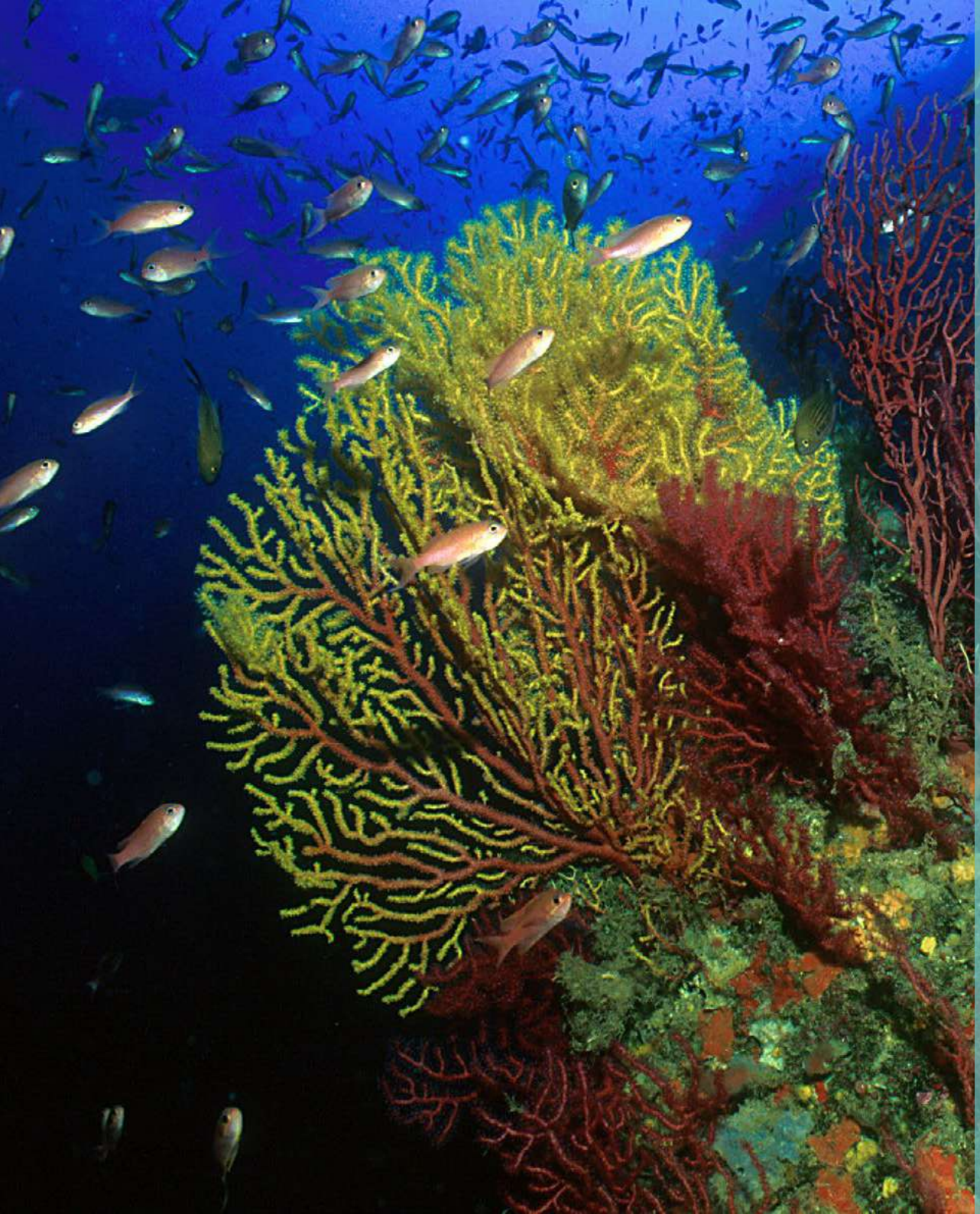


CEAB
Centre d'Estudis Avançats de Blanes

ASPIRA MaX
SELLO ASPIRA-MaX
Josefa Barba

"From the high mountains to the deep sea"

Annual Report 2024

Centre for Advanced Studies of Blanes
(CEAB-CSIC)

MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES | CSIC | CEAB

Editorial coordination

CEAB-CSIC's area of Research Support and Promotion

Texts, design and layout

Strategy, Communication and Outreach Units

Special thanks to the entire CEAB team for their contribution in providing information and materials.

"We are a scientific research centre focused on aquatic biology and ecology.

Scientific research is carried out at national and international levels, with particular expertise in the Mediterranean region.

With a transdisciplinary vision, involving teams with diverse professional backgrounds and employing a wide range of methodologies — from data collection and in situ or laboratory experimentation, to mathematical modelling."

MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES | CSIC | CEAB

In loving memory

Enric “Kike” Ballesteros i Sagarra (1958 - 2024)

The year 2024 has been deeply marked for all of us at CEAB-CSIC by the loss of our colleague and friend Enric “Kike” Ballesteros. His passing leaves a profound void, but also a legacy of inspiration and commitment that we will always carry with us.

Kike was an outstanding biologist and ecologist, internationally recognised for his contributions to aquatic ecosystem science, his passionate advocacy for conservation, and his dedication to scientific outreach and education. A botanist by training, he joined CEAB in 1986 and devoted his career to understanding and preserving both marine and freshwater ecosystems. He led numerous research projects, published extensively, and guided policy-relevant work aimed at mitigating human pressures on natural systems. Between 1998 and 2002 he served as Director of the CEAB, and later headed the Benthic Ecosystem Functioning research group.

Beyond his scientific achievements, Kike stood out as an exceptional communicator, nature photographer, and conservation advocate.

His engagement with global initiatives—such as Pristine Seas of the National Geographic Society—exemplified his commitment to protecting pristine marine areas. In 2016 he was awarded the Premi Medi Ambient by the Institut d’Estudis Catalans, and in 2021 the Tridenti d’Oro by the Accademia Internazionale di Scienze e Tecniche. In 2023 he was awarded the Bluewave Prize, and in 2024 he was named Honorary Member of the Institució Catalana d’Història Natural.

In remembrance, the 2024 edition of our Annual Report features on its cover one of Kike’s photographs of Mediterranean gorgonian “gardens”.

His vision, energy, and humanity leave an indelible mark on the CEAB community and on the broader scientific and conservation world.

CEAB-CSIC Team

From left to right: Ballesteros during a Pristine Seas (National Geographic) expedition; with a seal, with which he developed an unusual bond; and during fieldwork in Albania.


© Octavio Aburto


© Zafer Kizilkaya


© Andy Mann

MARC RIUS
Director

Message from the Director

This annual report is a true testament to an incredible year of research advancements, scientific discoveries, and societal impact. The CEAB team has reached an unprecedented milestone in attracting competitive funding, especially in the international arena, and research activity has been so intense that we have had to continue adjusting certain aspects of the centre's general functioning.

In terms of actions that benefit the centre as a whole, the CEAB was awarded funding through the MaX programme to implement initiatives that will support the centre's application for a national science excellence award. Obtaining the first step of the ASPIRA-MaX excellence award is a game changer for the centre, as it has enabled us to embark on a well-guided and well-advised path, allowing us to carry out a comprehensive self-evaluation of all CEAB strategies that will lead to further improvements. This recognition also aligns with several related positive structural changes: we now have a new external Scientific Advisory Committee, we continue to strengthen research support with new units such as Scientific Communication and Internationalisation, and we foster cross-cutting work through our internal committees. It has also been a year of recognition for individual research efforts, with several awards granted to our research staff, particularly highlighting the social value and impact of our work.

This year we lost an irreplaceable member of the CEAB community and an international leader in marine ecology. Kike's passion for the natural world was contagious and inspired generations of naturalists to pursue their passion. On a personal note, I first met Kike in the late 90s at a professional diving course. I was just starting my research career and had to do some of the sea practical exercises with Kike (who was already legendary) as a diving buddy. The CEAB will pay tribute to Kike in 2025 through the hosting of a special day dedicated to him and his inspiring research, as well as the inauguration of a new space at the centre that will be named in his honour.

Looking ahead to 2025, we aim to continue building on this year's progress. One of our priorities will be to advance the next steps of the MaX programme, while consolidating our international position and reinforcing our leadership in aquatic ecology. We will work on strengthening our cross-cutting research lines, and maintaining our role as a reference centre in multidisciplinary aquatic ecology—covering the unique spectrum from high mountain ecosystems to the depths of the sea. At the same time, we remain committed to fostering excellent science within healthy, ethical, and inclusive working environments.

Congratulations CEAB team for all the hard work in 2024!

CEAB overview

Presentation of CEAB-CSIC

The **Centre for Advanced Studies of Blanes (CEAB) belongs to the Spanish National Research Council (CSIC)**; it is one of its 121 research institutes. It **focuses on the study of aquatic ecosystems**, both marine and freshwater, across the globe, as well as on the development of ecological theory applicable to any ecosystem.

Its creation involved eminent scientists such as Severo Ochoa, Joan Oró and Ramon Margalef, driven by the **vision of establishing a truly multidisciplinary place to advance knowledge** of life and ecosystems. The centre was officially inaugurated in 1985 and is located in the town of Blanes (Girona), overlooking one of the most beautiful coves of the Costa Brava and in close proximity to the wide range of ecosystems it studies.

At CEAB-CSIC, **we generate scientific knowledge on biodiversity, ecology, the effects of global change, and strategies for conservation and restoration. We apply ecological theory across multiple scales and ecosystems, combining observation and experimentation with mathematical modelling.**

This knowledge is not confined to the academic sphere: **we share it with the scientific community, public administrations, the private sector and society at large,** contributing to better management and protection of natural heritage.

Our research is carried out at **regional, national and international levels, with particular expertise in the Mediterranean region.**

CEAB-CSIC

C/ d'accés a la Cala St. Francesc, 14
Blanes – Girona – 17300

Mission, vision & values

Our mission

The mission of CEAB-CSIC is to advance scientific knowledge on the biology, ecology, and biogeochemistry of aquatic ecosystems through exploratory, experimental and theoretical research. CEAB-CSIC **researchers aim to understand the ecological significance and functioning of aquatic ecosystems** in the context of global change, while promoting management actions for the protection and restoration of these ecosystems. Contemporary climate change, anthropogenic pollution and other human-mediated environmental stressors pose severe challenges to human and non-human communities. Most of these communities depend directly or indirectly on aquatic ecosystems. Consequently, implementing conservation management actions in these ecosystems is urgent to ensure a more sustainable future for all.

Our vision

CEAB-CSIC's vision is to preserve our natural heritage by providing detailed scientific knowledge as the foundation for effective ecological restoration of impacted aquatic ecosystems.

Our values

- **Scientific excellence and innovation:** CEAB-CSIC fosters scientific excellence and quality in research, striving for originality and cutting-edge science.

- **Integrity, transparency and accountability:** upholding research integrity and ethical standards, while being honest and transparent with our actions and activities and implementing proper accountability and control measures.

- **Environmental sustainability and social impact:** CEAB-CSIC is committed to environmental sustainability and the social impact of research.

- **Community and collaboration:** CEAB-CSIC values collaboration and teamwork and promotes multidisciplinary and interdisciplinary approaches.

- **Health and well-being:** promoting a caring and respectful environment, CEAB-CSIC prioritises the health, well-being and overall happiness of its members, as well as equality, inclusivity and diversity.

Departments & cross-cutting research lines

CEAB-CSIC's research spans the full continuum of aquatic environments, from high-mountain to the deep sea, encompassing ecological studies across freshwater, coastal and marine systems.

This broad perspective guides our research, combining **field, experimental, molecular and computational approaches** to understand biodiversity, ecosystem functioning and human–environment interactions.

Research is structured around two consolidated departments — Marine Ecology and Ecology of Inland Waters — and three cross-cutting thematic areas. **A new Theoretical and Computational Ecology Department was in the process of being established in 2024.**

Cross-cutting thematic areas

Biodiversity and Ecology

Diversity, structure and functioning of aquatic ecosystems; molecular and microbial ecology; theoretical ecology; population dynamics and behaviour.

Effects of Global Change

Impacts of climate change, pollution, habitat modification and invasive species; socio-ecological interactions; paleoecology.

Conservation and Restoration

Evidence-based strategies for conserving and restoring marine, coastal, freshwater and high-mountain ecosystems.

Research Departments

Department of marine ecology

The Department investigates marine and coastal ecosystems from shallow zones to the open ocean, integrating molecular, biochemical, biogeochemical, biodiversity and socio-ecological studies to support sustainable management, conservation and restoration.

Department of ecology of inland waters*

The Department studies freshwater ecosystems, from mountain streams to rivers and reservoirs, combining microbial, plant and fish ecology, biogeochemical cycles and ecosystem services. A growing emphasis on theoretical and computational approaches enhances predictive understanding of ecosystem dynamics and informs conservation and management strategies.

* It also includes the Theoretical and Computational Ecology Group, which in 2024 initiated the process of establishing itself as an independent department.

Research facilities & services

Singular infrastructures

Our specialised facilities support top-level research and are available to CEAB-CSIC and external users, with some offering advanced services to the wider scientific community.

LOOP - Pyrenees Limnological Observatory: a long-term ecological research facility in the Pyrenees, monitoring lakes, rivers, and atmospheric conditions. It features a field station, automated sensors.

URL - Urban River Lab: a one-of-a-kind experimental facility in Europe, the Urban River Lab studies human-impacted rivers and develops innovative nature-based solutions that can be directly applied in real-world river management.

Clean DNA Lab - DNA Laboratory: a facility for handling, extracting, and processing DNA samples, designed to avoid contamination between samples or with the environment.

CBLab - Computational Biology Laboratory: a computing cluster, providing advanced computing resources for bioinformatics, molecular ecology, and theoretical ecology.

LEOV - Live Organism Experimentation Laboratory: a state-of-the-art facility for marine freshwater and theoretical ecology research, with a large shared aquarium area supplied with flowing seawater and dechlorinated fresh water, automated monitoring systems for small multicellular organisms and instruments for programming environmental variables.

Other facilities and services

The CEAB-CSIC has additional research infrastructures located at its main headquarters in Blanes (Girona, Catalonia). Some of them include associated services operated by expert technicians and are accessible to external researchers.

- Chemical analysis laboratory
- Microscopy
- Organism identification laboratory
- Molecular ecology and genetics laboratory
- Nautical Service
- Diving Station Facilities
- Pigment Analysis
- Microplastics laboratory
- Electron Microscopy
- Otolith Analysis

Our people, structure & governance

People & profiles

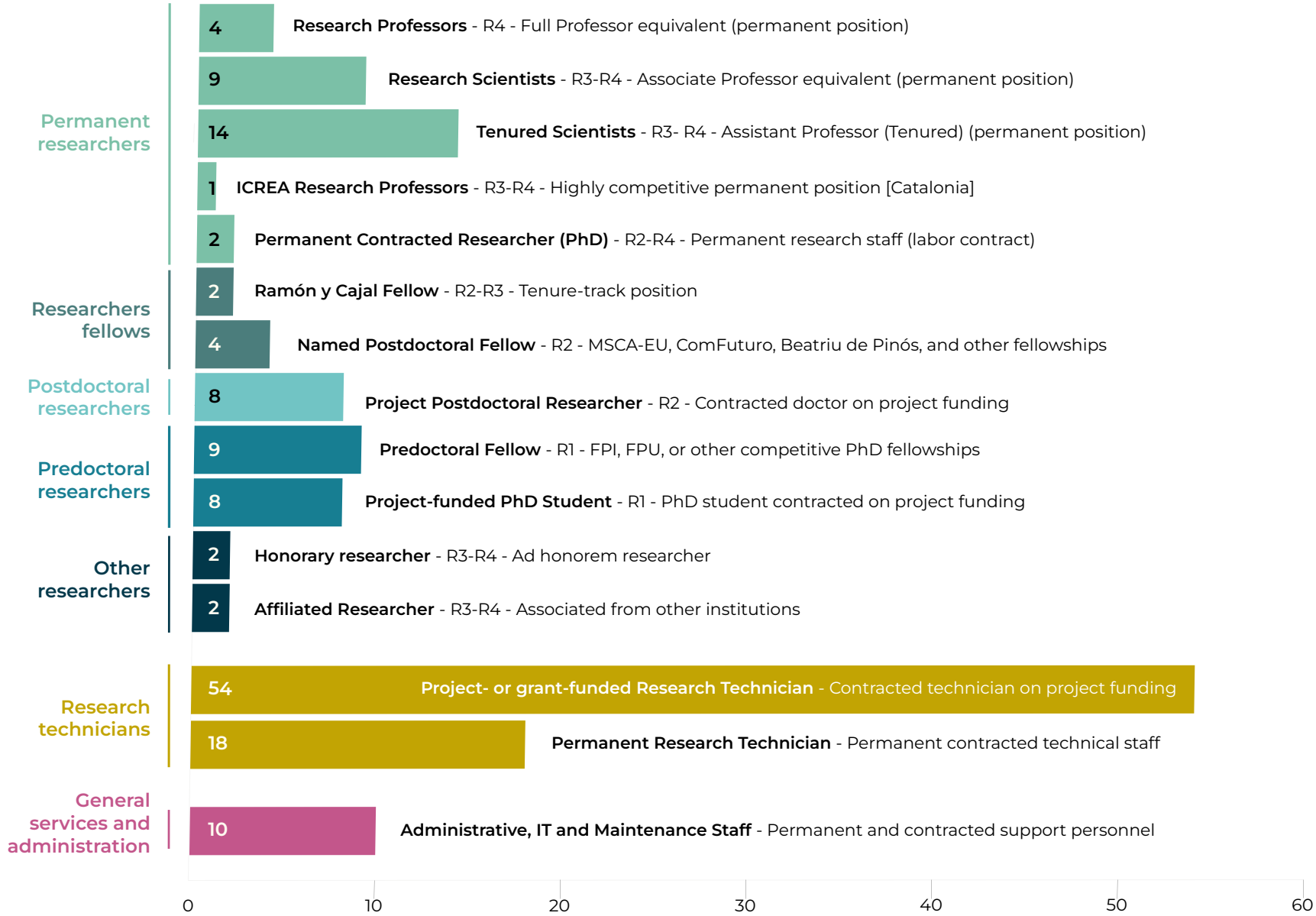
View the full list of researchers and research support staff

