

An aerial photograph of turbulent, deep blue water with white foam from a wake or rapids. The water's surface is highly textured with ripples and small waves. The overall color palette is dominated by various shades of blue, from deep navy to bright cyan, with white highlights from the foam.

# **ANNUAL REPORT 2023**

# **IHCANTABRIA**

Environmental Hydraulics Institute  
Universidad de Cantabria

# ANNUAL REPORT 2023

# IHCANTABRIA



**Annual Report 2023 IHCantabria**

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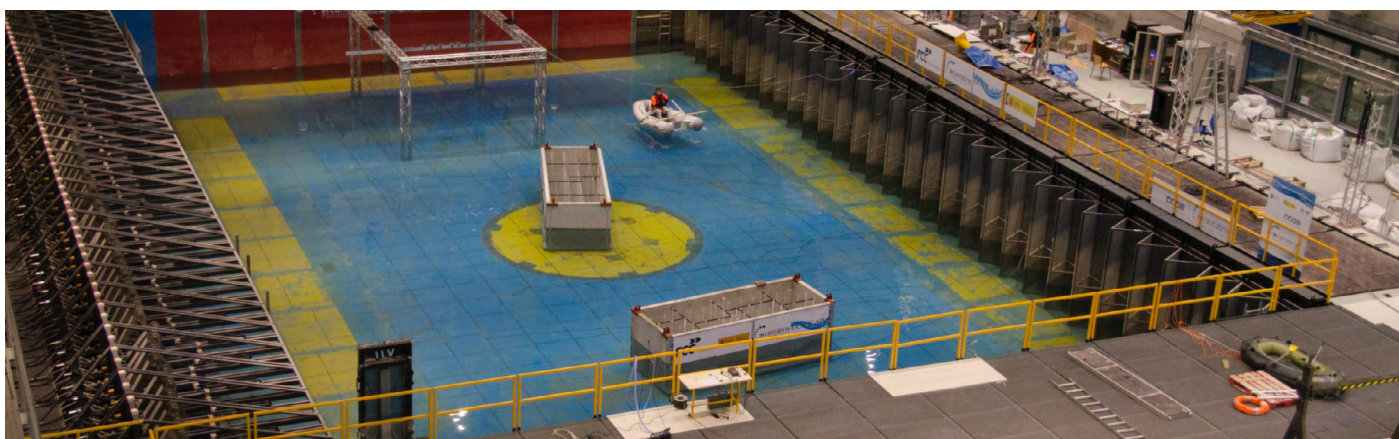
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## Welcome to our annual report

### **In 2023 we renewed our commitment to excellence, sustainability and building a better future for everyone**

Our warmest welcome,

As a Managing Director of this research center, I am pleased to share the achievements and the progress we have made in 2023. This was a specially important year for IHCantabria because during this time we have held the events that commemorate our [15th anniversary](#), a milestone that encourages us to look ahead into the future with even more determination and enthusiasm.

Throughout 2023, we have experienced a significant increase in the number of staff; we have completed over 120 projects in 22 countries and published over 50 papers in important scientific journals, several of which were high-impact journals such as *Nature*, *Nature Climate Change* or *Nature Communications*.

For one more year IHCantabria distinguished itself as a reference in applied research with over 200 people committed to the promotion of innovation and contributing to sustainable development. With this annual report we hope to be able to show that our activities serve as an example of the industry of knowledge with a vision towards green economy, resilience and sustainability. Our institution connects multiple scopes, acting as a bridging agent between the public and the private, thus facilitating partnerships and alliances between the various sectors.

As a way of conclusion, I would like to express my gratitude to all those people who have contributed to the success of IHCantabria and I trust that this report will reflect our ongoing commitment to excellence, sustainability and the building of a better future for everyone.

Sincerely,  
Raúl Medina  
Managing Director, IHCantabria

# About us

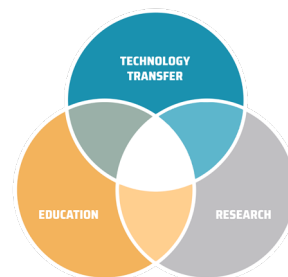
## About IHCantabria

**We contribute scientific knowledge to the development of projects relating to socioecological systems associated to water worldwide**

IHCantabria is a joint research institute arising from the partnership between two institutions: the University of Cantabria (UC) and the Government of Cantabria, represented by the *Instituto de Hidráulica Ambiental de Cantabria Foundation*. This institute was created on 22nd of March 2007 (International Water Day) from the merge of two research groups of the School of Civil Engineering of the University of Cantabria, which had been carrying out an intense scientific-technical activity in matters relating to continental, estuarine and coastal waters engineering for over 25 years. [Find out about our origins.](#)


This institute specializes in basic and applied research, technological transfer and training. Some of its areas of specialty are:

- Climate change and climate services.
- Marine energies and offshore engineering.
- Environmental management and planning.
- Coastal engineering and management.
- Port engineering and management.
- Water resources and hydraulic engineering.
- Natural and human risks



  
**2007**  
Year of foundation

  
**+25**  
years of experience

  
**+30%**  
of the members of  
personnel have a  
doctorate degree

  
**+100M€**  
of funding obtained  
since its foundation

  
**+1500**  
completed projects

  
**+70**  
countries with developed  
projects

  
**+800**  
scientific papers

  
**11**  
patents

# About us

## Our working method

**We are firmly committed with the Sustainable Development Goals (SDGs) and intend for our work to contribute to attain a fairer, more inclusive, more accountable and more resilient society**

### Our mission

IHCantabria is committed to promoting scientific excellence and its transfer with a multidisciplinary and cooperative approach in mind in order to promote innovation that contributes to speed up the achievement of the Sustainable Development Goals (SDG) and the attainment of a fair, inclusive, accountable and resilient society.



### Our vision

IHCantabria's vision is to become a worldwide reference institution for the provision of scientific-based innovative solutions, focused on the integrated management of water-related socioecological systems, in order to contribute to a more sustainable planet.

### Our values

- Commitment with planet sustainability.
- Service to society.
- Integrity, neutrality and independence of our work.
- Reliable knowledge and research.
- Search for excellence.
- Promotion of innovation.

### Our signs of identity

- Support decision-making to contribute to the SDGs by providing scientific evidence and innovative solutions.
- Design of integrated solutions for resilient socioecological systems.
- Development of skills and transfer of knowledge to promote scientific and social progress.
- Promotion of sustainable cooperation between academic, entrepreneurial and public agents. 1
- An innovative management model that triples the public investment and and guarantees 90% of the funding to be from our own funds.

