation.
- Presentation of project AQUA-LIT results at the ECOMONDO conference.

**MARINA**

**Marine Knowledge Sharing Platform for Federating Responsible Research and Innovation Communities**

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.

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

Major Achievements:
- Launch of the final version of the Knowledge Sharing Platform.

**www.marinet2.eu**

**CatRIS**

**Catalogue of Research Infrastructure Services**

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.

Roles:
- 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.project.catris.eu**

**www.eurofleets.eu**

**EUROFLEETS**

**PLUS**

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

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

Roles:
- 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.

**www.eurofleets.eu**

**www.taros.eu**

**INTEROS**

**Integrated Arctic Observation System**

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.

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

Major Achievements:
- Organisation of a Communication workshop during the INTEROS General Assembly.

**www.taros.eu**
MEMBERS ACHIEVEMENTS

Full Members
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.

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 – 22nd 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 ocean 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.

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 spreading 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.
The new Norwegian polar research vessel "Kaptein 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 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 (FRICT) has been strongly committed to supporting Scientific & Technologic Literacy in the Azores Region. FRICT has promoted several initiatives and projects that boosted society engagement through different dynamics and approaches such as Science Communication Hackathons, International Stakeholder Workshop, Ocean Literacy Conference, Science Fair. The consolidation of FRICT’s in the European RE2 Agenda allowed FRICT 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 DANUBUS-RI – interdisciplinary studies in the river - delta – sea systems.

Heroes of the Sea was the common link of Nausicaa’s 2019 activities. Nausicaa redesigned the spaces devoted to the North and Mediterranean Seas, located in the exhibition “Mark and shores”, launched the Blue Living Lab and participated in many European funded projects.

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.
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 organize 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.