147
TOTAL PERSONNEL

65
RESEARCHERS

72
RESEARCH TECHNICIANS

10
GENERAL SERVICES & ADMINISTRATION



DIRECTION

MARC RIUS

Director
Senior Researcher

EUGÈNIA MARTÍ

Deputy director
Senior Researcher

MARC VENTURA

Deputy technical director
Researcher

HEADS OF DEPARTMENT

HELENA GUASCH

Ecology of Inland Waters
Researcher

EMMA CEBRIAN

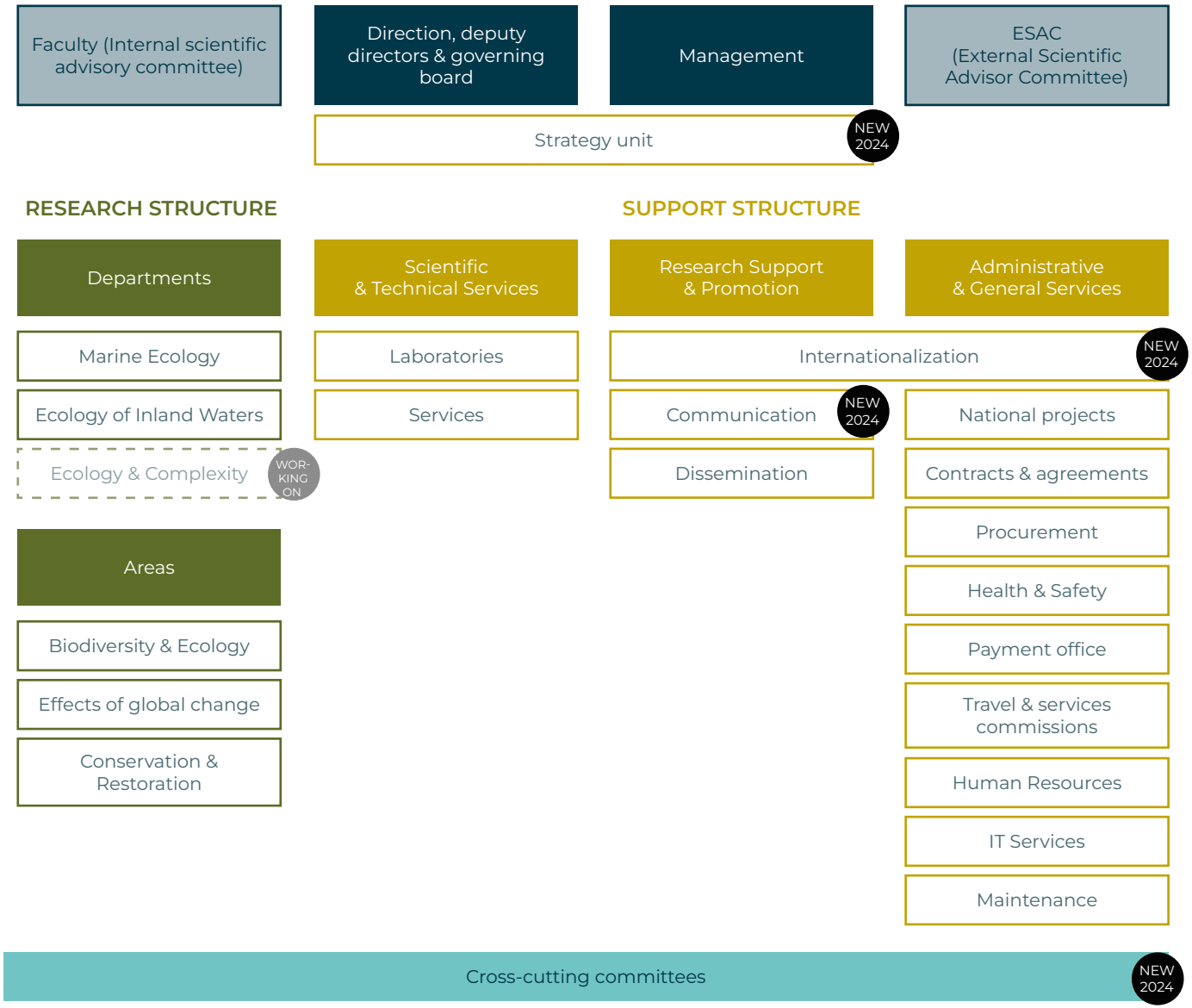
Marine Ecology
Researcher

MANAGEMENT

MARIONA DE PALAU NEW 2024

Head of Administration
Manager

Organizational chart & novelties



* Simplified version of the Center's organizational chart

Organizational chart & novelties

Key organisational changes and new units are being implemented to streamline operations, strengthen leadership, and accelerate strategic and international initiatives, positioning the centre for greater impact and scientific excellence.

Alongside these structural developments, CEAB-CSIC has established **six new cross-cutting committees, fostering cross-disciplinary collaboration and embedding the centre's core values**, including Justice, Equity, Diversity, and Inclusion principles (JEDI), across all activities.

New Management (Administration Head) NEW 2024

A newly appointed Manager supports the scientific leadership by overseeing personnel, procurement, and administrative operations, ensuring the smooth functioning of the centre's daily operations. This new role has led to a reorganisation and strengthened management of all general and administrative services across the centre.

Communication Unit NEW 2024

The professionalisation of the Communication Unit began in mid-2023 with the recruitment of a journalist. During the second half of the year, a comprehensive communication plan was developed. This plan was fully implemented and consolidated throughout 2024, marking a significant step towards a more structured, proactive, and impactful communication strategy.

Internationalisation Unit NEW 2024

The Internationalisation Unit was incorporated into the Research Promotion Area, which already included the Communication and Outreach units. With this expansion, the office becomes larger and more specialised, allowing for a professionalised separation of national and international project units and actively promoting international collaboration. Its creation was made possible thanks to securing the competitive REDINTER funding.

Strategy Unit NEW 2024

Established to coordinate change initiatives and monitor the implementation of CEAB-CSIC's 2024 strategic plan across all units. The unit also drives, coordinates, and monitors the centre's participation in the MaX programme.

Cross-cutting Committees: new structures and values alignment

The Centre has seven committees made up of voluntary members representing the diversity of the centre's staff — including administrative, technical, management, research, and general services personnel.

These committees work on key areas. Each committee follows its own agenda, defined by its specific functions and goals, while remaining aligned with the centre's overall strategy. They also **submit proposals to the Direction and the Board**, and coordinate among themselves to establish a common roadmap and avoid overlaps.

Equality & Inclusivity

Promotes equality and fairness across CEAB by identifying inequalities, analysing their causes, and supporting actions to foster an inclusive and equitable working environment.

NEW 2024

Sustainability

Develops, implements, and monitors the CEAB's Sustainability Plan, addressing social, environmental and economic dimensions, in alignment with CSIC Sustainability Working Group.

NEW 2024

Emotional Wellbeing

Supports the emotional wellbeing of CEAB staff and encourages social and community-building activities to strengthen workplace cohesion.

NEW 2024

Space Management

Defines and applies criteria for office and workspace allocation, ensuring suitability and regulatory compliance, and plans spaces according to staffing needs and strategic direction.

NEW 2024

Ethics & Scientific Integrity

Promotes high ethical standards across CEAB activities, including research conduct and animal experimentation, while encouraging awareness and good practice in academic integrity.

NEW 2024

Mentoring, Scientific-Technical Career & Training

Offers guidance and support for students, technical staff, and postdoctoral researchers, serving as a reference point for career development and scientific–technical growth.

NEW 2024

Scientific Activity

Encourages scientific curiosity and collaboration through seminars, workshops, and other initiatives that foster critical thinking in research and dialogue across the CEAB community.

CEAB international scientific committee

NEW 2024

The External Scientific Advisory Committee (ESAC) is made up of a group of prestigious international scientists, **experts in both the specific and cross-cutting research areas** in which the centre works. Its function is to advise CEAB-CSIC's governing bodies, contributing to the strategic vision and the pursuit of scientific excellence. The committee was newly established in 2024, as part of the **centre's broader renewal process**, to strengthen the quality, impact, and international projection of CEAB-CSIC's research.

Harini Nagendra

Azim Premji University (India)

Director and Professor, School of Climate Change and Sustainability, Azim Premji University. Prof. Nagendra conducts research on forest conservation and urban sustainability, with several seminal publications in both areas of work and with 200+ publications in the field.

Isabel Muñoz

University of Barcelona (Spain)

Professor at the Faculty of Evolutionary Biology, Ecology, and Environmental Sciences and researcher at the UB Water Research Institute (IdRA), with extensive experience on river ecology and the study of aquatic invertebrates, combining fundamental studies with applied projects for river system management.

Karsten Rinke

Helmholtz Centre for Environmental Research (Germany)

Head of the Department of Lake Research at UFZ and Professor of Management and Modelling of Lakes at Brandenburg University of Technology. His extended research career focuses on lake monitoring, modelling, management, and climate adaptation of lentic ecosystems.

Tammy Robinson

Center for Invasion Biology, Stellenbosch University (South Africa)

Professor at the Centre for Biological Invasions and Associate Professor at Stellenbosch University, specialist in marine invasions: introduction pathways, impacts, and management of exotic species, with a particular focus on incursions into marine protected areas.

Alex Arenas

Universitat Rovira i Virgili (Spain)

Professor at the Department of Computer Engineering and Mathematics (DEIM), External Faculty member at the Complexity Science Hub in Vienna and Chief of Complex Systems Science at the Pacific Northwest National Laboratory USA. Researches complex network systems with applications in epidemiology, biology, urban science and other fields.

Lisette de Senerpont Domis

Netherlands Institute of Ecology & University of Twente (Netherlands)

Ecologist at NIOO-KNAW and Professor by special appointment at the University of Twente, holding the chair in "Smart Ecological Monitoring of Aquatic Systems". Researches how human-induced global changes affect aquatic ecosystem functioning and the provision of ecosystem services.

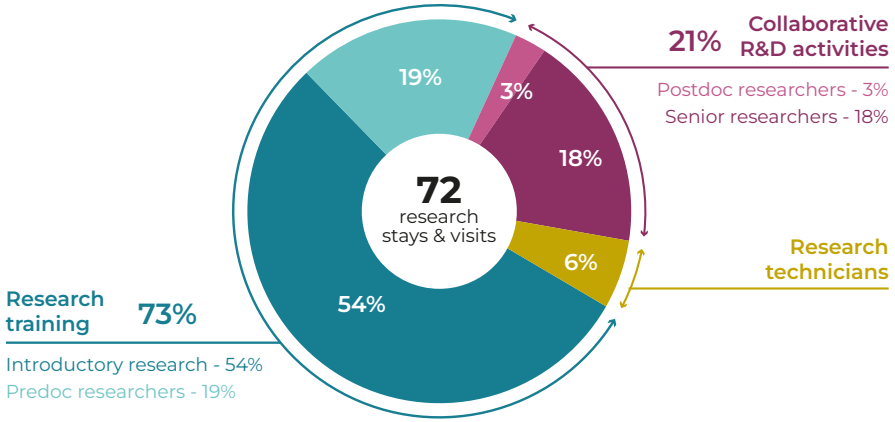
Research stays & visits

In 2024, CEAB-CSIC hosted a total of **72 research stays and visits**, with an average duration of nine months. Most of these stays and visits **(73%) were aimed at training-oriented R&D activities**, including introductory research experiences (secondary school, undergraduate or master's internships) and doctoral student placements (predocs). **Around 21% focused on collaborative R&D activities**, such as visits from postdoctoral researchers or senior scientists. The remaining **6% corresponded to research technical staff stays and visits**, mainly dedicated to learning specific techniques and analytical methods.

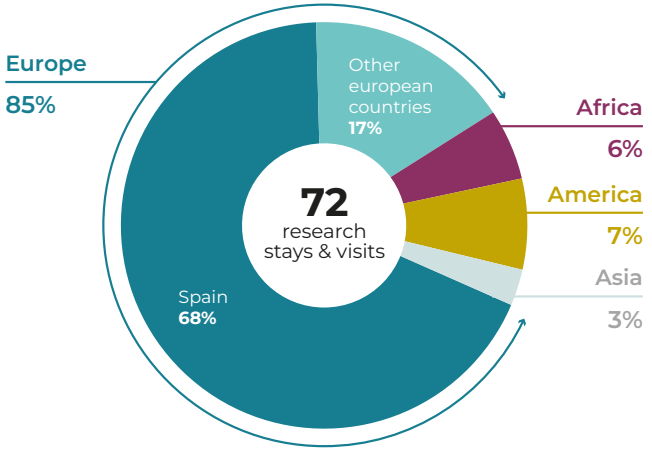
The **majority of participants came from institutions across different regions of Spain (68%)**, followed by **other European countries (17%)** and institutions from **Africa, the Americas and Asia (15%)**. Visiting institutions ranged from public and private research centres and universities to government agencies, companies, foundations and NGOs, with public universities being the most frequent.

The graphics show the percentage% of research stays and visits depending on main activity (left) and institution of origin (right).

Research stays and visits: main activity



Research stays and visits: institution of origin



Some of the institutions of origin:

Universitat de Girona

Institut Pythéas Observatoire des Sciences de l'Univers Aix Marseille Université

ISO 9001:2015 certified
IFAKARA HEALTH INSTITUTE
research | training | services

Netherlands Food and Consumer Product Safety Authority
Ministry of Agriculture, Nature and Food Quality

CONICET

UNIVERSITAT DE BARCELONA

Awards & recognitions

© CSIC

© CSIC

CEAB earns the ASPIRA-MaX “Josefa Barba” Seal of Excellence

In 2024, following an external evaluation by an expert committee, CEAB-CSIC completed the **first phase of CSIC’s MaX Programme, earning the ASPIRA-MaX Seal of Excellence** and a €20,000 grant to support a scientific project aimed at strengthening excellence. This milestone recognises the centre’s scientific and organisational quality and marks a key step in its strategic growth.

“Business for Ocean Sustainability” wins Financial Times Responsible Business Education Award

Led by Rafael Sardà (CEAB-CSIC) with Bocconi University, the McKinsey Global Institute, and the One Ocean Foundation, the project analysed 1,664 companies to map human pressures on the ocean and propose pathways to a “Blue Economy”. The award, in the Academic Research category, recognises **contribution to science-based understanding of corporate responsibility and ocean sustainability**.

Mosquito Alert wins 2023 World Summit Award for digital innovation in citizen science

The international citizen science project, led by CEAB-CSIC, UPF, and CREAF, received the 2023 World Summit Award in the “Smart Settlements and Urbanization” category for its **innovative digital platform engaging citizens to monitor invasive mosquito species**. It collects real-time data supporting public health and mosquito control. The recognition highlights Mosquito Alert’s contribution to healthier, sustainable cities and the UN Sustainable Development Goals.

Iosune Uriz career honoured with Bluewave Award

Maria Jesús “Iosune” Uriz, ad honorem researcher at CEAB, received the Bluewave Award in the Science category, for her **outstanding career and contributions to marine conservation**. A pioneering marine biologist and early adopter of scuba technology, she collaborated with Jacques Cousteau, identified hundreds of sponge species, and discovered molecules with pharmaceutical potential, including cancer treatments. Her work underscores the critical role of oceans in sustaining human societies and reinforces our commitment to excellence.


© Creu Palacín

Òscar Serrano Awarded III Fundació Banco Sabadell Prize for Marine Sustainability

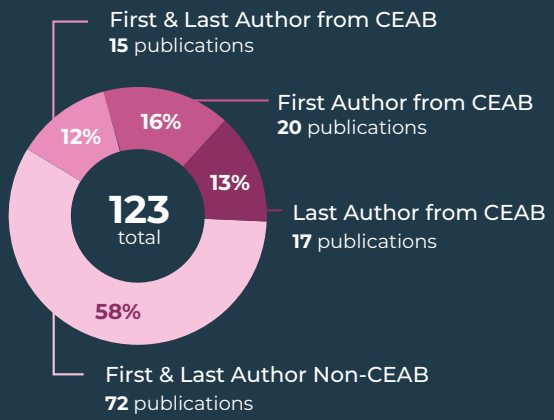
The jury highlighted CEAB-CSIC researcher **Òscar Serrano as “an international reference in blue carbon” and praised his contributions to biodiversity restoration projects**, including Shark Bay in Australia. Using sedimentary records from the Mediterranean and Australia, he has developed tools to predict and manage ecological change in marine ecosystems. The jury noted that his work demonstrates the global impact of applying science to practical solutions in marine conservation.


© Banco Sabadell

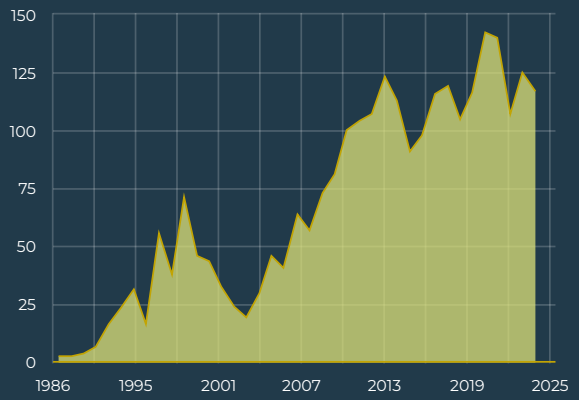
Key research achievements

Publications & research data 2024

Publications according to first and last authors



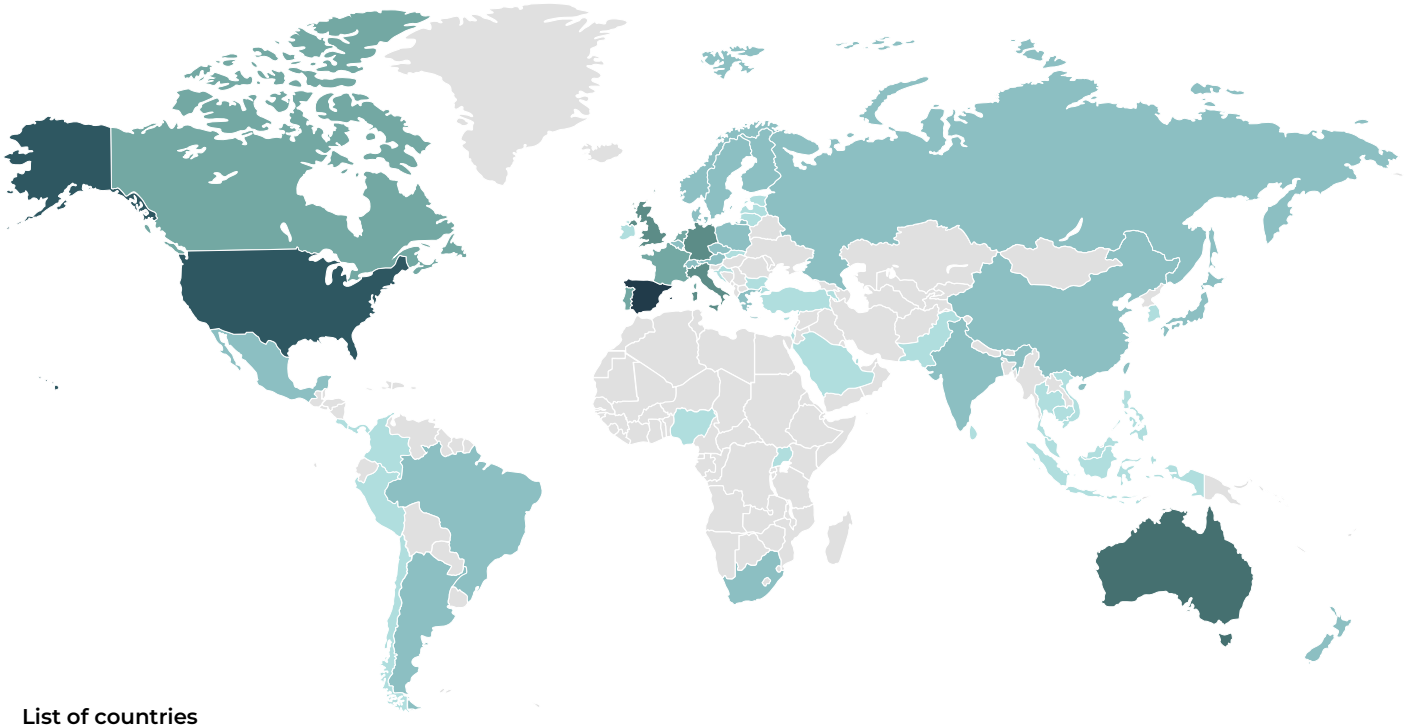
Historical trend of published articles since 1986 (only those indexed in the Scopus platform)



CEAB co-authorship network

of scientific collaborations from papers published in 2024

Number of individual collaborations with other institutions



List of countries

USA, Australia, Italy, Germany, United Kingdom, Portugal, Netherlands, France, Canada, Sweden, Switzerland, New Zealand, China, Greece, Brazil, Japan, Norway, Denmark, South Africa, Argentina, Mexico, Finland, Austria, Belgium, Czech Republic, India, Poland, Russia, Bermuda, Colombia, Ireland, Panama, Slovakia, Taiwan, Bahamas, Bulgaria, Chile, Estonia, Israel, Latvia, Saudi Arabia, Indonesia, Nigeria, Peru, Philippines, Thailand, Turkiye, Vietnam, Armenia, Cambodia, Costa Rica, Croatia, Cyprus, Lithuania, Malaysia, Monaco, Pakistan, Qatar, Singapore, South Korea, Sri Lanka, Uganda.