# About us

## Impact

**We create direct highly added-value employment and develop skills, products and services that have a high impact on society**



**60%**

Increase in staff numbers in the last 5 years



**85**

Administrations with which we have partnered in the last 5 years



**252**

Companies with which we have partnered in the last 5 years



**6<sup>a</sup>**

Position in the Shanghai ranking in year 2017 for the Marine/Ocean Engineering subject



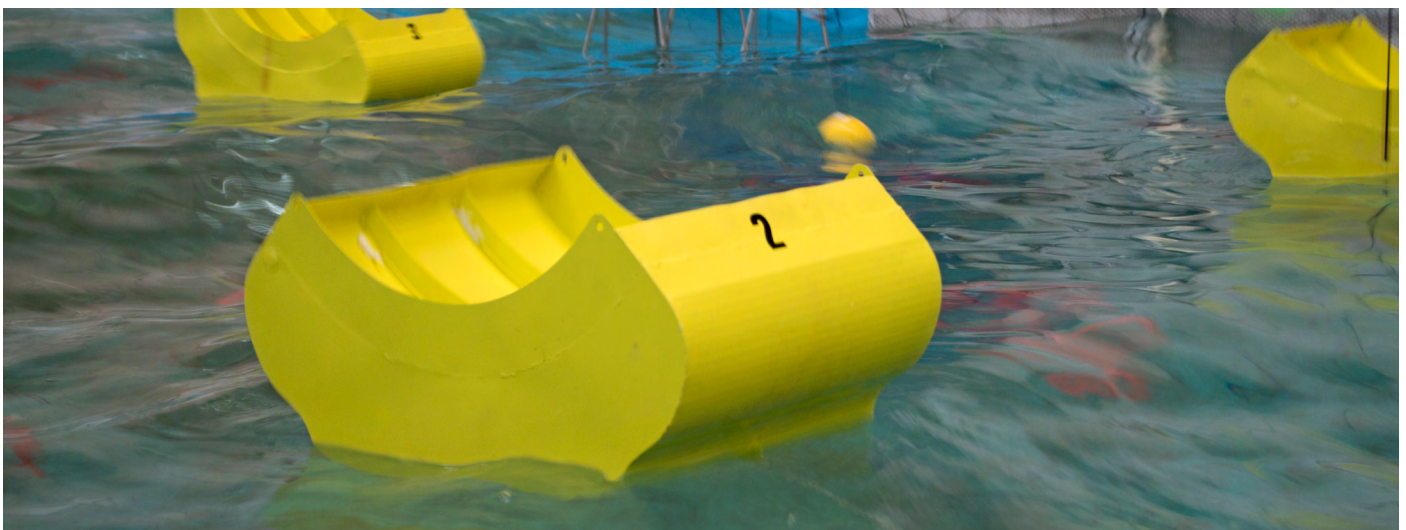
**UNIQUE**

Spanish flagship project in Cohesion Policy of the last 30 years



**x3**

Return on the public investment received



# About us

## Our unique facilities

We can carry out frontier research thanks to our facilities

### Cantabria Coastal and Ocean Basin (CCOB)



The Cantabria Coastal and Ocean Basin (CCOB) facilities are part of MARHIS (Maritime Aggregated Research Hydraulic Infrastructures), a distributed Large-Scale Scientific and Technical Infrastructure (ICTS) of the Spanish Ministry of Science and Innovation that is unique in the field of hydraulic engineering. Some of its outstanding experimental equipment are multidirectional wavemakers and the capacity to generate currents and tsunamis in a dedicated wave flume. Its dimensions include a 30 x 44 x 4.75 m area and its wave generator can create waves of up to 1.1 meters in height. Its purpose is to increase the efficiency and capacity of the Spanish numeric, experimental and field facilities to apply them on coastal, port and high-seas engineering projects, as well as on the multiple interactions between marine structures and climate factors.



**24**

Direct jobs created at the CCOB



**+16M€**

Funding obtained at the CCOB



**+20**

Countries with experimental activities at the CCOB



# About us

## Organization chart

### Managing Board



**Raúl Medina Santamaría**  
MANAGING DIRECTOR



**José A. Juanes de la Peña**  
EDUCATION & CAPACITY  
BUILDING DIRECTOR

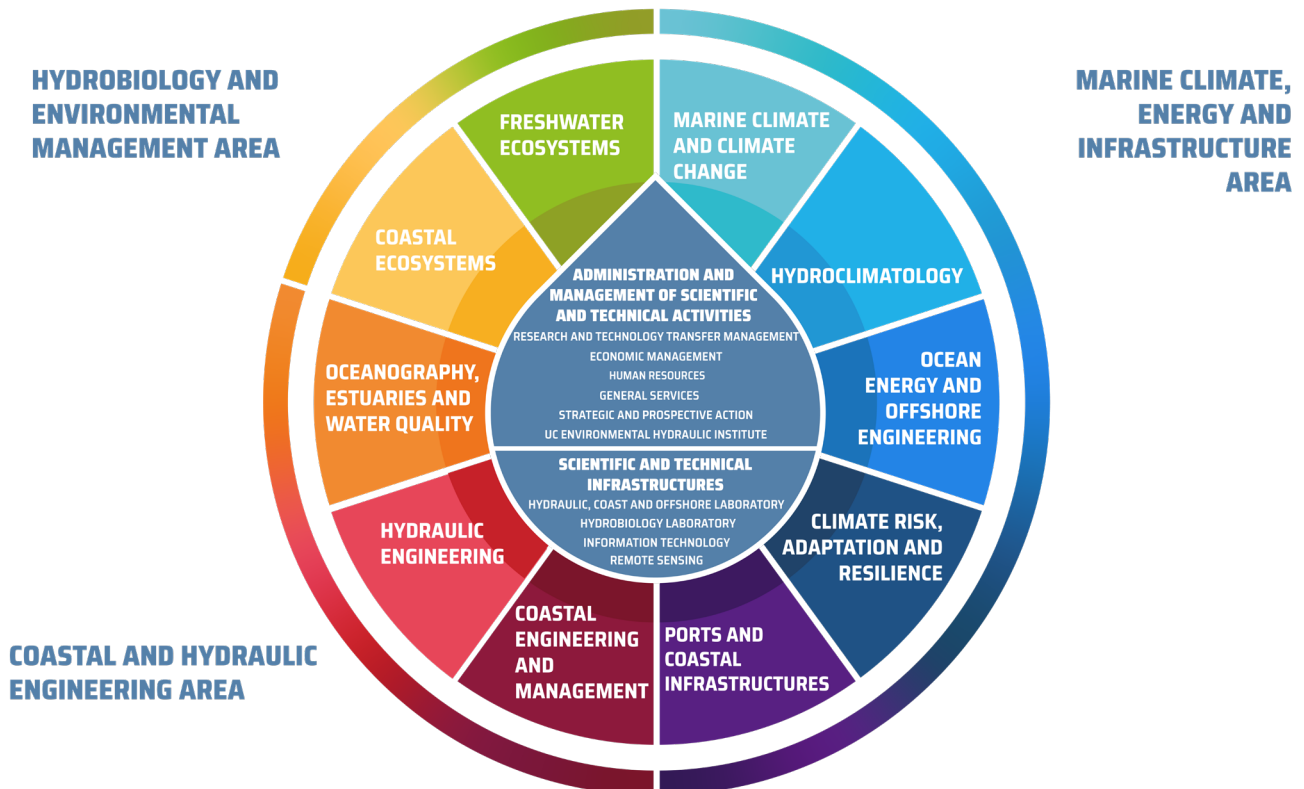


**Íñigo J. Losada Rodríguez**  
RESEARCH DIRECTOR



**Francisco Royano Gutiérrez**  
TECHNOLOGY TRANSFER  
DIRECTOR

### Research Areas and Groups



# 2023 at a glance

## A year of record achievements

### Building a more sustainable future

Thanks to the work of our team and the trust of our partners, we have managed to contribute to sustainable development and the building of a better future for everyone to a greater extent in 2023. IHCantabria celebrated an exceptional year with the award of four outstanding prizes and the achievement of a record level of funding of over 10 million euros, which allows to consolidate our impact internationally.

## 2023 in figures



People



Staff increase in 2023



Attracted funds in 2023



Prizes



Technological transfer projects



Countries



R&D projects



Papers in indexed scientific journals

## Relevant milestones in 2023



New research groups



New projects associated to the Marine Science Program



New genetics facilities at the hydrobiology laboratory

# The Team

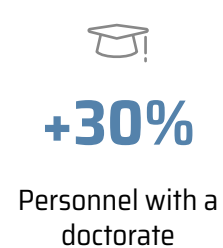
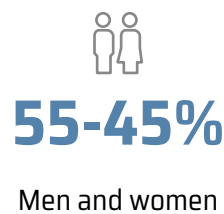


## Our main asset is our human capital

**We intend to design multidisciplinary solutions to deal with the complexity of the challenges associated to water and gain resilience**

The team at IHCantabria has experienced an impressive growth in 2023 with an increase of over 16% with respect to 2022. This growth is the result of our dynamic approach and ability to attract and retain talent, as well as highlighting our position as leaders in environmental hydraulics. Additionally, we have reinforced our position with a new Work-Life Balance Plan and a new Work Wellbeing Plan to improve the working conditions and work-life balance of our employees, thus proving our commitment to the wellbeing of our team.

## Our team in figures



## Relevant milestones 2023



# The Team



## Testimonies

### Alexis Benedicto Martín

*“Since I joined IHCantabria back in 2013 I have only had a rewarding experience. The management team’s commitment and the daily effort of everyone here have taken this institution far. Being part of IHCantabria has been rewarding as it has allowed me to grow professionally and personally. I am proud to belong to an institution that invests as much in research as in its valuable human team.”*

### Javier Sarmiento Martínez

*“Thanks to the human team and the technical developments available at IHCantabria, we can cooperate in the research, optimization and validation of various marine renewable technologies that will help materialize the European energy transition of the next few years.”*

### Mario García Liaño

*“Throughout these years I have seen how the team of IHCantabria has become an unparalleled example of teamwork to me. I feel proud to think that our work in this institute contributes to turning our planet -our home- into a better place for everyone.”*

### Silvia Fernández Rodicio

*“Being part of IHCantabria is being a very rewarding experience for me, both in the professional and the personal areas. This is a working environment where science and innovation go hand in hand with human values such as teamworking, generosity or empathy. Belonging to such an inspiring group which unites strengths in order to lead the pace towards a more sustainable future is exceptional and makes me feel very lucky.”*

### Lorena Ruiz Prieto

*“All my life I have been in touch with nature and work. Here, at IHCantabria I have been given the chance to learn and carry out projects to preserve nature and the planet as we know it.”*

### Ana Julia Abascal

*“The excellent human team and the technical skills of IHCantabria have allowed me to grow professionally and personally, as well as giving me the opportunity of contributing to pioneering research, the development of which is constantly transferred to society in order to attain a more sustainable future.”*

# Research



## Excellent research at the service of society

### **Our research intends to go beyond the boundaries of the state of scientific and technologic knowledge relating to the full water cycle and its associated ecosystems**

During 2023, IHCantabria has taken a major step in the spread of its research capacities with the creation of three new research groups. This strategic effort has allowed a more effective approach to contemporary scientific challenges and to the consolidation of our institute as a research leader. Besides, the Hydrobiology Laboratory has experienced a notable progress in genetics, thus promoting our capacities in this discipline, which is key to approaching environmental and marine challenges.

In 2023, IHCantabria has taken part in a total of 48 R&D projects, out of which 22 are national and 26 are international projects. This broad spectrum of projects proves our capacity to face challenges worldwide and contributes to the development of knowledge in various scientific areas. Amongst the most outstanding projects are those associated to the Marine Science Program (PCM, in its Spanish acronym) funded by the Spanish Ministry of Science and Innovation, known by their crossdisciplinarity, their significant budget and the high number of Doctorate students involved. Additionally, we have managed to obtain funding in a sum near to 3 million euros to support our research initiatives.

In the area of scientific publications, we are proud to report that a total of 56 articles have been published in impactful scientific magazines. Some of them stand out for being contributions to prestigious journals such as *Nature*, *Nature Climate Change* and *Nature Communications*. This achievement reflects the commitment of IHCantabria with the creation of high-quality and relevance knowledge.

Our team's efforts have not been ignored and have received recognition through various individual and collective awards. One that presents as an outstanding achievement is National Research Award in Engineering to Íñigo Losada, awarded by the Ministry of Science and Innovation. This recognition highlights the level of excellence and impact of our research work on the national scientific scenario.

Year 2023 has seen 6 Doctorate theses successfully defended, which is evidence of the commitment of IHCantabria with the training of new researchers and the contribution to knowledge development.

# Research



One more year, IHCantabria has positioned itself as a reference in applied research, with over 200 people committed to promoting innovation and contributing to sustainable development. This collective commitment promotes our mission to approach environmental and water challenges in an effective manner, thus consolidating our role as key actors in the international scientific community.

## Our research work in figures



## Relevant milestones in 2023



# Flagship Research Project

## Marine Science Program (PCM)

### Creating science for the protection of the marine environment

PCM is the set of projects accomplished by IHCantabria within the framework of the R&D&I Complementary Plan in Marine Sciences, funded by the Ministry of Science and Innovation and the Regions of Andalusia, Balearics, Canaries, Cantabria, Valencian Community, Galicia and Murcia.



#### Challenge

The coast of Spain runs along nearly 8,000 kilometers. Its biodiversity is one of the most significant elements of wildlife wealth in Europe and its safety impacts on the country's economy. Therefore, it is a matter of urgency to protect the marine ecosystems in a scenario of climate change and ocean pollution.



#### Solution

Improving our knowledge through observation and monitoring of the marine and coastal environments and generating opportunities for a sustainable Blue Economy through projects in line with Agenda 2030 and the Ocean Decade.

#### Results

The research projects of the PCM contribute products and services that are at the frontier of science such as numerical models that take advantage of the contribution of artificial intelligence to fight against marine contamination and to analyze better the evolution of the coast; a digital twin that allows to understand the impact of climate change on beaches, a digital twin of offshore wind turbines and databases that will be highly useful to society and private companies.

#### With funding of:



More information on this project on the following [link](#).

#### PCM partners in Cantabria:



INSTITUTO ESPAÑOL DE OCEANOGRAFÍA

# Flagship Research Project



## Coastal Climate Core Services (CoCliCo)

### Developing tools for the planning and management of our response to the rise of the sea level

CoCliCo is a four-year long project funded by the Horizon Program 2020 of the European Union (EU.3.5.1- adaptation to climate change) with a budget of €5,999,641.25 (100% EU contribution).



#### Challenge

In view of the evident rise in sea level, great concerns are raised in Europe on the potential impact generated by coastal flooding, as many infrastructures are located near the coast or on low areas.



#### Solution

Improving the decision-making processes on risk management and adaptation to climate change on the European coastal areas thanks to the information provided by an open-source web platform that reports on current and future coastal risks

#### Results

This web platform shall combine new layers of high-quality geospatial information (coastal dynamics, impacts, exposure, vulnerability, risk and adaptation) and will offer the option to view, download and analyse multiple scenarios. It will promote close communication between users, the information technologies used for the management of geospatial data and the leading science in risk adaptation.



Funded by  
the European Union

More information on this project on the following [link](#).