05
leading countries in co-authorship: USA, Australia, Italy, Germany, and the UK

+60
countries involved in international scientific collaborations

+80%
of collaborations with international scientific institutions

+150
national collaborations with institutions across the country

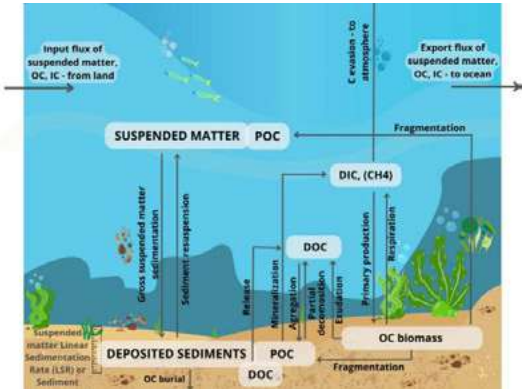
Highlighted papers & discoveries

Modeling carbon burial along the land to ocean aquatic continuum: current status, challenges and perspectives

Henry D, Catalán N, Obrador B, **Marcé R**

The review examines ecosystem processes involved in o**rganic carbon burial along the Land-to-Ocean Aquatic Continuum and evaluates terminology, measurement methods, and data sources for modeling**. It identifies major gaps in harmonized language, global data distribution, and integration of this process into large-scale carbon models, while compiling an updated dataset of burial rates across 713 ecosystems. Addressing these challenges is critical for improving Earth System Models and advancing multidisciplinary approaches to represent carbon sequestration dynamics at global scale.

Earth-Science Reviews - DOI: https://doi.org/10.1016/j.earscirev.2024.104791

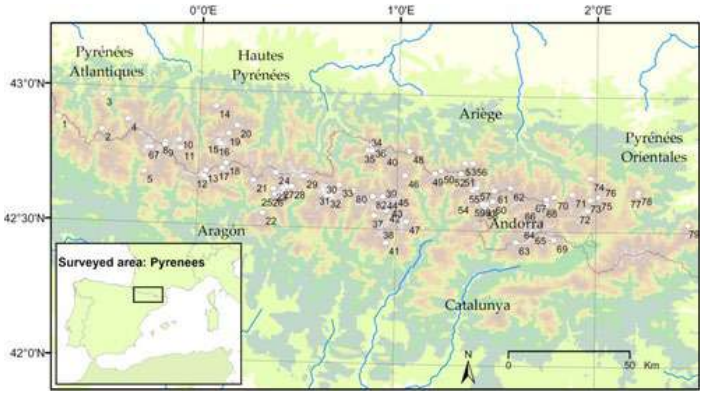


Nonlinearities in phytoplankton groups across temperate high mountain lakes

Buchaca T, Catalan J

The study analyzes **phytoplankton group distribution** in 79 high mountain lakes across the Pyrenees **using pigment-based chemotaxonomy and environmental gradients**. It finds nonlinear responses to water hardness and trophic state, with clear thresholds for group dominance linked to calcium concentration, phosphorus levels, and food-web structure. These patterns support a robust typology for mountain lakes, aiding global change monitoring and prediction of abrupt ecological transitions.

Journal of Ecology - DOI: https://doi.org/10.1111/1365-2745.14267

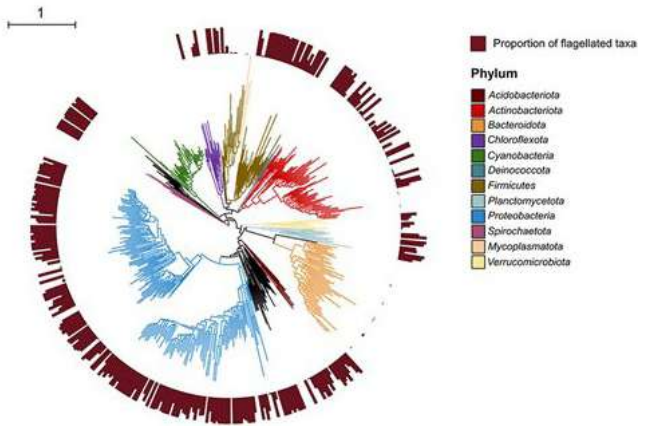


Ecological relevance of flagellar motility in soil bacterial communities

Ramoneda J, Fan K, Lucas J M, Chu H, Bissett A, Strickland M S, Fierer N

The study develops a **genome-based approach to infer flagellar motility potential across 26,192 bacterial genomes and applies it to metagenomic datasets from soils with varying carbon availability**. Results show that motility prevalence correlates positively with carbon availability and is linked to traits such as higher growth rates and carbohydrate metabolism, confirmed through controlled soil incubation experiments. These findings **advance understanding of microbial trait-environment relationships and highlight the role of motility in carbon-rich ecosystems**.

ISME Journal - DOI: https://doi.org/10.1093/ismejo/wrae067

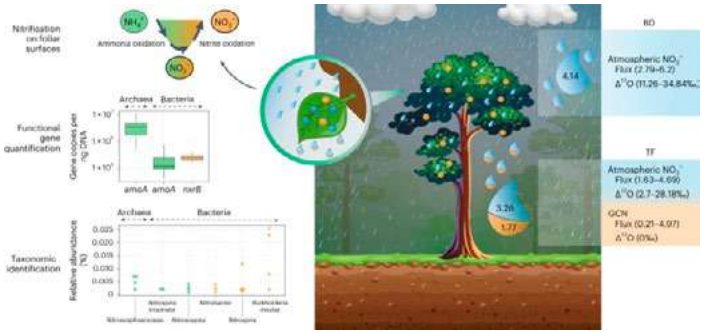


Substantial contribution of tree canopy nitrifiers to nitrogen fluxes in European forests

Guerrieri R, **Cáliz J, (...) Casamayor E O,** Peñuelas J, Mencuccini M

The research quantifies **canopy nitrification across multiple European forests using isotope analysis, nitrogen flux measurements, and molecular techniques**. Findings show that up to 80% of nitrate reaching soils originates from canopy processes, supported by the presence of autotrophic nitrifiers on foliar surfaces. This contribution significantly influences nitrogen cycling and nutrient dynamics in forests under changing atmospheric deposition.

Nature Geoscience - DOI: https://doi.org/10.1038/s41561-023-01364-3

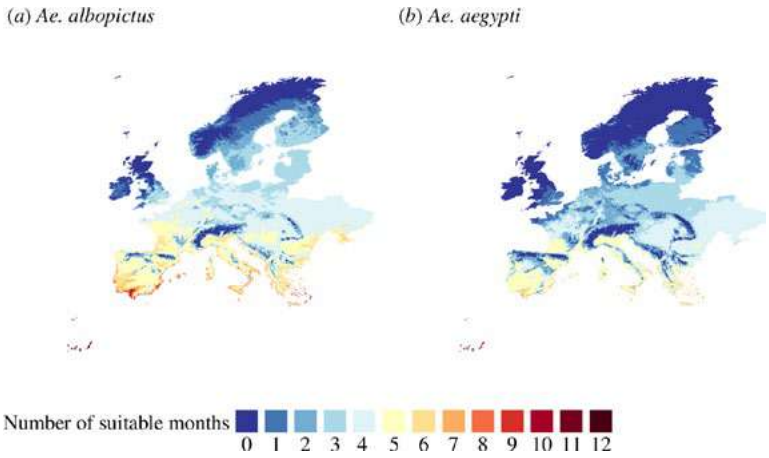


Present and future suitability of invasive and urban vectors through an environmentally driven mosquito reproduction number

Pardo-Araujo M, Eritja R, Alonso D, Bartumeus F

The study introduces an **environmentally driven reproduction number (RM) to assess growth potential of *Aedes albopictus* and *Aedes aegypti*** based on temperature, rainfall, and human density. Validation with European data shows that warming may favor *Ae. aegypti* expansion while effects on *Ae. albopictus* are less consistent. Mapping RM using climate and environmental data provides a predictive tool for identifying high-risk areas and guiding targeted mosquito control strategies.

Proceedings of the Royal Society B - Biological Sciences
DOI: https://doi.org/10.1098/rspb.2024.1960

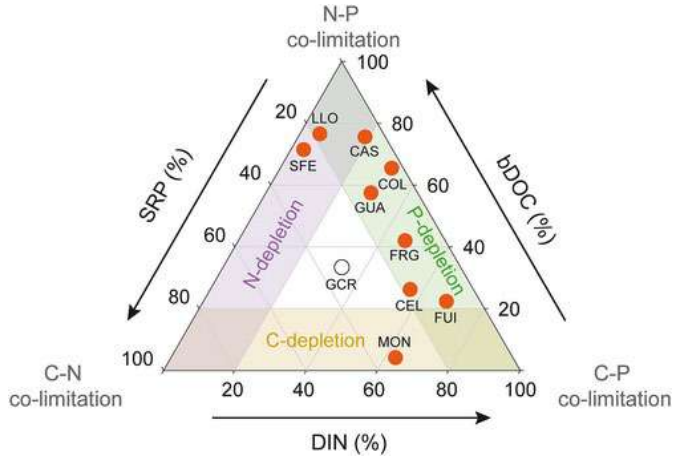


Organic matter composition and water stoichiometry are main drivers of heterotrophic nitrate uptake in Mediterranean headwater streams

Peñarroya X, Catalán N, Freixa A, **Lupon A, Triadó-margarit X, Martí E, Soler M, Casamayor E O, Bernal S**

The study investigates how **heterotrophic bacteria in Mediterranean streams contribute to nitrate uptake** and how this process depends on the balance of carbon, nitrogen, and phosphorus (C:N:P stoichiometry), organic matter quality, and microbial community composition. Experiments conducted in nine streams show that bacteria require organic carbon and phosphorus to take up nitrate, and that this uptake decreases when the organic matter is more humic and more difficult to break down. The study highlights that **heterotrophic nitrate uptake is likely to change as streams receive more easily degradable organic matter and experience changing nutrient conditions driven by global change**.

Journal of Geophysical Research - Biogeosciences
DOI: https://doi.org/10.1029/2024JG008346

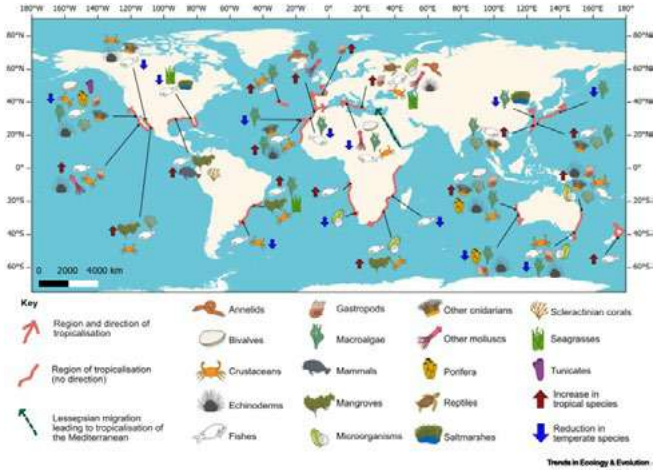


The ecological and evolutionary consequences of tropicalisation

Zarzyczny K M, **Rius M**, Williams S T, Fenberg P B

The article examines **tropicalisation**, a climate-driven process where tropical species expand and temperate species retract, reshaping marine ecosystems globally. It highlights ecological impacts ranging from behavioral changes to large-scale habitat shifts and notes emerging evidence of evolutionary consequences such as phenotypic and genotypic adjustments. Understanding these dynamics is essential for **predicting biodiversity changes and ecosystem functioning under rapid climate change**.

Trends in Ecology & Evolution
DOI: https://doi.org/10.1016/j.tree.2023.10.006

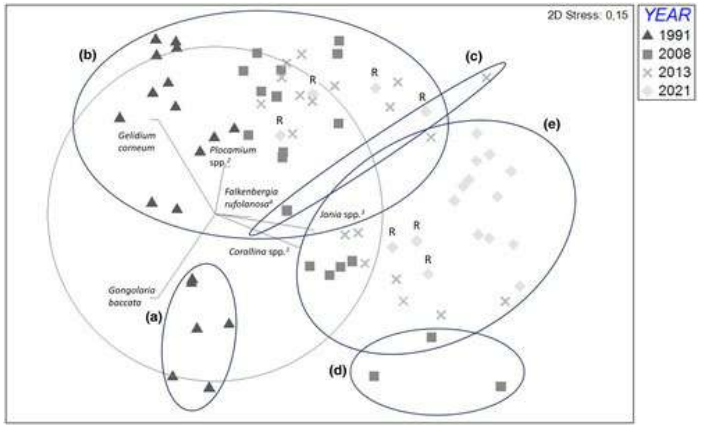


Thermal refugia reinforce macroalgal resilience against climate change in the southeastern Bay of Biscay

Arriaga O, Wawrzynkowski P, Muguerza N, Díez I, González J, Gorostiaga J M, Quintano E, **Becerro M A**

The study assesses **three decades of macroalgal community changes in the southeastern Bay of Biscay** to identify climate refugia that sustain cold-affinity canopy species. **Seven refugia were found to exhibit lower warming processes and maintain community stability compared to surrounding areas**, with sea surface temperature emerging as a key driver of phase shifts. Protecting these refugia is crucial for preserving biodiversity and enhancing resilience of marine ecosystems under accelerating climate change.

Global Change Biology - DOI: https://doi.org/10.1111/gcb.17481

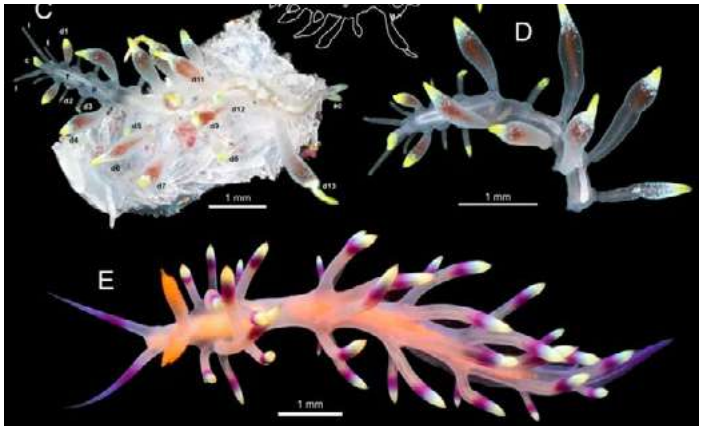


A new genus and species of nudibranch-mimicking Syllidae (*Annelida, Polychaeta*)

Jimi N, Britayev T A, Sako M, Woo S P, **Martin D**

The study describes a new genus and species of Syllidae polychaete that **mimics nudibranchs through vivid coloration and specialized morphology** while living on Dendronephthya octocorals in Vietnam and Japan. This represents the **first documented case of nudibranch mimicry among annelids**, featuring adaptations such as reduced segmentation, concealed chaetae, and brightly patterned appendages. The discovery expands knowledge of evolutionary strategies and ecological interactions in marine invertebrates.

Scientific Reports - DOI: https://doi.org/10.1038/s41598-024-66465-4

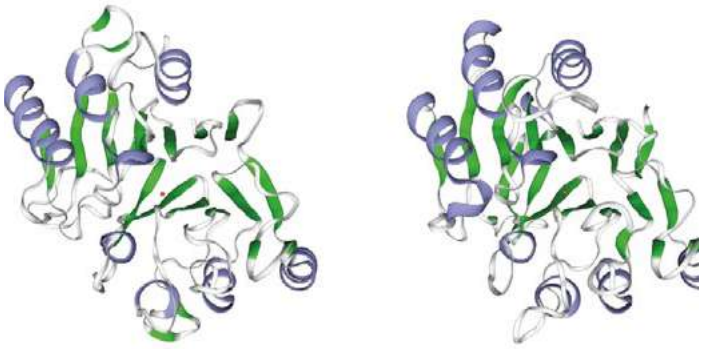


Silica-associated proteins from hexactinellid sponges support an alternative evolutionary scenario for biomineralization in Porifera

Shimizu K, Nishi M, Sakate Y, Kawanami H, Bito T, Arima J, **Leria L, Maldonado M**.

The study characterizes two silica-associated proteins from hexactinellid sponges, hexaxilin and perisilin, revealing distinct roles in axial filament formation and extracellular silica deposition. Evidence indicates that **siliceous sponge classes evolved independent protein machineries**, producing non-homologous skeletons, and suggests ancestral Porifera lacked skeletons before class divergence. These findings reshape understanding of biomineralization evolution and align molecular-clock estimates with the fossil record.

Nature Communications
DOI: https://doi.org/10.1038/s41467-023-44226-7



Research grants & projects

Active grants & projects 2024

In 2024, CEAB-CSIC managed a portfolio of **105 active research projects and grants**. This portfolio was underpinned by a total funding commitment of **€16.7 million**, which included €1.2 million allocated to eight projects sourced from internal underspend (re-purposed institutional funds), alongside €15.5 million secured by 97 projects through mostly competitive external and public awards and grants.