# Flagship Research Project



## Coastal Climate Core Services (CoCliCo)

Project partners:



# Flagship Research Project

## Securing biodiversity, functional integrity and ecosystem services in DRYing rivER networks (DRYvER)

**Creating new strategies for the mapping, study and management of drying rivers**

DRYvER is a four-year long project funded by 2020 Horizon Program of the European Union with a budget of €6,703,358.75 (€343,000 IHCantabria) involving a team of 25 experts from 11 countries in Europe, South America, China and the USA.



### Challenge

Rivers are systems of great biodiversity, but they are being threatened by climate change and human activities. Dry waterway networks have been usually ignored by scientists and policy makers and their importance has been neglected.



### Solution

Carrying out research into how climate change alters biodiversity, the function and services of the ecosystem services of rivers at different spatial and time scales. The impact of droughts on river networks and ecosystems will be analysed and nature-based solutions proposed.

### Results

DRYvER will collect useful information to develop a framework applicable worldwide. It will also generate crucial strategies and tools for the adaptive management of dry rivers, supporting the goals derived from the Paris Agreement and leading climate research in Europe.



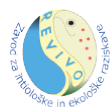
**Funded by  
the European Union**

More information on this project on the following [link](#).

# Flagship Research Project

## Securing biodiversity, functional integrity and ecosystem services in DRYing rivER networks (DRYvER)

Project partners:



# Transfer of Knowledge & Technology

## From science to impact on society

### **Our technology and knowledge transfer supports decision-making processes based on scientific evidence and innovation**

We have worked on over 120 projects in 22 countries, which proves our international commitment, the wealth of our experience and our commitment to overcome global challenges. We can highlight our presence in the Americas, where we have carried out projects in 8 different countries.

We have built successful partnerships with 34 public administrations and 87 private companies. These strategic alliances have allowed for the practical application of our knowledge, generating tangible impact on society and industry.

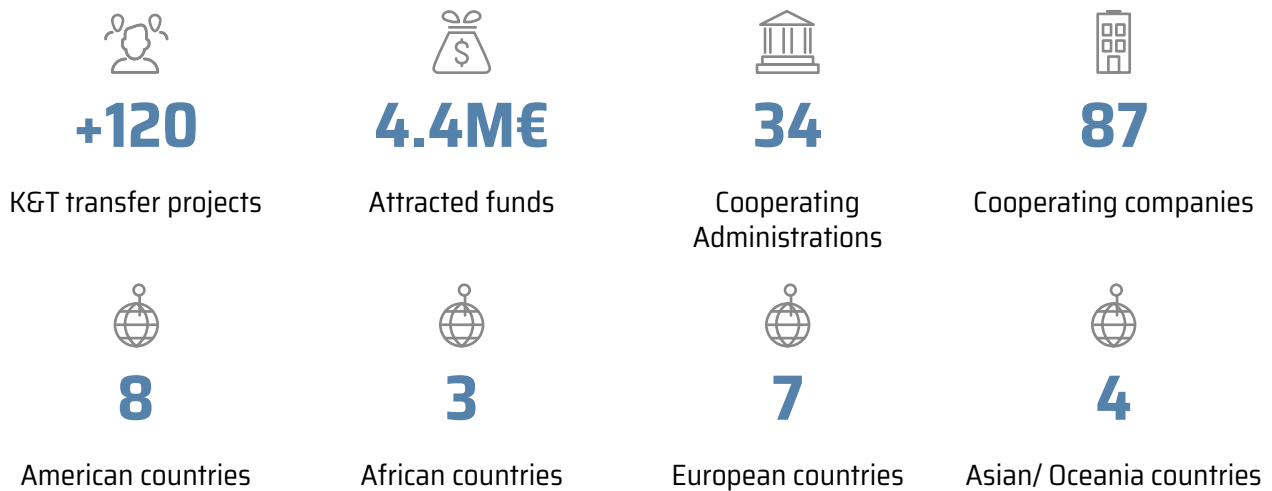
We have reinforced our international program and bidding teams and are proud to highlight that 2023 has been a record year with 70% successful proposals sent and a record turnover which surpasses 4.4 million euros. These outcomes highlight our effectiveness and competitiveness within the area of technological transfer.

Additionally, we have received several awards this year. We can highlight the 1st Offshore Wind Energy Award in Spain granted by the Wind Energy Corporates Association (AEE, in its Spanish acronym); the *Leonardo Torres Quevedo* Engineering Innovation National Award, granted by *Fundación Caminos* of the Spanish Society of Civil Engineers and the Sustainable Water Management Award granted by *Fundación Botín*. These awards reinforce our commitment with innovation and sustainability.

In summary, 2023 has witnessed significant achievements of IHCantabria in knowledge & technology transfer, consolidating our position as leaders in applied research and actively contributing to meeting global challenges. Our vision, oriented towards future challenges, encourages us to continue to innovate and developing alliances to generate a positive global impact.

# Transfer of Knowledge & Technology

## Our technology transfer projects in figures



## Internationalization in 2023



## Relevant milestones in 2023



# Flagship Transfer Project

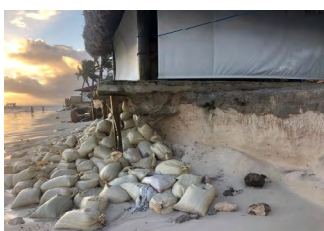
## Feasibility study for integrated coast management - Dominican Republic

### Contributing nature-based solutions in order to mitigate and offset coastal erosion in four Dominican beaches

This project was commissioned by the Ministry of Tourism of Dominican Republic with funding (€408,483) contributed by the Inter-American Development Bank (IDB). It run for 20 months.

#### Challenge

Some beaches of Dominican Republic suffer severe erosion problems with recession of the coast line of up to 7 meters/year, which affects tourism and the economy of the country. This project intended to minimise the issue and provide solutions for these beaches.



#### Solution

Studying the coast dynamics and proposing nature-based solutions. In order to do so, field databases and numeric models are used to allow an understanding of the way erosion works and its causes. Activities are also developed where local and national actors participate in workshops in order to verify the efficiency of the proposed solutions.

#### Results

Nature-based solutions have been proposed which include measures for the protection and adaptation of the beaches to climate change, with addition of sand, restoration of sand dunes and reefs and recovery of marine biodiversity.

#### With funding of:



#### Project partners:



# Flagship Transfer Project

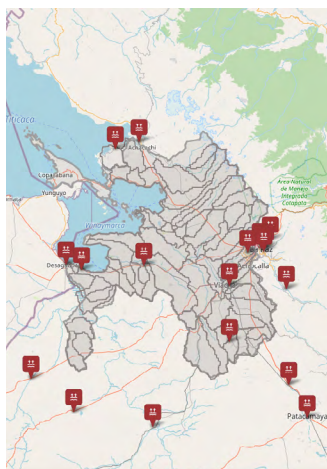
## SATD-KATARI Decision-Making Support System – Katari River Basin and Minor Titicaca Lake

### Implementing a Decision-Making Support System (SATD-KATARI) for the follow-up, monitoring and planning of the development of the Katari River Basin and the Minor Titicaca Lake

The SATD-KATARI project was developed for ten months following its commissioning by the Ministry of the Environment and Water of Bolivia. It was funded by the Inter-American Development Bank (IDB) with a budget of €188,005.

#### Challenge

In order to help to the follow-up, monitoring and planning of the development of the Katari River Basin and the Minor Titicaca Lake, as well as the processes associated with the integral water cycle in this area, it is necessary to build a digital twin of this basin.



#### Solution

Developing and implementing a Decision-Making Support System (SATD-KATARI) in the Katari River Basin and Minor Titicaca Lake so that engineers, managers and citizens can make enquiries and decisions on issues affecting this basin from the structural, social and management points of view.

#### Results

The (SATD-KATARI) Decision-Making Support System focuses on two layers of action: a basin level layer devoted to the management of data related to the water cycle (hydrometeorological data, infrastructural data, data of uses, management plan) and a subbasin level layer on the modelling of the water balance and the visualization of indicator dashboards to help strategic management (balance, water quality and risk).

#### With funding of:



More information on this project on the following [link](#).

# Flagship Transfer Project



## Scour assessment & Scour protection design: Dolwin 4 & Borwin 4

### Developing special structures for offshore wind power: Offshore electrical power substations

Dolwin 4 and Borwin 4 were the projects consolidating IHCantabria's relationship with Dragados Offshore in 2023. These are two 900MW-power substations that are expected to be connected to the electrical grid in 2028 in German waters of the North Sea

#### Challenge

Offshore wind power substations are critical structures for the proper operation of an offshore wind farm. IHCantabria stands out as one of the four European laboratories to analyse offshore wind structures and it is currently the only one to develop large scale assessments to minimize the effects scour on structures' foundations.



#### Solution

Designing and assessing the Dolwin and Borwin 4 scour protections. This experimental work adds to previous experiences of IHCantabria on the assessment of scour impacts on offshore wind bottom-fixed designs.

#### Results

Using advanced techniques and scaled models, IHCantabria managed to create a protection solution that is compatible with a highly-complex structure such as a jacket-type offshore power substation, designed to withstand extreme currents and waves such as those in the North Sea.

With funding of:



**Dragados Offshore**



# Education



## Innovative education & capacity building

### Training to contribute to the SDGs

The education & capacity building activities of IHCantabria are proof of its unbreakable commitment to academic excellence and the contribution to sustainable development in the scope of the socioecological systems associated to water.

The core of our training activities focuses on providing the skills to our researchers, experts and managers to face the challenges of sustainable development, including its various environmental, social and economic components. This commitment drives all our initiatives guiding us towards a future where the specialized, high-added value knowledge is key to face the challenges of social, environmental, digital and fair transition.

Training researchers is one of the priority objectives at IHCantabria, at the same time as one of its main strengths. During this period, the IH2O Doctorate Program has registered 42 active Doctorate students from 10 countries and 3 continents. This group represents 5.7% of the students pursuing a doctorate degree at the University of Cantabria and approximately 20% of the ones in the Engineering.

Throughout 2023, 6 new students have defended their Doctorate Theses successfully and therefore joined postdoctoral research positions in various institutions, three of them are based in European countries. As graduates of our program, they will deal with fundamental issues relating to water, resources ecosystems and infrastructures climate research or the risks associated to climate change.

Faculty members at IHCantabria have also continued their leadership in international graduate studies through their implication in the 2nd edition of the Erasmus Mundus COASTHAZAR Master's Program, gathering students from 10 different countries. The main purpose of this program is educating future researchers and professionals in the understanding and management of risks associated to climate change in coastal areas.

Furthermore, progress has been made in the implementation of the IHCantabria's Education & Capacity Building Strategy (ECCE-IH), thanks to the opening of new last generation training facilities (multipurpose online training rooms and recording studio); the development of new Education & Capacity Building Portal, where the entire learning offer of IHCantabria will be hosted from 2024 onwards and the creation of new courses.

# Education



In the meantime, the lifelong training program has continued through 16 specialized seminars delivered by prestigious researchers from 9 countries, 4 inhouse training courses and 10 online courses. As a novelty, two new training lines –i.e., TRASMARES, on applied tools for sustainable marine ecosystems, and ADAPTA BLUES, on climate change adaptation in estuaries– have been developed. They consist of a successful set of Massive Open Online Courses (MOOC) that have already contributed to the training of over 1,500 students from various countries thanks to the new digital, open and inclusive education technologies IHCantabria is equipped with.

In summary, all these activities are a demonstration of the ongoing commitment of IHCantabria with training and educating professionals who will lead the way to a sustainable future. We do not only seek to transfer knowledge, but also inspire the next generation of leaders who will have to face the challenges relating to the water cycle and the associated socioecological systems.



**42**

Doctoral students



**10**

Countries of origin  
(3 continents)



**6**

Doctoral theses  
defended



**10**

Different nationalities  
in the Erasmus Mundus  
Master's Program



**16**

Specialized seminars  
(9 countries)



**4**

Inhouse training courses



**10**

Online courses



**2**

Micro-credentials  
(4+3 MOOCs)

You can access and read more details about the Training Portal of IHCantabria at the following [link](#).



# Flagship Training Project

## Education & Capacity Building Strategy at IHCantabria (ECCE-IH)

### Promoting lifelong training at IHCantabria

ECCE-IH is a five-year project being developed by IHCantabria since 2022 and funded by the Government of Cantabria. Out of the allocated budget of approximately €500,000 total budget approximately €100,000 have been already invested in different activities.

#### Challenge

According to the first Principle of the European Pillar of Social Rights, everyone has the right to receive a lifelong qualitative and inclusive education with the purpose of successfully managing the transition into the employment market. In this context, the change in training methods, digital transformation, flexible learning adapted to changing environments and curricular innovation by means of the implementation of micro-credentials represent some of the current challenges to face the transition toward lifelong learning of new groups.



#### Solution

Preparing a specialised and multidisciplinary training strategy that adapts to the model of environmental, social and digital transition. The strategy is delivered by developing modular training opportunities to gain the required competences for various professional profiles in a flexible and personal way or by the generation of new fully customized courses, in collaboration with private companies, administrations and international institutions.

#### Results

The launch of the ECCE-IH Education & Capacity Building Portal to serve as the hub for information, registration and contact with the directors of the various training programs offered (specialisation courses, certified diplomas, customized courses and research and training internships) and with the managers of the new training facilities (multipurpose room, online or hybrid lecturing, recording studio). Visibility and international recognition of IHCantabria will be promoted through this Portal as a center of scientific & technical knowledge relating to water and sustainability.

#### With funding of:



# Flagship Training Project

## Adaptation to climate change through management and restoration of European estuarine ecosystems. (LIFE ADAPTA BLUES)

### Contributing to the maintenance and restoration of the European estuarine ecosystems

LIFE ADAPTA BLUES is a project coordinated by IHCantabria and co-funded by the European Union LIFE program which is developed in three European regions: Coimbra (Portugal), Cantabria (Spain) and Zeeland (The Netherlands).



ADAPTA BLUES

#### Challenge

European estuarine ecosystems are under increasing pressure due to the intense economic and urban development of coastal areas and the associated population high density. Therefore, they are particularly vulnerable to the impact of climate change.



#### Solution

Raising awareness in the population about the role of conservation and restoration of the estuarine ecosystems as a necessary measure to mitigate and adapt to the impacts of climate change in the NE Atlantic coastal areas at the same time as improving our cultural heritage.

#### Results

Generation and implementation of a training line (micro-credential) consisting of 3 online courses intended for students with different profiles (MOOC courses), 136 students have been trained on the role of estuaries in the provision of protection services to coastal population against climate change.

#### With funding of:

With the contribution of the LIFE programme of the European Union



More information on this project on the following [link](#).