€16.7M
Total funding from active grants and projects in 2024

Internal: underspend & re-purposed funds

Started 2024	€0.8M
Ongoing 2024	€0.3M
Finished 2024	€0.06M
€1.2M	

External: grants & projects

€15.5M
total funding from active projects in 2024

99%
of funding from competitive calls

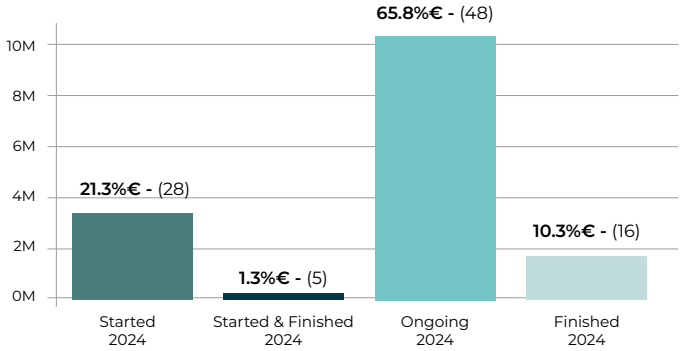
98%
of funding from public sources

97
number of individual grants & projects

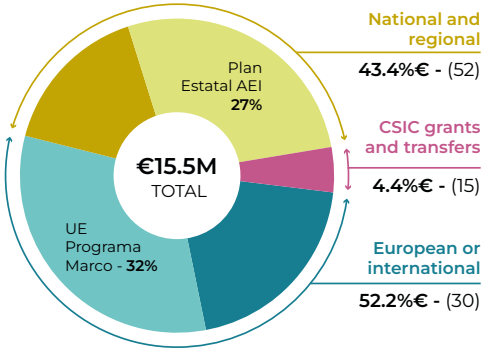
34
average duration of projects in months

The three graphics below show the following information: Percentage of the budget% - (Number of grants/projects)

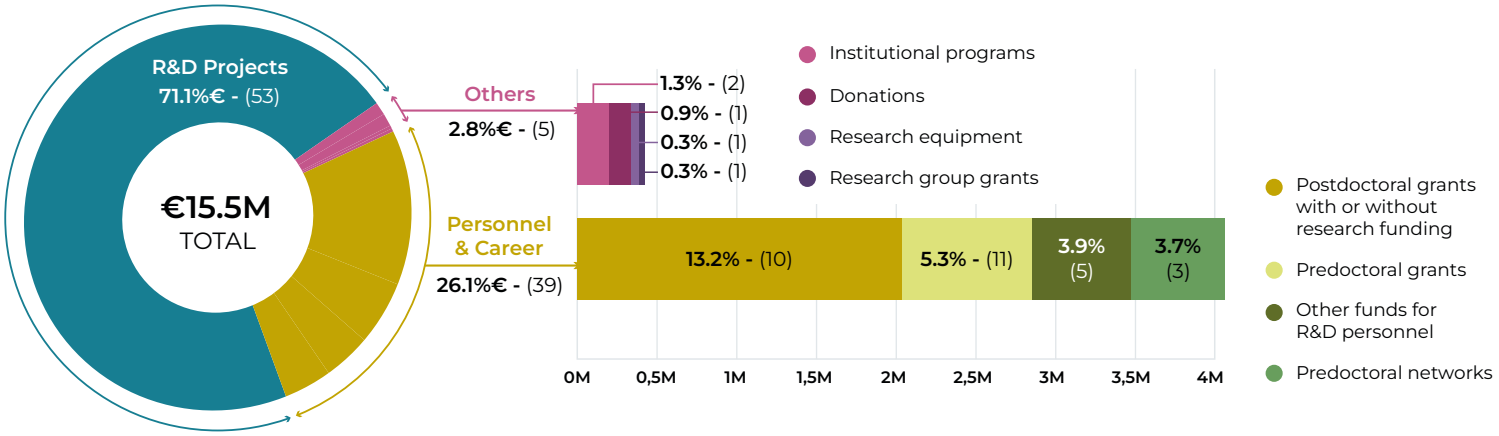
Funding status: 2024



Funding origin



Funding distribution: research activity



Highlighted grants & projects

PI: Maria Teresa Buchaca Estany

Participants: 10 organisations from Spain and Italy. *Coordinator: CEAB-CSIC.*

CEAB Budget: €1,057,241

Funding programme/call: LIFE 2020 Natura

Starting and ending year: 2022 - 2026

Restoration of aquatic ecosystems of protected areas from the Alps and Pyrenees

Acronym: RESQUE ALPYR

COORDINATED BY CEAB-CSIC

RESQUE ALPYR is a LIFE project coordinated by the CEAB-CSIC. The project aims to restore mountain aquatic habitats and improve the conservation status of key habitats and species in four Natura 2000 sites across the Alpine regions of the Pyrenees and the Alps. Actions include removing non-native fish from high-altitude lakes, managing grasslands and peatlands, and enhancing wetland conditions through forestry interventions. These measures provide replicable conservation strategies to safeguard biodiversity and strengthen habitat resilience in Europe's alpine ecosystems. https://liferesquealpyr.eu/the-project/

PI: Frederic Bartumeus Ferré

Participants: 12 organisations from Spain, Italy, United Kingdom, Germany, Belgium, Greece and Switzerland. *Coordinator: CEAB-CSIC*

CEAB Budget: €997,700

Funding programme/call: Horizon Europe - Cluster 6

Starting and ending year: 2023 - 2026

Funded by the European Union

Eco-Epidemiological Intelligence for early Warning and response to mosquito-borne disease risk in Endemic and Emergence settings

Acronym: E4Warning

COORDINATED BY CEAB-CSIC

E4Warning is a Horizon Europe Cluster 6 project coordinated by the CEAB-CSIC. The project develops advanced eco-epidemiological models and digital tools to anticipate mosquito-borne disease risks in a changing global environment. It integrates human, vector, and reservoir dynamics with environmental factors through interdisciplinary and open science approaches. This work strengthens One Health early warning systems, enabling proactive strategies to prevent outbreaks and reduce the societal burden of zoonotic pathogens. E4Warning has received funding under Grant Agreement 101086640. https://www.e4warning.eu/

PI: Rafael Marcé Romero

Participants: 11 organisations from Spain, Denmark, Germany, Austria, the Netherlands, Belgium, Ireland, and the United Kingdom. *Coordinator: CEAB-CSIC*

CEAB Budget: €76,665

Funding programme/call: Horizon 2020 - MSCA Innovative Training Networks

Starting and ending year: 2021 - 2026

Funded by the European Union

Inventive forecasting tools for adapting water quality management to a new climate

Acronym: inventWater

COORDINATED BY CEAB-CSIC

InventWater is a H2020 MSCA-ITN project, coordinated by CEAB-CSIC. The project creates a training platform for future water experts to develop innovative forecasting tools for lake and river water quality under changing climate conditions. It combines data science, hydrology, and freshwater ecology to design predictive models supporting rapid decisions and long-term adaptation strategies. This initiative advances water management globally and contributes to climate resilience and UN Sustainable Development Goals. This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 956623. https://inventwater.eu/

PI: Helena Guasch Padro

Participants: 20 organisations from France, Italy, Spain, Germany, Sweden, Greece, Malta and Switzerland.

CEAB Budget: €251,971

Funding programme/call: Horizon Europe - MSCA Doctoral Networks

Starting and ending year: 2024 - 2028

Funded by the European Union

Improving monitoring and environmental risk assessment of pharmaceuticals, antimicrobial resistance and pathogens from terrestrial to aquatic environments

Acronym: Pharm-ERA

Pharm-ERA is a MSCA Doctoral Network dedicated to improving the monitoring and environmental risk assessment of pharmaceuticals, antimicrobial resistance, and pathogens across terrestrial and aquatic environments. The project addresses the urgent challenge posed by these chemical and microbiological contaminants, which threaten biodiversity and ecosystem health—a core component of the 'One Health' approach—by integrating complementary research fields and studying the contamination across soil, water, and sediment compartments. This project has received funding under Grant Agreement 101119261. https://pharm-era.hub.inrae.fr/the-project

Supervisor: Oscar Serrano Gras

Researcher: Nicole Foster

CEAB Budget: €165,312

Funding programme/call: Horizon Europe - MSCA Postdoctoral Fellowships

Starting and ending year: 2024 - 2026

Funded by the European Union

Coupling biogeochemical analysis, environmental DNA and ecological network analysis of sediment cores to reconstruct environmental history and ecosystem changes in *Posidonia oceanica* meadows

Acronym: POSIDONIArXiv

POSIDONIArXiv investigates long-term ecosystem dynamics in *Posidonia oceanica* meadows using environmental DNA, biogeochemical analysis, and ecological network modelling. By reconstructing biodiversity changes over millennia from sediment archives, the project identifies resilience mechanisms and human impacts on these key Mediterranean habitats. The findings will guide restoration strategies and strengthen conservation of seagrass ecosystems critical for climate mitigation and coastal biodiversity. This project has received funding under Grant Agreement 101105307. https://nicole-foster.com/Pages/POSIDONArXiV.html


© Laura Carrau

Supervisor: Francesc Xavier Turon Barrera

Researcher: Elisabet Alacid Fernandez

CEAB Budget: €165,312

Funding programme/call: Horizon Europe - MSCA Postdoctoral Fellowships

Starting and ending year: 2024 -2026

Funded by the European Union

PROtist PATHobiome-INvertebrate interactions: a multi-approach to understand marine diseases of commercial bivalves

Acronym: PROPATHIN

Bivalves host diverse protist communities, including pathogens responsible for major losses in global shellfish industries and risks to human health. Despite their importance, the biology and ecology of these protist-driven diseases remain poorly understood. PROPATHIN aims to elucidate marine and food-borne diseases in commercial bivalves by integrating metabarcoding, single-cell genomics, transcriptomics, and classical cell biology. The project will clarify host–parasite interactions and support strategies to prevent economic losses and health risks linked to shellfish production. This project has received funding under Grant Agreement 101110770. https://cordis.europa.eu/project/id/101110770

PI: Emma Cebrian Pujol

Participants: 6 organisations from Italy, Greece, Spain, the Netherlands.

CEAB Budget: €105,074

Funding programme/call: Biodiversa+

Starting and ending year: 2024 - 2027

Coordinated and adaptive monitoring of biodiversity change across Mediterranean rocky ecosystems

Acronym: CAMBioMed

Rocky reefs are biodiversity hotspots in the Mediterranean Sea but are increasingly threatened by human activities and global change, including overexploitation and mass mortality events from heatwaves. These impacts have altered ecosystem functioning and challenged conservation efforts. Long-term data are essential to assess ecosystem responses to disturbances, establish baselines, and evaluate management effectiveness. The project will develop an adaptive monitoring framework in collaboration with stakeholders, introducing innovative tools for efficient monitoring of Mediterranean rocky reefs. This will enable decision-makers to address critical questions regarding the conservation of these ecosystems.
https://shorturl.at/JTmk8

PI: Manuel Maldonado Barahona

Participants: 4 organisations from Spain, the Netherlands and Japan.

CEAB Budget: €206,250

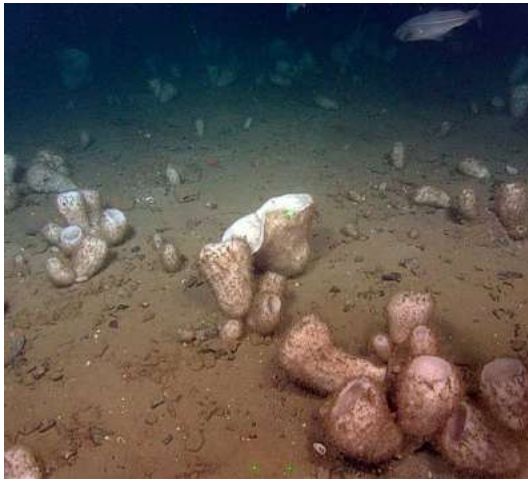
Funding programme/call: Plan Nacional

Starting and ending year: 2024 - 2027

Molecular and cellular approaches to production of silica in sponges for evolutionary and biotechnological advances

Acronym: Pro-Si

The quest for next-generation technology hinges on isotopically pure silicon, a key semiconductor material used for advanced microchips and the heart of emerging quantum supercomputing. The ability to precisely manipulate silicon isotopes is a major industrial challenge. Remarkably, marine sponges have evolved the natural capability of enriching the silicon isotopes when building their siliceous skeletons. Given the enormous biotechnological potential of this unique, natural capability, the PRO-Si project aims to unravel the cellular and molecular machineries that drive such a biological silicon isotope discrimination.



External partnerships & social impact

Active collaboration agreements & research contracts in 2024

Collaboration agreements and research contracts are essential tools for building partnerships and securing resources that drive CEAB's scientific mission. They enable **cooperation with public and private entities**, strengthen research networks, support the successful delivery of projects, and facilitate the application of the knowledge and tools generated through them.

Collaboration Agreements

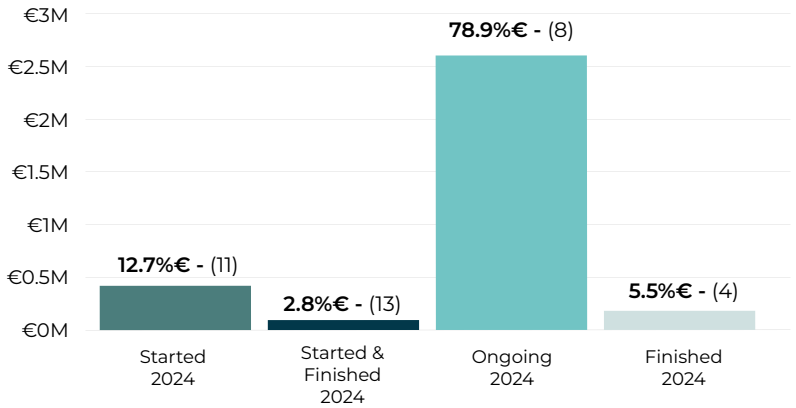
In 2024, CEAB maintained **20 active collaboration agreements**, primarily with public entities at the national level. These agreements covered diverse areas, including educational cooperation, joint R&D activities, and the distribution of funds among partners in research project grants.

Research Contracts

Research contracts represent a significant source of funding and collaboration for CEAB. In 2024, there were **36 active contracts**, representing a **total amount of €3.3M in funding**. The portfolio of contracts was well balanced, both in terms of public and private entities and between national and international partners, reflecting CEAB's commitment to diverse and collaborative research.

The three graphics show the following information:
Percentage of the funding% - (Number of active contracts)

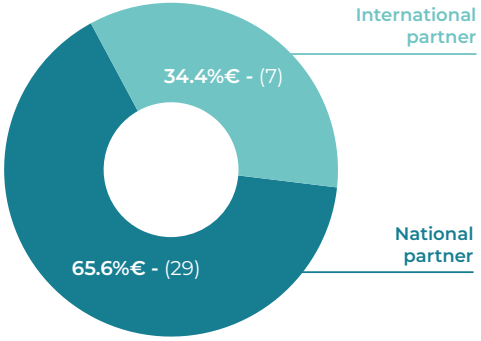
Funding status: 2024



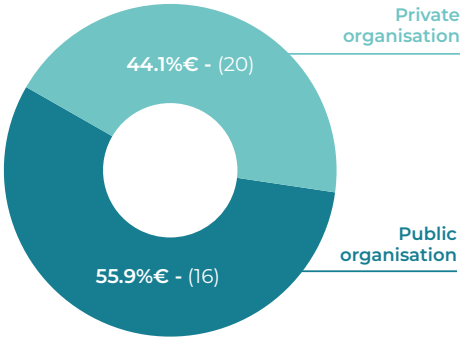
36
Active contracts in 2024

€3.3M
Total funding

Research contracts by partner origin



Research contracts by partner ownership type



Highlighted networks

CEAB, through its research and technical staff, actively participates in a **wide range of international and national R&D networks**. Our roles vary from contributing to governance and serving as co-chairs to acting as national nodes within global-scale networks. In addition, we are part of national infrastructures and thematic networks within our own institution, such as the CSIC thematic interdisciplinary platforms (PTIs).

Participation in CSIC Thematic Interdisciplinary Networks (PTIs)

PTI SusPlast promotes a circular economy by addressing the full plastic life cycle, from design and use to recycling and waste management. CEAB contributes to the platform through its work on inland waters and on the health and environmental impacts of plastics, **with Berta Bonet coordinating the Health and Environment area of the PTI related to Inland Waters**.

It also actively participates in other CSIC Platforms such as Oceans+, One Health o ECOBIODIV.

Global Lake Ecological Observatory Network (GLEON)

GLEON is a **worldwide collaboration of approximately 900 people**, which also includes research sites on hundreds of lakes across six continents. Its mission is to **conduct international team science to advance understanding of lakes and their benefits in a changing environment**. CEAB contributes actively to this network, with researcher Rafael Marcé serving as one of the Steering Committee Co-chairs.

Visit the website

European Marine Research Network (EuroMarine)

Visit the website

EuroMarine is a member-based, interdisciplinary, collaborative network of European marine organisations and research institutes. Its primary function is to **provide expert advice intended to support and influence European marine policy and governance**. CEAB actively contributes to this network, with **researcher Daniel Martin as CSIC Representative in the General Assembly and Steering Committee Member**.

Long Term Ecological Research network (LTER)

Visit the website

The International Long-Term Ecological Research Network (LTER) connects global and European platforms for long-term ecosystem and socio-ecological research. It provides a **worldwide infrastructure of research sites and interoperable data services**. Through LTER-Spain, CEAB researchers contribute to this effort by working in national nodes that monitor diverse ecosystems, **linking local knowledge to global strategies for environmental sustainability**. CEAB researcher Esperança Gacia is the coordinator of the Aigüestortes and Estany de Sant Maurici National Park LTER-Spain node.

World Register of Marine Species (WoRMS)

Visit the website

WoRMS **provides an authoritative and comprehensive list of names of marine organisms, focused exclusively on species that are marine and extant**. The primary aim of WoRMS is to compile this authoritative and comprehensive list of marine species names within the framework of the UN Decade of Ocean Science for Sustainable Development (2021-2030). CEAB researchers Enrique Macpherson (ad honorem), Marc Rius and Xavier Turon are WoRMS taxonomic editors.

Highlighted impact stories

At CEAB, **much of our research is applied science**, developed through numerous external collaborations that generate **a wide range of solutions and tangible social impacts**. We highlight some of these diverse impact stories from 2024, spanning from the presentation of scientific results with strong restoration and conservation components to pilot trials and active participation in events and evidence-based policy reports.

Leading the development of a low-cost, zero-kilometre natural wastewater treatment system

More information

The solution uses r**ecycled natural fibre coffee sacks, plant residues, and aquatic plants to promote microorganisms that remove contaminants such as ammonia and phosphate**. This zero-kilometre approach avoids transporting gravel, reducing costs and CO_2 emissions. Tested in artificial channels at the Urban River Lab under varying conditions, **it proved effective and replicable**. Developed with Naturalea Conservació, the University of Barcelona, and the Besòs-Tordera Consortium, the technique is economical, sustainable, and easy to maintain, proposed for small wastewater flows or as a complementary method to standard purification systems.

Collaborating with Uruguay's Ministry of Public Health to strengthen citizen science and fight disease-vector mosquitoes through Mosquito Alert

More information

Mosquito Alert, an international citizen science project coordinated by CEAB-CSIC, **expanded in Uruguay** through collaboration with the Ministry of Public Health and support from The Spanish Cooperation Agency - AECID. The initiative promotes the Mosquito Alert app to **engage citizens in reporting mosquito species** that transmit dengue, zika and chikungunya, enhancing national surveillance and institutional response. This second year of partnership consolidates cooperation between Spanish and Uruguayan institutions in public health and citizen science.

© Ministerio de Salud Pública, Uruguay

Early detection and monitoring of invasive Asian seaweed in Catalonia

More information

CEAB-CSIC, in collaboration with the Catalan Water Agency (Generalitat de Catalunya), confirmed the **first observations of *Rugulopteryx okamurae*** and detected its presence at Barcelona's Port Olímpic. Through field surveys and citizen science data, the team **characterised habitats and monitored seasonal growth, providing key insights for managing ecological and economic impacts**. This work forms part of the long-standing invasive species monitoring programme commissioned to CEAB by the Catalan Water Agency since 1992.

A technique to restore marine coral forests that doubles gorgonian survival

More information

CEAB-CSIC researchers developed and scientifically validated **a pruning technique for gorgonians that can help restore these Mediterranean underwater forests**. Tested over three years in the Medes Islands, this low-cost method **doubled survival and accelerated growth of these soft corals**, which are vital for marine biodiversity. The project, funded by Fundación Biodiversidad, Museu de la Mediterrània and Parc Natural del Montgrí, shows how simple, science-based actions can deliver major ecological benefits and support climate resilience.

Advising the Spanish Congress Office of Science and Technology on coastal policy

More information

In November 2024, the Spanish Congress Office of Science and Technology presented the report Sustainable Management of Coastal Areas. **CEAB-CSIC researchers Jordi Pagès and Rafael Sardá were among 20 experts shaping its recommendations**. They stressed the need to shift from fragmented management to Integrated Coastal Zone Management (ICZM), adopt nature-based and hybrid solutions, and reform governance to boost resilience against erosion, sea-level rise, and ecosystem loss. Their input also called for citizen participation and long-term planning to balance environmental, economic, and social priorities. Jordi Pagès later joined a **parliamentary dialogue on future coastal challenges**.

© Fundación Española para la Ciencia y la Tecnología (FECYT) | Oficina C

Pioneering action to remove invasive fish using a biodegradable biocide in high-mountain lakes

More information

LIFE RESQUE ALPYR, coordinated by CEAB-CSIC, launched the **first pilot in southern Europe to eliminate invasive fish using the biodegradable biocide rotenone in a Pyrenean lake.** This alternative method, which degrades quickly in the environment, addresses challenges posed by traditional removal techniques and is part of a broader strategy to restore aquatic habitats as biodiversity reservoirs and ecological corridors. The initiative is framed within the LIFE RESQUE ALPYR project, led by CEAB-CSIC, aimed at recovering mountain aquatic habitats across the Pyrenees and Alps.

Seminars & training

Scientific & technical seminars

In 2024, CEAB-CSIC hosted **15 scientific and technical seminars** with participation from both in-house and international researchers, aimed at fostering the generation and exchange of scientific ideas.

Topics **covered a wide range of areas**, including freshwater biodiversity, carbon dynamics, ecosystem monitoring, and behavioural ecology. Speakers included CEAB-CSIC researchers such as Frederic Bartumeus, who discussed ecological complexity, and international guests like Jake Diamond, who presented work on CO_2 sources in flowing freshwaters. These examples reflect the transversal and global nature of the series, bridging local research with international perspectives and addressing challenges relevant across ecosystems and regions.

The series provided a **platform for dialogue and collaboration, encouraging knowledge exchange across disciplines and borders.**

SCIENTIFIC SEMINARS

Ersilia: open source AI/ML for (antimicrobial) drug discovery

Gemma Turon (CEO and Co-founder, Ersilia Open Source Initiative); **Miquel Duran-Frigola** (Lead Scientist, Trustee and co-founder at Ersilia Open Source Initiative)
January, 11th

Unveiling Aedes Albopictus: exploring survival, density and dispersal in vector dynamics

Laura Blanco (PhD, CEAB-CSIC)
January, 18th

Bioacustic project: an acoustic observatory of ecosystem change for the Ordesa y Monte Perdido National Park

José Joaquín Lahoz Monfort (Pyrenean Institute of Ecology [IPE-CSIC], Jaca, Spain)
March, 21st

Freshwater biodiversity in mediterranean climate regions: current status and future trends

Núria Bonada (FEHM-Lab, University of Barcelona)
May, 09th

A naturalist perspective on microbes: exploring the environmental preferences of bacteria

Josep Ramoneda (Beatriu de Pinós Fellow, CEAB-CSIC / CIRES, University of Colorado, USA)
May, 16th

Empirical investigations of CO_2 sources in flowing freshwaters

Jake Diamond (University of Venice Ca' Foscari / RiverLy research unit, INRAe, France)
June, 13th

Challenges and opportunities in understanding carbon resources and dynamics in lake ecosystems

Cristian Gudasz (Umeå University)
June, 20th

Behavioural ecology through the lens of complexity

Frederic Bartumeus (ICREA Research Professor CEAB-CSIC)
July, 11th

Analysing complex systems: connectivity, causality, and early-warning indicators across scientific domains

Giulio Tirabassi (University of Girona)
September, 12th

From cells to ecosystems: exploring aquatic diversity with single-cell rna sequencing

Sebastián R. Najle (PhD, Centre for Genomic Regulation [CRG])
September, 19th

Macroalgae second skin harbours a wide diversity of parasitic protists with distinct temporal dynamics

Elisabet Alacid (Beatriu de Pinós, Postdoctoral Researcher, CEAB-CSIC)
October, 17th

Hydroperiod and habitat: key drivers in temporary ponds

Carolina Trochine (Postdoc, GEA Research Group, UVIC-UCC)
October, 24th

Contested knowledge for participatory modelling. When and where to infuse knowledge in the process of modelling social-ecological systems

María Manez Costa (Senior Research, Helmholtz-Zentrum Hereon)
December, 17th

TECHNICAL SEMINARS

Establishment of the CEAB committees

CEAB Committee Representatives (CEAB-CSIC Personnel)
November, 05th

Sexual and gender-based harassment: framework, context and action for addressing and eradication

Esther Garcés; Silvia Donoso López (Researchers, Marine Science Institute, ICM-CSIC)
December, 05th

Highlighted courses & workshops

In 2024, CEAB organised a series of **training courses and internal learning activities** aimed at supporting scientific development, professional skills and research exchange.

Activities included an international taxonomy course, mentoring sessions for doctoral researchers, a scientific writing course, and an internal research exchange day,

These courses and activities contributed to **strengthening training, mentorship, collaborations, transdisciplinary exchange and also internal cohesion.**

International Training Course in Taxonomy of Polychaetes

3–7 June 2024 | CEAB-CSIC

The second edition of this international course organised by CEAB-CSIC, provided **advanced training in aquatic taxonomy**. The programme combined lectures on diagnostic characters with intensive lab sessions, focusing on Mediterranean polychaetes and introducing taxa from other seas. Participants applied **morphological and molecular approaches and explored digital imaging tools** to strengthen skills in taxonomy and its applications to phylogeny, evolution and ecology.

Participants: Technicians and students from Spain, France and Cyprus

Duration: 5 days

Programme: Lectures + hands-on lab sessions

Invited Speakers: João Gil (CCMAR – University of Algarve, Portugal) | Guillermo San Martín (Universidad Autónoma de Madrid) | María Ana Fernández-Álamo (Universidad Nacional Autónoma de México) | Maël Grosse (Natural History Museum, University of Oslo)

3rd ∑PhD Ecological Symposium

26–27 September 2024 | CEAB-CSIC

Organised by CEAB-CSIC, the third biennial edition of the symposium brought together more than **50 PhD students in ecology for two days of scientific exchange and networking at CEAB.** The programme featured 12 oral presentations by predoctoral students, three keynote lectures, and a mentoring session focused on the challenges and opportunities of pursuing a PhD.

Participants: +50 PhD students

Participants Institutions: CEAB-CSIC, CREAF-UAB, UdG, IBE-CSIC-UPF, UVIC, ICM-CSIC

Duration: 2 days

Talks: 12 oral presentations + 3 keynotes

Mentoring: "Pursuing a PhD"

Venue: CEAB-CSIC

Invited Speakers: Pablo Almaraz (ICMAN-CSIC) | Mar Cabeza (University of Helsinki) | Jordi Martínez-Vilalta (CREAF-UAB)

Mentoring Session: "Pursuing a PhD"

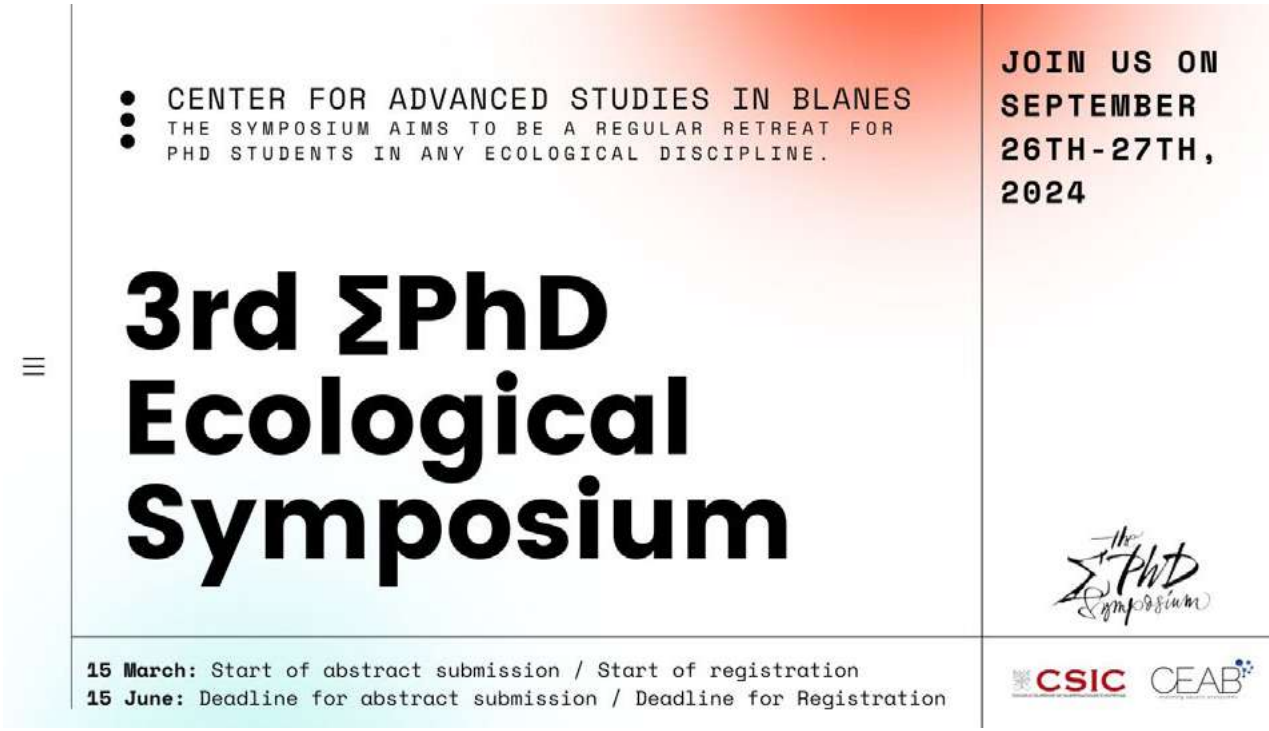
This interactive session created a **safe space for PhD students to share experiences, challenges and opportunities during their doctoral journey**. Senior researchers offered personal insights, while participants discussed academic pressures, work-life balance and future career paths. The activity fostered community, mutual support and generated actionable recommendations to improve the PhD experience.

Positive aspects of the PhD experience

- Creative freedom
- Continuous learning
- Flexible schedule
- Stimulating environment
- Inspiring interactions
- Personal growth

Challenges

- Impostor syndrome
- Work-life balance
- Hyperconnectivity
- Supervisor relationships
- Job insecurity
- High competition
- Isolation



CEAB Scientific Exchange Day

20 November 2024 | CEAB-CSIC

Organised by the CEAB Scientific Activity Committee, this is the main internal event designed to **share research, projects and ideas among CEAB staff**. After several years without being held, the annual meeting was relaunched to foster discussion, collaboration and potential synergies across the centre. The programme featured **16 short scientific presentations and open debates throughout a full day**, covering a wide range of topics from marine biodiversity and pollutant dynamics to ecosystem resilience, biogeochemistry, sponge biotechnology and social dimensions of coastal management.

Audience: All CEAB staff

Duration: 1 day

Focus: internal scientific exchange

Frequency: Annual

I Scientific Writing Course

November – December 2024 | CEAB-CSIC

The first edition of the Scientific Writing Course, organised by the CEAB Mentoring Committee, **strengthened participants' skills in writing for scientific publications**. Delivered entirely in English, the programme combined **seven in-person seminars with autonomous work sessions**. Topics ranged from planning and structuring a scientific paper to mastering minimalist style, selecting journals, and avoiding predatory practices. Practical exercises included text reduction and collaborative improvement of manuscript excerpts.

Participants: 24 CEAB-affiliated researchers (mostly PhD students)

Duration: 7 seminars + independent work

Focus: Scientific writing for publication

CEAB
in society

Outreach, education & events 2024

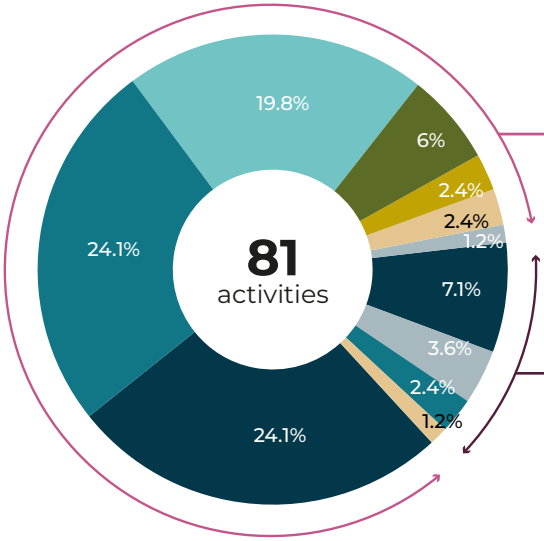
Science outreach and education

In line with its outreach strategy, CEAB-CSIC continues to fulfil its objectives and commitments to promote **open, inclusive, and socially engaged science**. Throughout 2024, the centre strengthened this commitment with **81 science outreach activities, engaging nearly 9,500 participants from both educational and general audiences**. The main goal has been to bring research closer to citizens and to foster a critical and participatory scientific culture.

Science education remains one of CEAB-CSIC's core pillars for **connecting research with society and promoting scientific knowledge and a positive attitude towards science**. Throughout the year, the centre has organised talks, workshops, and collaborative projects, such as the Aliances Magnet, Escoles Tàndem, and Joves i Ciència educational programmes, which **link research with pedagogical innovation**. The centre also **promotes gender equality in science** through its 11th of February activities marking the International Day of Women and Girls in Science, where CEAB researchers share their experiences with students.

With the aim of reaching the wider public, CEAB-CSIC has participated in a range of science outreach initiatives. During the Science Week, the centre offered **guided tours and scientific routes** to showcase its research on aquatic ecosystems, while Pint of Science brought science to the bars of Blanes in a relaxed and engaging setting.

Number of activities



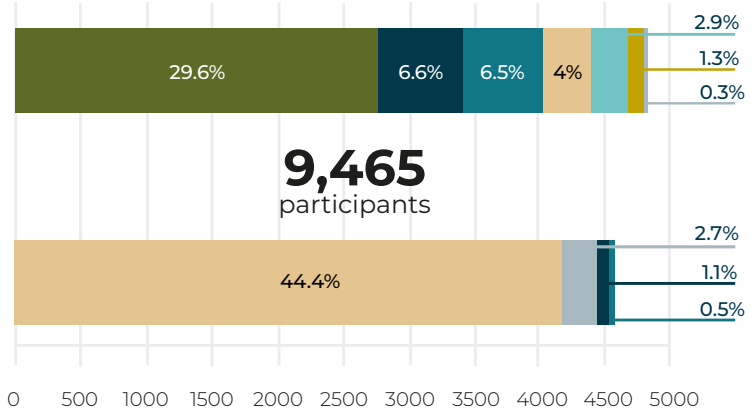
Students

69 activities
4,850 participants

General public

12 activities
4,615 participants

Number of participants



Highlighted events

Committed to marine conservation: “Marine Invasive Species: The Silent Threat” attracts thousands in Barcelona

The exhibition “Marine Invasive Species: The Silent Threat”, co-organised by the CEAB and the Maritime Museum of Barcelona, opened on 21 November and **attracted more than 4,000 visitors by the end of the year.** The exhibition highlights the **global challenge of marine biological invasions** and reflects the CEAB’s expertise and strong commitment to communicating the value of marine research for biodiversity conservation. The exhibition was the result of a **collaborative effort by CEAB researchers working in the field of marine invasion ecology**. The exhibition features guided tours, educational visits, and a programme of complementary public activities designed to engage diverse audiences with marine science.

Empowering next generations: 2,200 Students join the Mosquito Alert Educational Programme

Through the Mosquito Alert Educational Programme, CEAB brought frontier research on invasive mosquito species and global health directly into classrooms across Spain—**engaging 2,200 students from 54 schools through citizen science**. The initiative culminated in a vibrant Science Fair at Madrid’s National Museum of Natural Sciences, where students showcased their findings and shared their learning experiences.

Science, art and freshwater: CEAB’s Night inspires dialogue and change

CEAB’s Night, as part of the European Researchers’ Night, has become a signature participatory event **showcasing the centre’s commitment to societal engagement**. This year’s edition explored the impacts of climate change on freshwater ecosystems, taking inspiration from the exhibition Augmented Ecofeminisms: Climate, Water and Women. Combining science and art, the event fostered **meaningful conversations between researchers and citizens about environmental change and the transformative role of women in ecosystem management and conservation**.

Citizen science

CEAB coordinates **several flagship citizen science projects** that involve both the **general public and students in active research** on environmental and health challenges. These initiatives not only strengthen scientific culture but also generate valuable data for research, planning, and public policy.

Mosquito Alert

An international platform for the detection and monitoring of invasive vector mosquitoes. Outputs from the program contribute to research and support public health authorities in surveillance and prevention strategies.

2024 Highlight:

In 2024, the app recorded 78,753 downloads, 10,695 mosquito photos, 23,903 bite reports, and 3,732 breeding sites identified. Citizen participation enabled the detection of invasive species in 59 new municipalities (52 *Aedes albopictus*, 7 *Aedes japonicus*). The Spanish Ministry of Health and the Government of Valencia adopted Mosquito Alert as a complementary tool for mosquito surveillance after the DANA floods, enhancing rapid public health response.

Website: www.mosquitoalert.com
Coordinated by: CEAB-CSIC

Plastic0 Switch

Project focused on quantifying plastic pollution in rivers using real scientific sampling protocols. The project integrates environmental education, sustainability awareness and hands-on research experience.

Website: www.plastic0switch.org
Coordinated by: CEAB-CSIC

Observadores del Mar

A national collaborative platform (researchers and citizens) that promotes marine research and conservation. The data collected help to study key issues such as the presence of invasive species, biodiversity, the effects of climate change, and the status of vulnerable species.

2024 Highlight:

A specific campaign was created in 2024: OdM Climate 2024, to monitor climate change effects. The initiative involved 500 divers and 33 diving centres, collecting 40000 records revealing clear signs of warming impacts on Mediterranean ecosystems — such as the expansion of warm-water species, coral mortality, jellyfish blooms and stress in Posidonia meadows.
The initiative was recognised as a finalist in the II CSIC Awards for Scientific Communication and Citizen Science.

Website: www.observadorsdelmar.cat
Coordinated by: ICM, CEAB, IMEDEA, SOCIB, IIM and IEO.

Bycatch

Project engaging citizens in reporting accidental catches of marine wildlife — including birds, turtles, mammals and fish. Through a mobile app, professional and recreational fishers report bycatch events, generating data that drive research, foster sustainable fishing and help protect marine biodiversity.

Website: www.bycatch.csic.es
Coordinated by: CEAB-CSIC, in collaboration with SEO/BirdLife and IEO.

Together, these projects demonstrate that citizen science is not only an educational tool but also **an effective means of generating scientific knowledge, detecting ecological alerts, and providing valuable input for public policies on environmental health and territorial management**. CEAB promotes this model of research as part of its commitment to open science, encouraging transparency, collaboration, and the active participation of society in scientific processes.

Media presence & public engagement

External communication at CEAB-CSIC follows **the guidelines of its Outreach and Communication Plan**, which defines clear objectives, target audiences and priority channels. Every action — from press releases to social media content — is aligned with this strategy, ensuring that communication is not improvised but purposeful, coherent and aimed at maximising impact and outreach.

With the **professionalisation of the communication area**, 2024 marked a real turning point, with a remarkable boost in external visibility that has positioned CEAB-CSIC as a reference centre in science communication.

Our ultimate purpose is to ensure that scientific knowledge reaches society in an accessible and meaningful way — fostering understanding and awareness, while also listening and learning from citizens, institutions and stakeholders. This **two-way communication** empowers society to act and, at the same time, enriches and improves our science.

Media impact

In **2024**, CEAB-CSIC distributed a total of **58 press releases**, reaching local, national and international media outlets.

This effort translated into **534 media impacts** across the press, digital platforms, radio and television.