Project partners:



# Flagship Training Project

## Specialized TRaining on Applied Tools for Sustainable MARine EcosystemS (TRASMARES)

Offering specialized training in applied tools to manage marine ecosystems.

TRASMARES is a training course organized by the University of Cantabria through IHCantabria with a multidisciplinary, practical and comprehensive approach.



### TRASMARES

#### Challenge

Lifelong training in highly specialised areas requires the use of new ways of learning and knowledge updating to promote the transfer of research results to the various target sectors. Coastal ecosystems play a major role in the achievement of SDGs (SDG 14. Submarine life). requiring greater dissemination at various levels of their functions, services and management.



#### Solution

Providing a comprehensive, open and inclusive understanding of the most advanced knowledge on the importance, the challenges and benefits of the marine and coastal ecosystems within the context of climate change, using the new training formats and tools integrated in digital platforms.

#### Results

Generation and implementation of 4 MOOC (massive, open, online) courses included in the TRASMARES training syllabus (micro-credential) in which approximately 2,600 students have participated during the two first editions. This project received a highly favorable evaluation from the Spanish Ministry of Science, Innovation and Universities

#### With funding of:

Co-funded by the Erasmus+ Programme of the European Union



More information on this project on the following [link](#).

**Project partners:**



UNIVERSIDADE D COIMBRA



ALMA MATER STUDIORUM UNIVERSITA DI BOLOGNA



# Partnerships and Alliances

## Building a more sustainable world together

**Committed to promoting cooperation with institutions and private companies in order to innovate in water management and conservation of the environment**

In 2023 we have intensified our work by promoting partnerships and alliances with various institutions and private companies, which has allowed us to consolidate our position as a reference for research and development. We are proud to highlight our successful partnership with 12 multilateral institutions, strengthening our role in the search of innovative and sustainable solutions in view of the current and future challenges our planet is facing.

## Partnerships with administrations and research centers

**We support decision-making based on scientific evidence**

In 2023 we have worked hand in hand with 12 national and 15 regional administrations. These alliances allow us to comprehensively approach the environmental challenges, promoting the adoption of effective and environmentally-friendly public policies. In the academic and research scope, we have consolidated alliances with 7 research centers and 15 universities, which enables us to contribute to the progress of scientific and technologic knowledge. Such partnerships have promoted the transfer of knowledge and technology and generated positive impact, both in the academic and the social environments.



12

Multilateral institutions



12

National administrations



15

Regional administrations



8

Foreign national administrations



7

Research centers



15

Universities

# Partnerships and Alliances

## Partnerships with private companies

### We team up efforts with private companies to develop innovative solutions

In 2023 we have also established successful relationships with over 80 private companies from a diversity of sectors, amongst others: energy (20); engineering (19) and consultancy (17). These private partnerships have allowed us to implement innovative and sustainable solutions such as, for example, new technologies in offshore renewables, projects that promote energy saving or environmental stewardship. In summary, year 2023 has witnessed the consolidation and expansion of our partnerships and alliances, with a significant progress in the achievement of our research goals, and the development and application of sustainable solutions.



20

Energy



15

Construction and mining



19

Engineering



8

Environment



17

Consultancy



3

Insurance



4

Technology



1

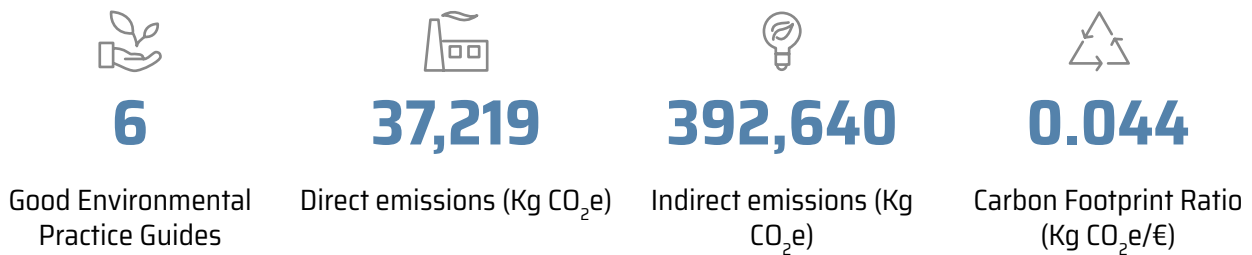
Agro-Industry

# Sustainability and Corporate Social Responsibility

## A sustainable organization

### We strive to be a reference in sustainability

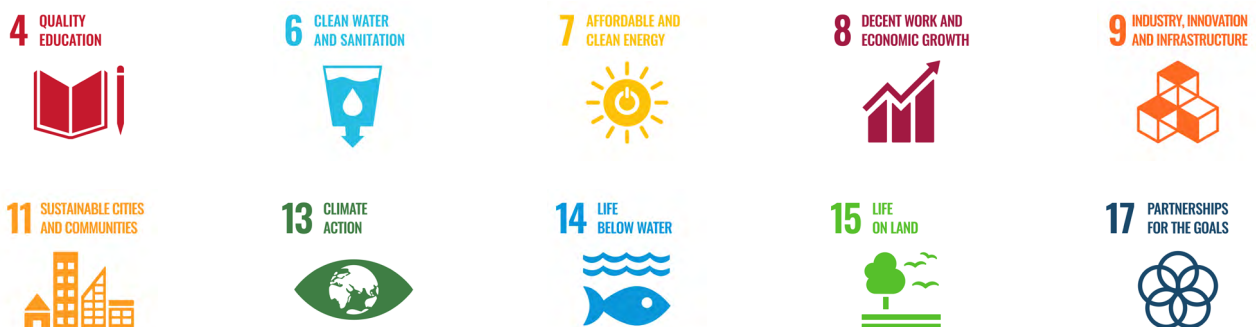
IHCantabria, as an entity committed to sustainability, has included this premise in the core of its institutional mission and vision. In all our activities, we strive to be a positive force for the sustainable development of our planet and this commitment becomes clear at our own facilities. In an effort to quantify and reduce our environmental impact, we have measured our direct and indirect emissions. Our direct emissions amount to 37,219 KgCO<sub>2</sub>e; whereas our indirect emissions reach up to 392,640 KgCO<sub>2</sub>e, with a carbon footprint ratio of 0.044 KgCO<sub>2</sub>e/€. We are committed with implementing measures that reduce these emissions and contribute to the mitigation of climate change.



## A committed organization

### We contribute to Agenda 2030

IHCantabria is firmly committed to the United Nations' Agenda 2030 focusing its efforts on ten of the seventeen Sustainable Development Goals (SDGs). Our multidisciplinary focus on the management of water cycle related socioecological systems proves our hope to progress towards a fairer and more sustainable society.





# Sustainability and Corporate Social Responsibility

## A responsible organization

### We are committed to Social Responsibility

As an integral part of our practices, IHCantabria aligns our strategy with Standard ISO 26000:2021. This translates with particular emphasis into Corporate Social Responsibility (CSR), the environmental management and the prevention of pollution, which are fundamental pillars of our activity. Our Social Responsibility Policy reinforces transparency, commitment with an ongoing improvement and it is demonstrated through performance indicators and proactive reviews. In recognition of the importance of our most valuable asset, our personnel, IHCantabria has allocated over 1 million euros to training. Over 86% of our employees think we are a safe place to work provided with adequate resources. That proves our commitment with professional wellbeing and development.