The Washington Post

Environment

The Great Salt Lake isn't just drying out. It's warming the planet.

The Great Salt Lake released 4.1 million tons of carbon dioxide and other greenhouse gases in 2020, researchers found — more evidence that dried-out lakes are a significant source of emissions.

Updated July 25, 2024 More than 1 year ago

5 min 276

Snow and water pool on a stretch of exposed lake bed on the southern end of the Great Salt Lake in Magna, Utah, in 2023. (James Fish for The Washington Post)

By Joshua Partlow

Highlights of 2024 media coverage

The Washington Post reported on CEAB-CSIC research into the ecological collapse of the *Aral Sea*, underlining the centre's contribution to understanding extreme ecosystem degradation.

National Geographic featured a study on marine sponges and the discovery of glass-producing proteins, shedding light on the origins of the first animals.

RTVE (*Spain's public broadcasting corporation, including TVE and RNE*) highlighted CEAB-CSIC's pioneering use of underwater robots to monitor and restore seagrass meadows, positioning the centre at the forefront of marine conservation technologies.

Agencia SINC (*Spain's leading public science news agency*) disseminated research on the adaptive capacity of deep-sea hydrothermal fauna, which was subsequently echoed in numerous other outlets.

El Periódico, Ara and **TV3** (*Catalonia's leading media*) covered studies on the spread of the invasive alga *Caulerpa cylindracea* in the Medes Islands and along the Catalan coast, drawing attention to its severe ecological impacts.

Digital communication and website

2024 was the first full year of operation for CEAB-CSIC's new website, making direct comparisons with previous years difficult. The site recorded more than **29,000 total visits,** from around **8,300 unique users**.

~29,000 total visits

~8,300 unique users

~2,100 followers

~175k impressions

~4,2k profile visits

~4,900 followers

~500k impressions

~60k profile visits

Instagram feed from 2024

Social media presence

The year also saw **growth and diversification** across CEAB-CSIC's social media platforms. Alongside established channels, the Centre launched new profiles on **Bluesky and LinkedIn**, and began regular content sharing on **YouTube**. Although the addition of new platforms changes the overall digital landscape from previous years, **the available metrics consistently indicate a clear strengthening of CEAB-CSIC's online presence.**

The strongest growth was recorded on **Instagram**, which reached **~2,100 followers,** generated over 175,000 impressions and achieved 4,200 profile visits in 2024. This represents a significant increase compared to 2023, when **the platform had 1,527 followers**, indicating steady growth in community engagement.

Overall, these figures reflect an increasingly dynamic and engaging communication strategy, fostering closer connections with stakeholders and the wider public.

Appendix

List of scientific articles, press notes and outreach activities

SCIENTIFIC ARTICLES

Abid N, Noman M K, Kovács G, Islam S M S, Adewumi T, Lavery P, Shafait F, Liwicki M. Seagrass classification using unsupervised curriculum learning (UCL). Ecological Informatics. November 2024;83:102804. Available from: https://doi.org/10.1016/j.ecoinf.2024.102804

Abourashed A, de Best P A, Doornekamp L, Sikkema R S, van Gorp E C M, Timen A, Bartumeus F, Palmer J R B, Koopmans M P G. Development and validation of the MosquitoWise survey to assess perceptions towards mosquitoes and mosquito-borne viruses in Europe. Scientific Reports. 20 January 2024;14(1):1777. Available from: https://doi.org/10.1038/s41598-024-52219-9

Alfaro-lucas J M, Martin D, Michel L N, Laes A, Cathalot C, Fuchs S, Sarrazin J. Fluid chemistry alters faunal trophodynamics but not composition on the deep-sea Capelinhos hydrothermal edifice (Lucky Strike vent field, Mid-Atlantic Ridge). Scientific Reports. 22 January 2024;14(1):1940. Available from: https://doi.org/10.1038/s41598-024-52186-1

Almeida L, Bellver-arnau J, Privat Y, Rebelo C. Vector-borne disease outbreak control via instant releases. Journal of Mathematical Biology. December 2024;89(6):63. Available from: https://doi.org/10.1007/s00285-024-02159-9

Apostolaki E T, Lavery P S, Litsi-mizan V, Serrano E, Inostroza K, Gerakaris V, Dailianis T, Glampedakis J, Holitzki T, Johnson E, Mateo M A, Serrano O. Patterns of Carbon and Nitrogen Accumulation in Seagrass (Posidonia oceanica) Meadows of the Eastern Mediterranean Sea. Journal of Geophysical Research - Biogeosciences. December 2024;129(12):e2024JG008163. Available from: https://doi.org/10.1029/2024JG008163

Arafeh-dalmau N, Erlania, Cebrian E, Dunga L V, Horta P, Layton C, Macaya E C, Mangialajo L, Moore P J, Mora-soto A, Reddy M M, Smit A J, Spector P, Nguyen V T, Verdura J, Pocklington J B. Introducing the Seaweed Specialist Group of the IUCN Species Survival Commission. Oryx. March 2024;58(2):147-8. Available from: https://doi.org/10.1017/S003060532300193X

Arriaga O, Wawrzynkowski P, Muguerza N, Díez I, González J, Gorostiaga J M, Quintano E, Becerro M A. Thermal refugia reinforce macroalgal resilience against climate change in the southeastern Bay of Biscay. Global Change Biology. August 2024;30(8):e17481. Available from: https://doi.org/10.1111/gcb.17481

Arriaga O, Wawrzynkowski P, Muguerza N, Díez I, Gorostiaga J, Quintano E, Becerro M. The thermal journey of macroalgae: Four decades of temperature-induced changes in the southeastern Bay of Biscay. Marine Environmental Research. March 2024;195:106351. Available from: https://doi.org/10.1016/j.marenvres.2024.106351

Atli G, Zamora L, Vila-gispert A, Guasch H. The evaluations of oxidative stress and neurotoxicity in threatened endemic fish Barbus meridionalis from Osor River (Spain). Aquatic Toxicology. November 2024;276:107099. Available from: https://doi.org/10.1016/j.aquatox.2024.107099

Azzella M M, Vecchia A D, Abeli T, Alahuhta J, Amoroso V B, Ballesteros E, Gacia E, ... Bolpagni R. Global assessment of aquatic Isoëtes species ecology. Freshwater Biology. October 2024;69(10):1420-37. Available from: https://doi.org/10.1111/fwb.14316

Balatsos G, Blanco-sierra L, Karras V, Puggioli A, Osório H C, Bellini R, Papachristos D P, Bouyer J, Bartumeus F, Papadopoulos N T, Michaelakis A. Residual Longevity of Recaptured Sterile Mosquitoes as a Tool to Understand Field Performance and Reveal Quality. Insects. 23 October 2024;15(11):826. Available from: https://doi.org/10.3390/insects15110826

Baud M, Macpherson E, Pérez M, Romero J, Ricart A M. Multiple scale assessment of habitat, landscape, and geographic-specific attributes driving decapod assemblages in Posidonia oceanica seagrass meadows. Marine Environmental Research. May 2024;197:106464. Available from: https://doi.org/10.1016/j.marenvres.2024.106464

Behrmann-godel J, Roch S, Böhm A, Jolles J W, Brinker A. Genetic

differentiation and phenotypic plasticity drive troglomorphic character development in European cavefish. Evolution. 26 March 2024;78(4):734-45. Available from: https://doi.org/10.1093/evolut/qpae010

Bello L, Albó A, Aymerich P, Buchaca T, Caner J, Cardarelli E, Corapi A, Nogué L, Osorio V, Sabás I, Sacchi G, Suraci F, Ventura M, Tiberti R. Introduced fish reduce the occurrence of shrews in alpine lakes. Biological Conservation. November 2024;299:110830. Available from: https://doi.org/10.1016/j.biocon.2024.110830

Bellver-arnau J, Margheri A, Rebelo C. Dynamics of a Mosquito Egg-Larvae Model with Seasonality. Bulletin of Mathematical Biology. January 2024;86(1):9. Available from: https://doi.org/10.1007/s11538-023-01238-0

Blanco-sierra L, Bellver-arnau J, Escartin S, Mariani S, Bartumeus F. Human–Environment Interactions Shape Mosquito Seasonal Population Dynamics. Insects. 12 July 2024;15(7):527. Available from: https://doi.org/10.3390/insects15070527

Blancosierra L, Savvidou E C, Mpakovasili E D, Ioannou C S, Bartumeus F, Papadopoulos N T. Effect of water salinity on immature performance and lifespan of adult Asian tiger mosquito. Parasites & Vectors. 18 January 2024;17(1):24. Available from: https://doi.org/10.1186/s13071-023-06069-5

Boada J, Smith T M, Ricart A M, Alcoverro T, Pérez M, Romero J, Sanmartí N, Ontoria Y, Pierrejen M, Arthur R, Alonso D, Adams M P, Rossi F. Differential coping capacities underlie the overall resistance of temperate seagrasses to herbivory. Ecosphere. December 2024;15(12):e70075. Available from: https://doi.org/10.1002/ecs2.70075

Buchaca T, Catalan J. Nonlinearities in phytoplankton groups across temperate high mountain lakes. Journal of Ecology. April 2024;112(4):755-69. Available from: https://doi.org/10.1111/1365-2745.14267

Campbell J E, Marco-méndez C, … Wied W L. Herbivore effects increase with latitude across the extent of a foundational seagrass. Nature Ecology & Evolution. 16 February 2024;8(4):663-75. Available from: https://doi.org/10.1038/s41559-024-02336-5

Casoli E, … Ballesteros E, … Jonalasinio G. Structure and diversity patterns of coralligenous cliffs across three ecoregions in the Central-Western Mediterranean Sea. Diversity and Distributions. September 2024;30(9):e13833 Available from: https://doi.org/10.1111/ddi.13833

Colls M, Lupon A, … Romero F. Impacts of diffuse urban stressors on stream benthic communities and ecosystem functioning. Limnetica. 23 May 2023;43(1):1. Available from: https://doi.org/10.23818/limn.43.07

Cosme L V, … Eritja R, … Caccone A. A genotyping array for the globally invasive vector mosquito, Aedes albopictus. Parasites & Vectors. 4 March 2024;17(1):106. Available from: https://doi.org/10.1186/s13071-024-06158-z

Cristín J, Fernández-lópez P, Lloret-cabot R, Genovart M, Méndez V, Bartumeus F, Campos D. Spatiotemporal organization of ant foraging from a complex systems perspective. Scientific Reports. 4 June 2024;14(1):12801. Available from: https://doi.org/10.1038/s41598-024-63307-1

Dahl M, Gullström M, Bernabeu I, Serrano O, … Mateo M A. A 2000-Year Record of Eelgrass (Zostera marina L.) Colonization Shows Substantial Gains in Blue Carbon Storage and Nutrient Retention. Global Biogeochemical Cycles. March 2024;38(3):e2023GB008039. Available from: https://doi.org/10.1029/2023GB008039

de Best P A, Abourashed A, Doornekamp L, van Gorp E C M, Timen A, Sikkema R S, Bartumeus F, Palmer J R B, Koopmans M P G. Determinants of intended prevention behaviour against mosquitoes and mosquito-borne viruses in the Netherlands and Spain using the MosquitoWise survey: cross-sectional study. BMC Public Health. 4 July 2024;24(1):1781. Available from: https::://doi.org/10.1186/s12889-024-19293-0

Dee S, Beltran L, Billinghurst J, Lavery P S, Gras O S, Whale J W, Hyndes G. Wrack N' Roll: The Ecological Role of Beach Wrack. Frontiers for Young Minds. 10 July 2024;12:1369401. Available

from: https://doi.org/10.3389/frym.2024.1369401

Di Stefano M, Macpherson E, … Raventos N, … Rossi V. Early-life dispersal traits of coastal fishes: an extensive database combining observations and growth models. Earth System Science Data. 28 August 2024;16(8):3851-71. Available from: https://doi.org/10.5194/essd-16-3851-2024

Dočkalová K, Stuchlík E, Hamerlík L, Bitušík P, Turek J, Svitok M, Novikmec M, Lackner R, Dvorak M, Kopáček J, Tátosová J, Camarero L, Füreder L, Vondrák D. Cold mountain stream chironomids (Diptera) of the genus Diamesa indicate both historical and recent climate change. Environmental Entomology. 17 August 2024;53(4):604-18. Available from: https://doi.org/10.1093/ee/nvae052

Eger A, Boada J, … Vergès A. The Kelp Forest Challenge: A collaborative global movement to protect and restore 4 million hectares of kelp forests. Journal of Applied Phycology. April 2024;36(2):951-64. Available from: https://doi.org/10.1007/s10811-023-03103-y

El Asri F, Errhif A, Tamsouri M, Martin D, Maanan M, Zidane H. Macroinvertebrate structure and trophic-functional organization in relation to environmental conditions in Dakhla Bay (southeast Morocco). Biologia. 25 September 2023;79(1):123-34. Available from: https://doi.org/10.1007/s11756-023-01508-1

Enguídanos García A, Galià-camps C, Pérez-gonzález C M, Víquez D, Mateos E. Expanding Soil Invertebrate Knowledge in Panama: The Genus Lepidocyrtus (Collembola, Entomobryidae) in the Parque Natural Metropolitano as a Study Case. Insects. 30 November 2024;15(12):951. Available from: https://doi.org/10.3390/insects15120951

Estrada L, Garcia X, Saló J, Marcé R, Munné A, Acuña V. Spatio-temporal patterns and trends of streamflow in water-scarce Mediterranean basins. Hydrology and Earth System Sciences. 17 December 2024;28(24):5353-73. Available from: https://doi.org/10.5194/hess-28-5353-2024

Forteza V, Castelló M, Ballesteros E. Invasion of Batophora J. Agardh, 1854 (Chlorophyta: Dasycladales) in Formentera, Balearic Islands. Societat d'Història Natural de les Balears. nan Available from: https://bshnb.shnb.org/wp-content/uploads/2024/07/6-Forteza-et-al.pdf

Foster N R, Jones A R, Serrano O, Lafratta A, Lavery P S, van Dijk K, Biffin E, Gillanders B M, Young J, Masque P, Gadd P S, Jacobsen G E, Zawadzki A, Greene A, Waycott M. Environmental DNA identifies coastal plant community shift 1,000 years ago in Torrens Island, South Australia. Communications Earth & Enviroment. 6 March 2024;5(1):115. Available from: https://doi.org/10.1038/s43247-024-01277-y

Galià-camps C, Carreras C, Pascual M, Greve C, Schell T, Turon X, Palacín C, Pérez-portela R, Wangensteen O S, Pegueroles C. Chromosome-level genome assembly and annotation of the black sea urchin Arbacia lixula (Linnaeus, 1758). DNA Research. 1 August 2024;31(4):dsae020. Available from: https://doi.org/10.1093/dnares/dsae020

Galià-camps C, Enguídanos A, Turon X, Pascual M, Carreras C. The past, the recent, and the ongoing evolutionary processes of the worldwide invasive ascidian Styela plicata. Molecular Ecology. September 2024;33(18):e17502. Available from: https://doi.org/10.1111/mec.17502

Galià-camps C, Junkin L, Borrallo X, Carreras C, Pascual M, Turon X. Navigating spatio-temporal microbiome dynamics: Environmental factors and trace elements shape the symbiont community of an invasive marine species. Marine Pollution Bulletin. June 2024;203:116477. Available from: https://doi.org/10.1016/j.marpolbul.2024.116477

Galià-camps C, Pegueroles C, Turon X, Carreras C, Pascual M. Genome composition and GC content influence loci distribution in reduced representation genomic studies (vol 25, 410, 2024). BMC Genomics. September 2024;33(18):e17502. Available from: https://doi.org/10.1111/mec.17502

Galià-camps C, Schell T, Enguídanos A, Pegueroles C, Arnedo M A, Arias Ballesteros M, Valdés Á, Greve C. Jumping through hoops: Structural rearrangements and accelerated mutation rates on Dendrodorididae (Mollusca: Nudibranchia)

mitogenomes rumble their evolution. Molecular Phylogenetics and Evolution. December 2024;201:108218. Available from: https://doi.org/10.1016/j.ympev.2024.108218

Galobart C, Sitjà C, De Caralt S, Santamaría J, Vergés A, Boada J, Cebrian E. Oxygen and pH fluxes in shallow bay habitats: Evaluating the effectiveness of a macroalgal forest restoration. Journal of Phycology. February 2025;61(1):20-33. Available from: https://doi.org/10.1111/jpy.13520

García-escudero C A, Litsi-mizan V, Efthymiadis P T, Gerakaris V, Serrano O, Apostolaki E T. Strong marine heatwaves trigger flowering in seagrass. Limnology and Oceanography. July 2024;69(7):1494-507. Available from: https://doi.org/10.1002/lno.12589

García-garcía D, Fernández-martínez B, Bartumeus F, Gómez-barroso D. Modeling the Regional Distribution of International Travelers in Spain to Estimate Imported Cases of Dengue and Malaria: Statistical Inference and Validation Study. JMIR Public Health and Surveillance. 27 May 2024;10:e51191 Available from: https://doi.org/10.2196/51191

García-merchán V H, Palero F, Rufino M, Macpherson E, Abelló P, Pascual M. Mitochondrial, nuclear and morphological differentiation in the swimming crab Liocarcinus depurator along the Atlantic-Mediterranean transition. Scientific Reports. 20 August 2024;14(1):19342. Available from: https://doi.org/10.1038/s41598-024-69883-6

Garriga J, Bartumeus F. Towards a comprehensive visualisation of structure in large scale data sets. Machine Learning-Science and Technology. 1 September 2024;5(3):030503. Available from: https://doi.org/10.1088/2632-2153/ad6fea

Genovart M, Ramos R, Igual J M, Sanz-aguilar A, Tavecchia G, Rotger A, Militão T, Vicente-sastre D, Garcia-urdangarin B, Pradel R, González-solís J, Oro D. Individual Choices of Wintering Areas Drive Adult Survival Heterogeneity in a Long-Lived Seabird. Ecology and evolution. December 2024;14(12):e70675. Available from: https://doi.org/10.1002/ece3.70675

Golo R, Cebrian E, Díaz-tapia P, Lucic P, Hoffman R, Vergés A. Phylogenetic analysis of invasive genus Lophocladia (Rhodomelaceae, Rhodophyta) reveals synonymy of L. lallemandii with L. trichoclados and first record of L. kuetzingii in the NE Atlantic. European Journal of Phycology. 2 January 2024;59(1):112-26 Available from: https://doi.org/10.1080/09670262.2023.2260443

Golo R, Santamaría J, Vergés A, Cebrian E. The role of species thermal plasticity for alien species invasibility in a changing climate: A case study of Lophocladia trichoclados. Marine Environmental Research. September 2024;200:106642. Available from: https://doi.org/10.1016/j.marenvres.2024.106642

Gomis E, Ballesteros E, Bernabeu I, Inostroza K, Mateo M Á, Serrano O. Escarpments within Mediterranean seagrass Posidonia oceanica meadows increase habitat heterogeneity and structural complexity enhancing fish diversity and biomass. Frontiers in Marine Science. 3 May 2024;11:1373074. Available from: https://doi.org/10.3389/fmars.2024.1373074

Gonzalez A G, Pokrovsky O S, Auda Y, Shirokova L S, Rols J-L, Auguet J C, de Diego A, Camarero L. Trace elements in the water column of high-altitude Pyrenean lakes: Impact of local weathering and long-range atmospheric input. Environmental Pollution. February 2024;342:123098. Available from: https://doi.org/10.1016/j.envpol.2023.123098