IHCantabria is proud to keep a safe and ethical working environment. We have not received complaint reports nor serious accident reports, which highlights our commitment with high ethical standards and the safety of our members of personnel. Our commitment with sustainability is more than just an initiative; it is the basis to contribute to build a more prosperous and fairer future for future generations.



**+1M€**

Investment in training



**86.3%**

Employees who feel safe and using adequate resources



**73.6%**

Confirm equal opportunities



**0**

Workplace or sexual harassment



**0**

Complaint reports



**0**

Serious accidents at work

# Awards

## Awards and mentions

### We are grateful for the recognition of our work

Our work and results have been noticed and we have been honored with various recognitions, both individually and as a group. Amongst them, we can highlight the National Research Award of the Ministry of Science and Innovation; the 1st Offshore Wind Energy Award the Wind Energy Corporates Association (AEE, in its Spanish acronym); the *Leonardo Torres Quevedo* Engineering Innovation National Award, of *Fundación Caminos* of the Spanish Society of Civil Engineers, and the Sustainable Water Management Award of *Fundación Botín*.



**IHCantabria**

*Leonardo Torres Quevedo* Engineering Innovation National Award, *Fundación Caminos*.

[Access to press release](#)



**Íñigo Losada**

*Leonardo Torres Quevedo* National Research Award in Engineering

[Access to press release](#)



**IHCantabria**

*Fundación Botín* National Water Sustainable Management Award.

[Access to press release](#)



**IHCantabria**

Offshore Wind Energy Award.

[Access to press release](#)



**Paula Desiré**

Awards of the University of Cantabria Innovation Chair to the best Bachelor's Thesis.

[Access to press release](#)

# Awards

## Awards and mentions



### Erasmus+ TRASMARES Project

The Erasmus+ TRASMARES Project of IHCantabria received a positive report which promotes the dissemination of its second edition.

[Access to press release](#)

This company has received funds within the Call for Grants of the Pleamar Program, which was cofounded by the Maritime and Fisheries European Fund.



### ACUFLOT Project

The ACUFLOT Project of IHCantabria was elected as outstanding project within the framework of the Pleamar Program.

[Access to press release](#)



### IHCantabria

ENAC compliant, which authorizes environmental, biological, physical and chemical testing.

[Access to press release](#)

# Events y Conferences

## Sharing knowledge

### We believe in the development of skills and the transfer of knowledge to promote the progress of science and society

At IHCantabria, our dedication to the progress of science and society is proven by the commitment with the development of skills and the transfer of knowledge. Throughout 2023, we have played a major role in international events and conferences consolidating our position as leaders in the field of environmental hydraulics. Our members have taken part in over 200 events and conferences in 24 countries. In these cases, over 100 members of our team have shared their findings, positively contributing to academic dialogue and strengthening partnership networks.

In the scientific field, we have contributed to 52 scientific conferences. Such participations have highlighted the quality of our research and underlined the importance of approaching global environmental challenges through investigation and innovation.

Additionally, we have participated in 29 meetings to expand our professional networks, where we have shared experiences and consolidated strategic partnerships with experts worldwide; and in 84 events relating to transfer projects. These interactions have further driven our skills and strengthened our position as reference in the sector. We have also contributed to promoting more scientific vocations through various science communication and outreach activities, both within and outside our facilities. We have conducted talks on science outreach that reached over 1,200 students from 54 educational centers, who visited us in 2023.



**+200**

Participations in events and conferences for the transfer and dissemination of knowledge



**+24**

Countries that received members of IHCantabria at events and conferences



**+100**

Members of IHCantabria participating in events and conferences

# Events y Conferences

## Sharing knowledge



52

Scientific conferences



84

Scientific knowledge transfer and dissemination events



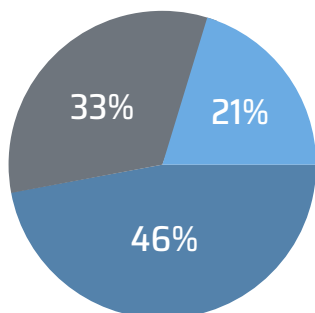
29

Meetings for professional networking

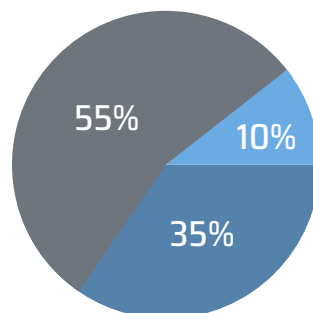


54

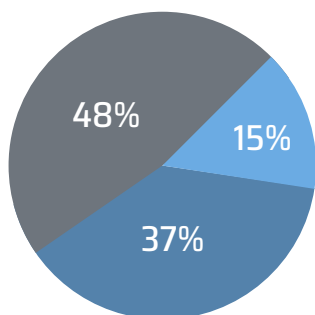
Visits from educational centers of Cantabria received talks on science outreach at our facilities



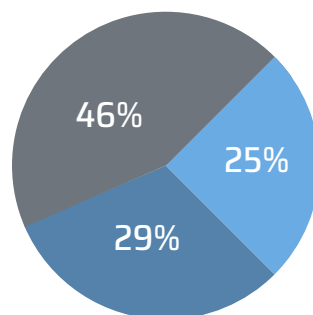
Attendance to scientific congresses



Participation in networking meetings



Participation in technical meetings on research and/or transfer projects



Participation in events for scientific knowledge transfer and dissemination

# Challenges



## Ongoing improvement

### We strive to become a center of reference to create innovative solutions to water-related problems

In order to face the challenges society faces in relation to the integrated management of water-associated socioecological systems, it is necessary to be furnished with the best scientific knowledge and with a multidisciplinary and collaborative approach, for the transfer of such knowledge to society. In order to attain such goals, it is necessary to attract, consolidate and retain talent as well as to obtain the necessary funding to accomplish it. These are some of the challenges and barriers to be faced by IHCantabria; challenges that we believe may turn into opportunities to reinforce our position and to significantly contribute to the progress of research and sustainable development.

### Research and development challenges

As a research centre, we are required to rely on the best knowledge and technologies in order to develop our R&D projects. With this in mind, a number of initiatives have been implemented this year in order to develop cross-disciplinary knowledge and technologies that allow research to provide integrated solutions. Working groups have been established to carry out research in Artificial Intelligence or Nature-Based Solutions. Besides, a Remote Sensing Team has been created for reinforcing advanced technologies with a cross-disciplinary approach. of our institute



# Challenges



## Talent recruitment and retention challenge

Our institute faces significant challenges to recruit talent for key areas such as civil engineering, naval architecture and information technology due to the high market demand that is above research in attractiveness and competitiveness. The consolidation of qualified researchers is a challenge expected to be faced by the recent Science, Technology and Innovation Act of Cantabria, which should provide a trustworthy framework for the development of a comprehensive professional career for researchers. In spite of these challenges, our institute remains optimistic about the growth potential and the attractiveness of our fields of interest for future researchers.

## Funding

IHCantabria has a funding model where core public funding currently represents a small part of the overall budget. Although the situation has improved in the last three years, our funding relies heavily on the attraction of resources from competitive programs or open bids. This has been a successful model and one for which IHCantabria has received external recognition. However, it negatively affects the intensification of research which is the intended essential strategic goal. Thus, one of the most important challenges to face in the very near future is achieving a core funding able to support a sustainable growth of our research initiatives.