Gordoa A, Navarro J. Updated index of the balfegó purse seine fleet (2003- 2024) and the abnormalities observed in the 2024 fishing season. ICCAT. nan Available from: https://www.iccat.int/Documents/CVSP/CV081_2024/n_5/CV08105139.pdf

Guerrieri R, Cáliz J, ... Casamayor E O, Peñuelas J, Mencuccini M. Substantial contribution of tree canopy nitrifiers to nitrogen fluxes in European forests. Nature Geoscience. February 2024;17(2):130-6. Available from: https://doi.org/10.1038/s41561-023-01364-3

Gutiérrez-cánovas C, Stubbington R, von Schiller D, Bolpagni R, Colls M, Datry T, Marcé R, Bruno D. Use of trait concepts and terminology in freshwater ecology: Historic, current, and future perspectives. Freshwater Biology. April 2024;69(4):477-95. Available from: https://doi.org/10.1111/fwb.14230

Hallberg L, Bernal S, Bieroza M. Seasonal Variation in Flow and

Metabolic Activity Drive Nitrate and Carbon Supply and Demand in a Temperate Agricultural Stream. Journal of Geophysical Research - Biogeosciences. November 2024;129(11):e2024JG008308. Available from: https://doi.org/10.1029/2024JG008308

Henry D, Catalán N, Obrador B, Marcé R. Modeling carbon burial along the land to ocean aquatic continuum: Current status, challenges and perspectives. Earth-Science Reviews. June 2024;253:104791. Available from: https://doi.org/10.1016/j.earscirev.2024.104791

Hierro A, Ballesteros E, Máñez-crespo J, Reynés X, Tomàs F. On the presence of an unexpected meadow of Penicillus capitatus Lamarck (Bryopsidales: Chlorophyta) in Mallorca. Mediterranean Marine Science. 13 June 2024;25(2):279-86. Available from: https://doi.org/10.12681/mms.37142

Jaishankar S, Nair R, Alcoverro T, Arthur R. Anvil use by three wrasse species: Halichoeres hortulanus, Thalassoma jansenii, and Thalassoma lunare. Coral Reefs. April 2024;43(2):483-7. Available from: https://doi.org/ 10.1007/s00338-024-02467-y

Jimi N, Britayev T A, Sako M, Woo S P, Martin D. A new genus and species of nudibranch-mimicking Syllidae (Annelida, Polychaeta). Scientific Reports. 29 July 2024;14(1):17123. Available from: https://doi.org/10.1038/s41598-024-66465-4

Jolles J W, Bohm A, Brinker A, Behrmann-godel J. Unravelling the origins of boldness behaviour: A common garden experiment with cavefish (Barbatula barbatula). Royal Society Open Science. January 2024;11(1):231517. Available from: https://doi.org/10.1098/rsos.231517

Kininmonth S J, López Ferrando D, Becerro M. Neighbourhood benthic configuration reveals hidden co-occurrence social diversity. Philosophical Transactions of the Royal Society B - Biological Sciences. 9 September 2024;379(1909):20230174. Available from: https://doi.org/10.1098/rstb.2023.0174

Klink J, Aixalà Perelló L, Abily M, Saló J, Rodríguez-Roda I, Marcé R, Gernjak W, Corominas L. Coupling hydrological and sanitation datasets to simulate wastewater-derived contamination in European rivers: Model development and calibration. Environmental Modelling & Software. July 2024;178:106049. Available from: https://doi.org/10.1016/j.envsoft.2024.106049

Lu L, Zhang F, Munnink B B O, Munger E, Sikkema R S, Pappa S, Tsioka K, Sinigaglia A, Molin E D, Shih B B, Günther A, Pohlmann A, Beer M, Taylor R A, Bartumeus F, Woolhouse M, Aarestrup F M, Barzon L, Papa A, Lycett S, Koopmans M P G. West Nile virus spread in Europe: Phylogeographic pattern analysis and key drivers. Plos Pathogens. 25 January 2024;20(1):e1011880. Available from: https://doi.org/10.1371/journal.ppat.1011880

Macpherson E, Rodríguez-flores P C, Machordom A. DNA barcoding and morphology revealed the existence of seven new species of squat lobsters in the family Munididae (Decapoda, Galatheoidea) in the southwestern Pacific. Zookeys. 3 January 2024;1188:91-123. Available from: https://doi.org/ 10.3897/zookeys.1188.114984

Macreadie P I, Costa M D P, Atwood T B, Friess D A, Kelleway J J, Kennedy H, Lovelock C E, Serrano O, Davey T, Duarte C M. Blue Carbon Ecosystems: Ocean Heroes in the Fight Against Climate Change. Frontiers for Young Minds. 24 April 2024;12:1319691. Available from: https://doi.org/10.3389/frym.2024.1319691

Männer L, Schell T, Spies J, Galià-camps C, Baranski D, Hamadou A B, Gerheim C, Neveling K, Helfrich E J N, Greve C. Chromosome-level genome assembly of the sacoglossan sea slug Elysia timida (Risso, 1818). BMC Genomics. 7 October 2024;25(1):941. Available from: https://doi.org/10.1186/s12864-024-10829-7

Marco-Méndez C, Minguito-Frutos M, García M, Pagès J F, Prado P, Boada J, Buñuel X, ... Alcoverro T. Evaluating the extent and impact of the extreme Storm Gloria on Posidonia oceanica seagrass meadows. Science of the Total Enviroment. January 2024;908:168404. Available from: https://doi.org/10.1016/j.scitotenv.2023.168404

Margenat H, Guasch H, Le Roux G, Vila-gispert A, Cornejo D,

Chouache L, Martí E, Sonke J E, Zrelli R B E, Laffont L, Hansson S V. Distinct dynamics in mountain watersheds: Exploring mercury and microplastic pollution—Unraveling the influence of atmospheric deposition, human activities, and hydrology. Environmental Research. February 2024;242:117760. Available from: https://doi.org/10.1016/j.envres.2023.117760

Martínez-barciela Y, González A P, Martínez J M P, Gradín F C, González J G, Costa X A, Ortega Á P, Pichel E Í, Cortiñas M Á, Eritja R. First record of Aedes albopictus in Galicia, obtained by citizen science through Mosquito Alert Primera cita de Aedes albopictus para Galicia, obtenida mediante ciencia ciudadana por Mosquito Alert. Gaceta Sanitaria. 2024;38:102374. Available from: https://doi.org/10.1016/j.gaceta.2024.102374

Maxwell T L, ... Serrano O, ... Worthington T A. Soil carbon in the world's tidal marshes. Nature Communications. 26 November 2024;15(1):10265. Available from: https://doi.org/10.1038/s41467-024-54572-9

Mcgaughran A, ... Rius M, ... Wilson J. Genomic Tools in Biological Invasions: Current State and Future Frontiers. Genome Biology and Evolution. 5 January 2024;16(1):evad230. Available from: https://doi.org/10.1093/gbe/evad230

Menéndez-serra M, Cáliz J, Triadó-margarit X, Alonso D, Casamayor E O. Selective Pressure Influences Inter-Biome Dispersal in the Assembly of Saline Microbial Communities. Environmental Microbiology. December 2024;26(12):e70019. Available from: https://doi.org/10.1111/1462-2920.70019

Merbt S N, Kroll A, Sgier L, Tlili A, Schirmer K, Behra R. Fate and effects of microplastic particles in a periphyton-grazer system. Environmental Pollution. April 2024;347:123798. Available from: https://doi.org/10.1016/j.envpol.2024.123798

Messetta M L, Feijoó C, Torremorell A, Martí E, Ribot M. Differential use of DOM sources to sustain respiratory activity in epiphytic and epipelic biofilms in an open-canopy stream. Hydrobiologia. November 2024;851(20):4979-93. Available from: https://doi.org/10.1007/s10750-024-05657-5

Meyer M F, Hensley R T, Barbosa C C, Borrelli J J, Feldbauer J, Harlan M E, Kuyumcu B, Ladwig R, Mesman J P, Pilla R M, Zhan Q, Zwart J A, Ayala A I, Brinkerhoff C B, Kneis D, Mercado-bettín D, Nickles C, Pierson D C, Thongthaisong P, Vanderkelen I. The 2024 "Hacking Limnology" Workshop Series and Virtual Summit: Increasing Inclusion, Participation, and Representation in the Aquatic Sciences. ASLO. November 2024;33(4):183-6. Available from: https://doi.org/10.1002/lob.10672

Milles A, Bielcik M, Banitz T, Gallagher C A, Jeltsch F, Jepsen J U, Oro D, Radchuk V, Grimm V. Defining ecological buffer mechanisms should consider diverse approaches. Trends in Ecology & Evolution. February 2024;39(2):119-20. Available from: https://doi.org/10.1016/j.tree.2023.12.008

Mogi M, Armbruster P A, Eritja R, Sunahara T, Tuno N. How far do forest container mosquitoes (Diptera: Culicidae) invade rural and urban areas in Japan? - Simple landscape ecology with comparison of the invasive Aedes ecology between native and invasive ranges. Journal of Medical Entomology. 10 September 2024;61(5):1168-80. Available from: https://doi.org/10.1093/jme/tjae094

Moreda U, Mazarrasa I, Cebrian E, Kaal J, Ricart A M, Serrano E, Serrano O. Role of macroalgal forests within Mediterranean shallow bays in blue carbon storage. Science of the Total Enviroment. July 2024;934:173219. Available from: https://doi.org/10.1016/j.scitotenv.2024.173219

Múrria C, Maceda-veiga A, Barata C, Gomà J, Faria M, Antich A, Arnedo M A, Bonada N, Prat N. From biomarkers to community composition: Negative effects of UV/chlorine-treated reclaimed urban wastewater on freshwater biota. Science of the Total Enviroment. February 2024;912:169561. Available from: https://doi.org/10.1016/j.scitotenv.2023.169561

Nelson P V, Azam F, Low R D, Carney R M, Kohl H, Falk M, Overoye D, Garriga J, Yang D, Schelkin L, Huang X, Boger R, Chellappan S, Schwerin T. GLOBE Observer: A Case Study in Advancing Earth System Knowledge with AI-Powered Citizen Science. Citizen Science: Theory and Practice. 9 December

2024;9(1):33. Available from: https://doi.org/10.5334/cstp.747

Nordlund L M, ... Serrano O, ... Wilkes R. One hundred priority questions for advancing seagrass conservation in Europe. Plants People Planet. May 2024;6(3):587-603. Available from: https://doi.org/10.1002/ppp3.10486

Oro D, Freixas L, Bartrina C, Míguez S, Torre I. Direct and indirect effects of climate and seed dynamics on the breeding performance of a seed predator at the distribution edge. Ecology and evolution. August 2024;14(8):e70104. Available from: https://doi.org/10.1002/ece3.70104

Padilla-pozo Á, Bartumeus F, Montalvo T, Sanpera-calbet I, Valsecchi A, Palmer J R B. Assessing and correcting neighborhood socioeconomic spatial sampling biases in citizen science mosquito data collection. Scientific Reports. 28 September 2024;14(1):22462. Available from: https://doi.org/10.1038/s41598-024-73416-6

Pardo-araujo M, Eritja R, Alonso D, Bartumeus F. Present and future suitability of invasive and urban vectors through an environmentally driven mosquito reproduction number. Proceedings of the Royal Society B - Biological Sciences. November 2024;291(2034):20241960. Available from: https://doi.org/10.1098/rspb.2024.1960

Pedregal-montes A, Jennings E, Kothawala D, Jones K, Sjöstedt J, Langenheder S, Marcé R, Farré M J. Disinfection by-product formation potential in response to variability in dissolved organic matter and nutrient inputs: Insights from a mesocosm study. Water Research. July 2024;258:121791. Available from: https://doi.org/10.1016/j.watres.2024.121791

Peñarroya X, Catalán N, Freixa A, Lupon A, Triadó-margarit X, Martí E, Soler M, Casamayor E O, Bernal S. Organic Matter Composition and Water Stoichiometry Are Main Drivers of Heterotrophic Nitrate Uptake in Mediterranean Headwater Streams. Journal of Geophysical Research - Biogeosciences. December 2024;129(12):e2024JG008346. Available from: https://doi.org/10.1029/2024JG008346

Pinedo S, Jordana E, Ballesteros E. Assessing the diversity and species composition in macroinvertebrate assemblages thriving in shallow water macroalgal habitats: Structural complexity is not always better. Marine Environmental Research. November 2024;202:106818. Available from: https://doi.org/10.1016/j.marenvres.2024.106818

Pla-rabes S, Matias M G, Gonçalves V, Loureiro D V, Marques H, Bao R, Buchaca T, Hernández A, Giralt S, Sáez A, Simpson G L, Nogué S, Raposeiro P M. Global warming triggers abrupt regime shifts in island lake ecosystems in the Azores Archipelago. Communications Earth & Enviroment. 8 October 2024;5(1):571. Available from: https://doi.org/10.1038/s43247-024-01744-6

Prats R M, Ventura M, Pou-rovira Q, Buchaca T, Fernández P, Grimalt J O, van Drooge B L. Simple on-site extraction and GC-MS analysis of rotenone and degradation products for monitoring invasive fish eradication treatments in fresh and brackish waters. Journal of Chromatography A. August 2024;1730:465063. Available from: https://doi.org/10.1016/j.chroma.2024.465063

Ramoneda J, Fan K, Lucas J M, Chu H, Bissett A, Strickland M S, Fierer N. Ecological relevance of flagellar motility in soil bacterial communities. ISME Journal. 8 January 2024;18(1):wrae067. Available from: https://doi.org/10.1093/ismejo/wrae067

Ramoneda J, Hoffert M, Stallard-olivera E, Casamayor E O, Fierer N. Leveraging genomic information to predict environmental preferences of bacteria. ISME Journal. 8 January 2024;18(1):wrae195. Available from: https://doi.org/10.1093/ismejo/wrae195

Rius M, Turon X, Morán P, Pérez J, Almón B, Pahad G, Teske P R, Vázquez E. A morphogenetic characterisation of a potentially dominant African marine species in Europe. Biological Invasions. September 2024;26(9):2811-8. Available from: https://doi.org/10.1007/s10530-024-03354-x

Rodríguez-Caro R C, Boada J, ... Capdevila P. The importance of locally sourced data in identifying population trends:

Insights from Iberian vertebrates. Biological Conservation. October 2024;298:110755. Available from: https://doi.org/10.1016/j.biocon.2024.110755

Rouyer T, Derridj O, Landreau A, Cobos M C D L, Arrizabalaga H, Valls F, Teson A, Deguara S, Galea J, Wendling B, Navarro J, Gordoa A. Preliminary results and perspectives from bluefin tuna tagging activities within the prompt and fishnchip projects. ICCAT. nan Available from: https://www.iccat.int/Documents/CVSP/CV081_2024/n_5/CV08105142.pdf

Ruan C, Ramoneda J, Kan A, Rudge T J, Wang G, Johnson D R. Phage predation accelerates the spread of plasmid-encoded antibiotic resistance. Nature Communications. 26 June 2024;15(1):5397. Available from: https://doi.org/10.1038/s41467-024-49840-7

Sabás I, Miró A, Piera J, Catalan J, Camarero L, Buchaca T, Ventura M. Ice phenology interactions with water and air temperatures in high mountain lakes. Science of the Total Enviroment. September 2024;941:173571. Available from: https://doi.org/10.1016/j.scitotenv.2024.173571

Sangiorgio D, Cáliz J, Mattana S, Barceló A, De Cinti B, Elustondo D, Hellsten S, Magnani F, Matteucci G, Merilä P, Nicolas M, Ravaioli D, Thimonier A, Vanguelova E, Verstraeten A, Waldner P, Casamayor E O, Peñuelas J, Mencuccini M, Guerrieri R. Host species and temperature drive beech and Scots pine phyllosphere microbiota across European forests. Communications Earth & Enviroment. 29 November 2024;5(1):747. Available from: https://doi.org/10.1038/s43247-024-01895-6

Schaffner F, Kwaśnik M, Myczko Ł, Rożek W, Eritja R, ... Leszczyńska J. A survey targeting exotic Aedes mosquito species in Central Europe, summer 2023, reveals the extensive occurrence of Aedes japonicus in Poland. Journal of the European Mosquito Control Association. 22 August 2024;1-15. Available from: https://doi.org/10.52004/2054930X-20241010

Sepp M, González-trujillo J D, Marcé R, Sabater S. Synthesis reveals heterogeneous changes in the metabolism and emission of greenhouse gases of drying rivers. Environmental Research Letters. 1 November 2024;19(11):113002. Available from: https://doi.org/10.1088/1748-9326/ad786e

Shikhani M, Feldbauer J, Ladwig R, Mercado-bettín D, Moore T N, Gevorgyan A, Misakyan A, Mi C, Schultze M, Boehrer B, Shatwell T, Barfus K, Rinke K. Combining a Multi-Lake Model Ensemble and a Multi-Domain CORDEX Climate Data Ensemble for Assessing Climate Change Impacts on Lake Sevan. Water Resources Research. November 2024;60(11):e2023WR036511. Available from: https://doi.org/10.1029/2023WR036511

Shimizu K, Nishi M, Sakate Y, Kawanami H, Bito T, Arima J, Leria L, Maldonado M. Silica-associated proteins from hexactinellid sponges support an alternative evolutionary scenario for biomineralization in Porifera. Nature Communications. 7 January 2024;15(1):181. Available from: https://doi.org/10.1038/s41467-023-44226-7

Streng K, der Honing R W H, Graham H, van Oort S, de Best P A, Abourashed A, van der Poel W H M. Orthoflavivirus surveillance in the Netherlands: Insights from a serosurvey in horses & dogs and a questionnaire among horse owners. Zoonoses and Public Health. December 2024;71(8):900-10. Available from: https://doi.org/10.1111/zph.13171

Teixidó N, Carlot J, Alliouane S, Ballesteros E, De Vittor C, Gambi M C, Gattuso J, Kroeker K, Micheli F, Mirasole A, Parravacini V, Villéger S. Functional changes across marine habitats due to ocean acidification. Global Change Biology. January 2024;30(1):e17105. Available from: https://doi.org/10.1111/gcb.17105

Tomas F, Hernan G, Mañez-crespo J, Arona A, Meléndez D H, Reynés X, Delgado J, Procaccini G, Ballesteros E. Mass flowering and unprecedented extended pseudovivipary in seagrass (Posidonia oceanica) after a Marine Heat Wave. Marine Pollution Bulletin. June 2024;203:116394. Available from: https://doi.org/10.1016/j.marpolbul.2024.116394

Torre I, Grajera J, Amat F, Oro D, Mañosa S. Prey dynamics and breeding performance in a generalist predator: The differential role of prey density. Acta Oecologica-Internacional Journal of Ecology. May 2024;123:103999. Available from: https://doi.org/10.1016/j.actao.2024.103999

Toso Y, Martini F, Riccardi A, Furfaro G. Unraveling the Sea Slug Fauna from an Extremely Variable Environment, The 'Passetto' Rocky

Tide Pools (North Adriatic Sea). Water. 13 June 2024;16(12):1687. Available from: https://doi.org/10.3390/w16121687

Treskova M, Montalvo T, Rocklöv J, Hatfield C, Bartumeus F, Dasgupta S, Encarnação J, Lowe R, Semenza J C, Stiles P, Noya J, Valsecchi A, Bärnighausen T, Palmer J R, Bunker A. Effects of mosquito-proofing storm drains on adult and larval mosquito abundance: Protocol of the IDAIErt storm drAin randomiSed controlled trial (IDEAS). MethodsX. June 2025;14:103102. Available from: https://doi.org/10.1016/j.mex.2024.103102

Trevathan-Tackett S M, Gacia E, ... Adame M F. Climate Effects on Belowground Tea Litter Decomposition Depend on Ecosystem and Organic Matter Types in Global Wetlands. Environmental Science & Technology. 10 December 2024;58(49):21589-603. Available from: https://doi.org/10.1021/acs.est.4c02116

Turon M, Ford M, Maldonado M, Sitjà C, Riesgo A, Díezvives C. Microbiome changes through the ontogeny of the marine sponge Crambe crambe. Environmental Microbiome. 11 March 2024;19(1):15. Available from: https://doi.org/10.1186/s40793-024-00556-7

Turon X, Lopez-legentil S. New Clavelina (Ascidiacea) Species from the Bahamas †. Taxonomy. 3 September 2024;4(3):661-79. Available from: https://doi.org/10.3390/taxonomy4030034

Ugarelli K, ... Marco-méndez C, ... Stingl U. Microbiomes of Thalassia testudinum throughout the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico are influenced by site and region while maintaining a core microbiome. Frontiers in Microbiology. 23 February 2024;15:1357797. Available from: https://doi.org/10.3389/fmicb.2024.1357797

Van Der Loos LM, Bafort Q, Bosch S, Ballesteros E, ...Mineur F. Non-indigenous seaweeds in the Northeast Atlantic Ocean, the Mediterranean Sea and Macaronesia: a critical synthesis of diversity, spatial and temporal patterns. European Journal of Phycology. 2 April 2024;59(2):127-56. Available from: https://doi.org/10.1080/09670262.2023.2256828

Verbruggen H, Ballesteros E. An Atlantic origin for the introduced species Halimeda incrassata (Bryopsidales, Chlorophyta). Mediterranean Marine Science. 15 March 2024;25(1):55-7. Available from: https://doi.org/10.12681/mms.35993

Verri G, De Lorenzis A, Santos da Costa V, Sorolla A, Löchner A, Ribot M, Marti E, Delgado S C, Coppini G, Pinardi N. Salt-wedge estuary's response to rising sea level, reduced discharge, and Nature-Based Solution. Frontiers in Climate. 18 December 2024;6:1408038. Available from: https://doi.org/10.3389/fclim.2024.1408038

Vilaplana A F, Afán I, Oro D, Bécares J, Illa M, Gil M, Bertolero A, Forero M G, Ramírez F. Distribution and habitat use by the Audouin's Gull (Ichthyaetus audouinii) in anthropized environments. Science of the Total Enviroment. December 2024;954:176555. Available from: https://doi.org/10.1016/j.scitotenv.2024.176555

Virgillito C, Longo E, De Marco C, Serini P, Zucchelli M, Montarsi F, Severini F, Rosà R, Da Re D, Filipponi F, Manica M, Palmer J,

Bartumeus F, Torre A D, Caputo B. Involving citizen scientists in monitoring arthropod vectors of human and zoonotic diseases: The case of Mosquito Alert in Italy. Science of the Total Enviroment. October 2024;948:174847. Available from: https://doi.org/10.1016/j.scitotenv.2024.174847

Walden L, Serrano O, Shen Z, Zhang M, Lavery P, Luo Z, Gao L, Rossel R A V. Mid-infrared spectroscopy determines the provenance of coastal marine soils and their organic and inorganic carbon content. Science of the Total Enviroment. November 2024;949:174871. Available from: https://doi.org/10.1016/j.scitotenv.2024.174871

Weyhenmeyer G A, ... Marce R, ... Zhou Y. Global Lake Health in the Anthropocene: Societal Implications and Treatment Strategies. Earths Future. April 2024;12(4):e2023EF004387. Available from: https://doi.org/10.1029/2023EF004387

Wood K A, ... Pagès J F, ... Newth J L. A global systematic review of the cultural ecosystem services provided by wetlands. Ecosystem Services. December 2024;70:101673.

Available from: https://doi.org/10.1016/j.ecoser.2024.101673

Woodrow R L, White S A, Conrad S R, Wadnerkar P D, Rocherros G, Sanders C J, Holloway C J, Santos I R. Enhanced stream greenhouse gas emissions at night and during flood events. Limnology and Oceanography Letters. June 2024;9(3):276-85. Available from: https://doi.org/10.1002/lol2.10374

Zarcero J, Antich A, Rius M, Wangensteen O S, Turon X. A new sampling device for metabarcoding surveillance of port communities and detection of non-indigenous species. Iscience. January 2024;27(1):108588. Available from: https://doi.org/10.1016/j.isci.2023.108588

Zarzyczny K M, Hellberg M E, Lugli E B, Maclean M, Paz-garcía D A, Rius M, Ross E G, Balandra E X T, Vanstone J, Williams S T, Fenberg P B. Opposing genetic patterns of range shifting temperate and tropical gastropods in an area undergoing tropicalisation. Journal of Biogeography. February 2024;51(2):246-62. Available from: https://doi.org/10.1111/jbi.14744

Zarzyczny K M, Rius M, Williams S T, Fenberg P B. The ecological and evolutionary consequences of tropicalisation. Trends in Ecology & Evolution. March 2024;39(3):267-79. Available from: https://doi.org/10.1016/j.tree.2023.10.006

Zhou C, Liu D, Keesing J, Zhao N, Serrano O, Masqué P, Yuan Z, Jia Y, Wang Y. Microalgal assemblages response to water quality remediation in coastal waters of Perth, Australia. Environmental Pollution. June 2024;351:124017. Available from: https://doi.org/10.1016/j.envpol.2024.124017

BOOKS

García MB, Díaz M, Oro D, Gacia E, Bosch J, Laiolo P. La pérdida de biodiversidad en el actual escenario de cambio global. Madrid: Spanish National Research Council (CSIC); 2024. 70 p. Available from: https://shorturl.at/rHtGT

Martí Roca E, Cañedo-Argüelles M, Matias MG, Sánchez MI (Coords.). Cuando el agua dulce se vuelve salada. Collection: Ciencia para las Políticas Públicas. Madrid: Spanish National Research Council (CSIC); 2024. 72 p. Available from: https://shorturl.at/mohdF License CC BY 4.0.

BOOK CHAPTERS

Maldonado M, Bayer K, López-Acosta M. Nitrogen and phosphorus cycling through marine sponges: physiology, cytology, genomics, and ecological implications. In: Saleuddin S, Leys SP, Roer RD, Wilkie IC, editors. Frontiers in invertebrate physiology: a collection of reviews. Volume 1: non-bilaterian phyla. London: Taylor & Francis; 2024. p. 197-288.

Sardá R, Olivares A. La conservación de la biodiversidad marina y la correcta aplicación del enfoque por ecosistema: el caso del Mar de l'Empordà y la eólica marina flotante. In: Giménez Candela M, Olivares Gallardo A, editors. La protección de la biodiversidad marina en un contexto de cambio global: aspectos biológicos, **éticos** y jurídicos. Valencia: Tirant lo Blanch; 2024. p. 385-437.

Viejo RM, Castillo JM, Terrados J, Castejón-Silvo I, Cebrián E, Verdura J, Linares C. Restauración de ecosistemas marinos dominados por macrófitos y corales de zonas templadas. In: Mola I, editor. Restauración ecológica: ejemplos de bases técnicas y soluciones prácticas. Madrid: Ministerio para la Transición Ecológica y el Reto Demográfico; 2024. p. 150-160.

von Schiller D, Martí E, Peipoch M, Valett HM. Nutrient dynamics. In: Cross WF, Benstead JP, Marcarelli AM, Sponseller RA, editors. Foundations of stream and river ecology: a guide to the classic literature. Chicago: University of Chicago Press; 2024. p. 107-121.

PRESS NOTES

Discovery of new glass-producing proteins in marine sponges reveals insights into the origins of the first animals | *January, 9th*
https://psee.io/87pgm6

The mediterranean: a sea threatened by plastics | *January, 12th*
https://psee.io/87pgmg

The Financial Times awards a project led by CEAB-CSIC | *January, 24th*
https://psee.io/87pgmx

Bacteria in nutrient-rich environments reduce their genes (and why knowing this is helpful in biomedicine and bioapplications) | *January, 29th*
https://psee.io/87pgn3

Investigating the retention and transport of plastics in Mediterranean rivers | *February, 2nd*
https://psee.io/87pgn6

Nearly 600 students have participated in the talks on February 11th | *February, 14th*
https://psee.io/87pgnb

International recognition for Mosquito Alert at WSA Awards | *February, 21st*
https://psee.io/87pgne

The microorganisms living on tree leaves promote the nitrification process | *February, 22nd*
https://psee.io/87pgnj

A scientific study reveals the surprising adaptation capabilities of deep-sea hydrothermal fauna | *February, 26th*
https://psee.io/87pgnm

A study reveals the seasonal patterns of the various groups of phytoplankton and validates one of the ecological theories that explains them | *March, 11th*
https://psee.io/87pgnq

The scientific research sailboat TARA will sample various points along the Catalan coast | *March, 18th*
https://psee.io/87pgnv

A portrait of phytoplankton in Pyrenean lakes | *March, 21st*
https://psee.io/87pgny

Cinefòrum sobre el documental "Memòries d'un mar", que explica les conseqüències de la dessecació del Mar d'Aral | *April, 3rd*
https://psee.io/87pgp2

Ocean Decade Conference: the summit to define a common strategy for ocean protection | *April, 5th*
https://psee.io/87pgp9

Training courses in aquatic taxonomy are back | *April, 9th*
https://psee.io/87pgpc

Coffee sacks and pruning waste for wastewater treatment | *April, 17th*
https://psee.io/87pgpg

Learn all the steps of the scientific research process | *April, 26th*
https://psee.io/87pgpk

Science is also explained in bars | *May, 2nd*
https://psee.io/87pgpn

One million species, in serious danger of extinction | *May, 16th*
https://psee.io/87pgpt

First international meeting about biodiversity of Pyrenean lakes | *May, 20th*
https://psee.io/87pgpv

We participate in the International Blue Economy Summit | *May, 30th*
https://psee.io/87pgpy

The spanish group of experts on blue carbon ecosystems is born | *June, 5th*
https://psee.io/87pgq3

Iosune Uriz, awarded for her scientific career | *June, 11th*
https://psee.io/87pgq7

1 in 4 tiger mosquito detections in new territories of Spain thanks to citizen science | *June 20th*
https://psee.io/87pgqc

The Mediterranean: a "hotspot" for invasive species | *July, 9th*
https://psee.io/87pgqg

International workshop on marine alien species | *July, 15th*
https://psee.io/87pgql

Invaders in high mountain lakes | *July, 7th*
https://psee.io/87pgqn

Blue carbon ecosystems against climate change | *July, 22nd*
https://psee.io/87pgqs

Student stay within the "Youth and Science" program | *July, 25th*
https://psee.io/87pgqx

Impacts of swimming in high mountain lakes | *July, 29th*
https://psee.io/87pgr2

Discovery of a new marine worm mimicking sea slugs to avoid predators | *July, 30th*
https://psee.io/87pgr7

The ecological role of plant remains that reach beaches | *August, 7th*
https://psee.io/87pgra

The importance of shallow bays | *August, 19th*
https://psee.io/87pgrh

III Research Conference of the Alt Pirineu Natural Park | *August, 23rd*
https://psee.io/87pgrn

International collaboration for the control of disease-transmitting mosquitoes | *August, 26th*
https://psee.io/87pgru

Science and technology to protect seagrass meadows | *August, 30th*
https://psee.io/87pgry

Mass mortality events associated with marine heatwaves | *September, 4th*
https://psee.io/87pgs2

Mosquito Alert Educational Program for this school year | *September, 9th*
https://psee.io/87pgs9

Pioneering action with a biodegradable ichthyocide | *September, 27th*
https://psee.io/87pgsb

CEAB Night brings together around 150 people | *September, 30th*
https://psee.io/87pgsf

Research for offshore wind compatible with the protection of biodiversity | *October, 1st*
https://psee.io/87pgsm

Dr. Enric Ballesteros, new Honorary Socius of the Institució Catalana d'Història Natural | *October, 3rd*
https://psee.io/87pgsp

Research Days at the Aigüestortes National Park | *October, 15th*
https://psee.io/87pgss

The lakes of the Azores: at a point of no return due to climate change | *October, 16th*
https://psee.io/87pgsy

CEAB-CSIC's researchers, in the World's Top 2% Scientists | *October, 21st*
https://psee.io/87pgt7

Reflections and proposals to improve the doctoral experience | *October, 29th*
https://psee.io/87pgta

Microbial communities improve the ecological status of Mediterranean rivers beyond expectations | *November, 4th*
https://psee.io/87pgtc

Open doors to commemorate science week | *November, 8th*
https://psee.io/87pgtg

Report "Sustainable Coastal Zone Management" | *November, 12th*
https://psee.io/87pgtj

A CEAB-CSIC study highlights consensus on protecting the Ebro Delta but reveals differences in approaches | *November, 19th*
https://psee.io/87pgtl

Opening of the exhibition "Marine Invasive Species: The Silent Threat" | *November, 20th*
https://psee.io/87pgtq

Assessing the impacts of salinization in one of Africa's main rivers | *November, 27th*
https://psee.io/87pgtu

Statement of Condolence | *November, 28th*
https://psee.io/87pgtw

The Urban River Lab celebrates 10 years of work restoring the ecological state of rivers | *December, 4th*
https://psee.io/87pgu3

How to implement the new Nature Restoration Law? | *December, 10th*
https://psee.io/87pgu5

Marine Sustainability Award for a CEAB-CSIC Researcher | *December, 11th*
https://psee.io/87pgu8

The Asian algae Rugulopteryx okamurae detected on the Barcelona coastline | *December, 16th*
https://psee.io/87pgub

28% of rivers in Spain are salinized: New report proposes solutions | *December, 18th*
https://psee.io/87pgue

TALKS

Pint of Science

Coordination and Scientific talks of the Blanes venue of the international science outreach festival Pint of Science.

Location: Blanes.
Occurrences: 6.
About the audience: General public. 105 participants.

11F Talks — International Day of Women and Girls in Science

Talks and workshops on different research topics led by CEAB female scientists.

Location: Tordera, Blanes, Malgrat de Mar, Palafrugell, Lloret de Mar, Palafolls, Barcelona.
Occurrences: 21.
About the audience: Students. 627 participants.

EDUCATIONAL PROGRAMMS & COLLABORATIONS

(2024-2025 school year)

Joves i Ciència Programme (Fundació Catalunya La Pedrera)

Mentoring of high school students as part of the Joves i Ciència programme.

Location: Blanes (CEAB-CSIC).
Occurrences: 1.
About the audience: Students. 2 participants.

Magnet Programme – Alliances for Educational Success

Teacher training and student activities developed in the framework of the Magnet school–research partnership.

Location: Lloret de Mar.
Occurrences: 2.
About the audience: Students. 418 participants.

Mosquito Alert (Citizen Science)

Development of a school project based on citizen science through Mosquito Alert.

Location: All Spanish regions except the Canary Islands, La Rioja, and Cantabria.
Occurrences: 54.
About the audience: Students. 2,252 participants.

AUMENTA II

Storytelling and debate activities based on the book Augmented Ecofeminisms.

Location: Blanes, Lloret de Mar, Montellà i Martinet.
Occurrences: 4.
About the audience: Students. 125 participants.

EXHIBITIONS

Marine Invasive Species: The Silent Threat

Exhibition on marine invasive species and their environmental impact.

Location: Barcelona.
Occurrences: 1.
About the audience: General public. 4,200 participants.

Exploring the Ocean (Endintsant-nos en l'oceà)

Exhibitions in local schools as part of the Ocean Night project.

Location: Blanes.
Occurrences: 2.
About the audience: Students. 375 participants.

SCIENCE FAIRS

"Explore, Think, Grow" Project Fair – INS Rocagrossa

Presentation of student projects developed at INS Rocagrossa (Lloret de Mar).

Location: Blanes.
Occurrences: 1.
About the audience: Students. 23 participants.

Mosquito Alert Science Fair

Mosquito Alert Science Fair.

Location: Madrid.
Occurrences: 1.
About the audience: Students. 104 participants.

SCIENTIFIC ROUTES

(within the Science Week framework)

Marine Forests: What Are They Like?

Guided activity exploring Mediterranean underwater forests.

Location: Blanes.
Occurrences: 4.
About the audience: Students. 70 participants.

How Our Daily Activities Affect River Functioning

Discussion on the human impact on river ecosystems.

Location: Blanes.
Occurrences: 4.
About the audience: Students. 60 participants.

Conservation of High-Mountain Ponds in the Pyrenees

Study of freshwater mountain ecosystems.

Location: Blanes.
Occurrences: 2.
About the audience: Students. 31 participants.

Mosquito Alert: How Do We Identify Mosquitoes?

Identification of mosquito species and their ecological relevance.

Location: Blanes.
Occurrences: 4.
About the audience: Students. 65 participants.

Coastal Vegetation and Storms

Observation of how coastal vegetation protects from the storms.

Location: Blanes.
Occurrences: 3.
About the audience: Students. 50 participants.

HANDS-ON ACTIVITIES

Discovering the Alpyr Project

Scientific workshop on research in high-mountain environments.

Location: La Seu d'Urgell, Vielha.
Occurrences: 2.
About the audience: General public. 50 participants.

Trophic Networks in High-Mountain Lakes

Research workshop on aquatic ecosystems in high-mountain environments.

Location: La Seu d'Urgell, Vielha.
Occurrences: 10.
About the audience: Students. 175 participants.

Decoding the Ocean

Educational escape game on marine research and conservation.

Location: Blanes, Tordera, Pineda de Mar, Barcelona
Occurrences: 5.
About the audience: Students. 257 participants.

Mystery Boxes: A Metaphor for Science

Practical workshop exploring the scientific method.

Location: Lloret de Mar, Barcelona.
Occurrences: 2.
About the audience: Students. 115 participants.

Urban River Lab Science Workshop

Fieldwork sessions and experiments on river water quality.

Location: Montornès del Vallès.
Occurrences: 2.
About the audience: Students. 34 participants.

Decoding the Ocean – Ciència al Barri

Educational game held within the CSIC program Ciència al Barri.

Location: Barcelona
Occurrences: 2.
About the audience: Students. 37 participants.

GUIDED VISITS

Science Week 2024

Guided visit for the general public.

Location: Blanes, 14 November.
Occurrences: 1.
About the audience: General public.

Marine Invasive Species: The Silent Threat

Guided visit linked to the main exhibition.

Location: Barcelona, 22 November.
Occurrences: 1.
About the audience: General public. 140 participants.

European Researchers' Night

Evening open event featuring an interactive exhibition and chat with scientifics.

Location: Blanes, 27 September.
Occurrences: 1.
About the audience: General public. 120 participants.

"Ciencia al barri" Guided Visit

Guided visit of the CEAB as part of the CSIC program "Ciència al Barri".

Location: Blanes, 21 May.
Occurrences: 1.
About the audience: Students. 30 participants.

CENTRE D'ESTUDIS AVANÇATS DE BLANES (CEAB-CSIC)

Carrer d'Accés a la Cala Sant Francesc 14, 17300 Blanes
(Girona, Costa Brava, Catalonia, Spain)

Tel. (+34) 972 33 61 01

info@ceab.csic.es

www.ceab.csic.es


www.ceab.csic.es
“We are water. We are science.”
MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES
CSIC
Consejo Superior de Investigaciones Científicas
CEAB
Centre d'Estudis Avançats de Blanes
ASPIRA
MaX
CSIC
Josefa
Barba