# Financial Information

## IHCantabria, a knowledge-based industry

### We believe in the creation of value through the generation and application of ideas and the effective use of knowledge

During the financial year relevant to this report, IHCantabria has continued to consolidate its position as a reference in innovative management, backed up by a model based on the industry of knowledge. This approach is proven both by its capacity to generate a significant return for society by multiplying the public investment by three, and by its ability to self-finance above 90% of its budget.

In line with our mission to create value through the generation and application of ideas, as well as the effective use of knowledge, we have implemented several initiatives during 2023. These actions have not only contributed to expanding and strengthening our impact, but have also reinforced our commitment to sustainable development and innovation in the scope of hydraulic and coastal engineering.

During the financial year, IHCantabria demonstrated a solid and responsible financial management system, with a final budgetary execution of over 10 million euros. This financial backup has been essential to carry out innovative projects that promote our position as leaders in applied research.

It is relevant to highlight that we have executed basic and applied research projects for a value of over 5.9 million euros, as well as technology transfer projects for a value above 4.4 million euros. These projects have significantly contributed to the development and implementation of strategies that impact positively on society and the environment.

In summary, year 2023 witnessed the outcomes of our belief in an innovative and knowledge-oriented model. As we progress, we keep a firm commitment with the creation of a positive impact and the boost of sustainability, consolidating our position as a reference institution in the integration of applied research and socioeconomic progress.



## 10.3M €

Allocated budget



## 57%

Research



## 43%

Transfer of K&T





## Many thanks

### For walking this road with us toward a more sustainable and resilient future

Our most sincere gratitude to everyone who has contributed to the success of IHCantabria in 2023. Thanks to the institutions that, as founders and providers of funds, make our work possible, i.e., the Ministry of Science, Innovation and Universities, the University of Cantabria and the Government of Cantabria. Thanks to the administrations and companies that have relied on our work, as their commitment and cooperation are fundamental to progress towards our mission of research, innovation and sustainability. And a very special thank you to everyone in our team who, with daily efforts and commitment make IHCantabria a reality.

## The IHCantabria team in 2023

Sheila Abad Herrero, Ana Julia Abascal Santillana, Adrián Acevedo García, Ignacio Aguirre Ayerbe, Rubén Alonso Díaz, Mario Álvarez Cabria, César Álvarez Díaz, José Manuel Álvarez Martínez, Álvaro Álvarez Vázquez, Moisés Álvarez Cuesta, Ana Álvarez de Eulate Fuentes, Silvia Ángeles Teja, Amaia Angulo Rodeles, Íñigo Aniel-Quiroga Zorrilla, Germán Aragón Caminero, Jesús Ángel Arriaga Velasco, Luciana Badano Patiño, Gabriel Barajas Ojeda, Javier Francisco Bárcena Gómez, José Barquín Ortiz, Esther Barrios Crespo, Tommaso Battistella, Alexis Benedicto Martín, Pablo Bengochea Mantecón, David Blanco Iturbe, Miguel Borbolla Franco, M<sup>a</sup> José Bueno Muñoz, Patricia Bueno Soria, Itziar Caballero Pérez, Elsa Cacho Taeño, Carlos Calderón Palacios, Luis Carlos Cano Pairet, Verónica Cánovas Losada, Cristina Casal Escaloni, Ana Cayón Herbosa, Juan Ceballo Blanco, Andre Chagas da Costa Neves, Alisée Chaigneau, Laura Concostrina Zubiri, David Cordovillo Fernández, Andrea Costales Llata, David Coterillo González, Sergio Cózar Rodríguez, Claudia Cruz Lorenzo, Carlos Vinicius da Cruz Weiss, Lucas De Freitas Pereira, Ana de los Ríos Gutiérrez, Manuel del Jesus Peñil, David del Prado Secadas, Gabriel Díaz Hernández, Pedro Díaz Simal, Gregoire Herve Christian Dufermont, Beatriz Echávarri Erasun, Diego Elola Portilla, Ahmed Ibrahim Abdelmagid Elshinnawy, M<sup>a</sup> de los Ángeles Erazo Pesántez, Berta Fernández Caballé, Camino Fernández de la Hoz, Sonia Fernández García, Javier Fernández González, Yailin Fernández González, Álvaro Fernández Menéndez, Alberto Vicente Fernández Pérez, Ana Fernández Pérez, Oscar Fernández Ramos, Silvia Fernández Rodicio, Sergio Fernández Ruano, Rocío Fernández Verón, María Fuentes Álvarez de Eulate, David Galán Pérez, Isabel Gallego Bermúdez, Albert Gallego Jiménez, Cristina Galván Arbeiza, Javier García Alba, Alejandra García Cabanillas, Andrés García Gómez, Mario García Liaño, Juan Pablo García Montealegre, Pablo García Pérez, Anna García Teruel, Arnau García Tort, María García de la Santa Viñuela, Beatriz Garmendia González-Madroño, Alejandra Goldenberg Vilar, Paula Gómes Da Silva, Dina Vanessa Gómez Rave, Laro González Canoura, Alexia María González Ferreras, Juan Miguel González Ortiz, Ernesto Mauricio González Rodríguez, Alejandro González Valle, Lorena Goyenechea Ocejo, Raúl Guancho García, Sonia Omary Guardado



Cárcamo, Xabier Guinda Salsamendi, Carlos Gutiérrez Abascal, Omar Quetzalcóatl Gutiérrez Gutiérrez, M<sup>a</sup> Lourdes Gutiérrez Pérez, Luis Gutiérrez Vélez, Gonzalo Hernández Romero, Bárbara Herrero Olavarri, Thi Binh Minh Hoang, Héctor Ibáñez Quintanal, Francisco Jaime Fernández, Camilo Jaramillo Cardona, Mirian Jiménez Tobío, María Jiménez Ibaceta, José Antonio Juanes de la Peña, Andrés Felipe Julio Barragán, Eduardo Lastra Francés, Oliver Legarreta García, Nicolás Leonardo García-Barredo, Héctor Lobeto Alonso, Hugo Lomba Luis, Javier López Lara, Lorena López Sánchez, María López-Dóriga Ruiz, Luis Carlos Lorenzo Morales, Alba María Losa Calleja, Ramón Losada Quevedo, Íñigo Javier Losada Rodríguez, Javier Losada Vejo, David Lucio Fernández, Irene Maestra Onteniente, Santiago Martelo López, Alejandro Martínez Gutiérrez, Jara Martínez Sánchez, Ottavio Mattia Mazzaretto, Rafael Mayor Sánchez, Felipe Maza Fernández, María Emilia Maza Fernández, Inés Mazarrasa Elósegui, Raúl Medina Santamaría, Noelia Meireles Estrada, Tamara Méndez Fernández, Andrés Patricio Mendoza Munizaga, Melisa Menéndez García, Lucía Meneses Aja, María Merino Gonzalez-Pardo, Antonio Jesús Milla Torres, María Cristina Morán Luis, Salvador Navas Fernández, Carlos Nieto Andreu, Sara Novo Cañizares, Paula Núñez Pérez, Itxaso Odériz Martínez, Juan Olalla Ferreira, Bárbara Ondiviela Eizaguirre, Juan Ortiz Abascal, Laura Otí Echevarría, Sergio Padilla Álvarez, Cristina Palacín Pedrosa, Luis Pedraz Polo, Andrés Pelayo San Miguel, Erica Pellon de Pablo, Francisco Jesús Peñas Silva, M<sup>a</sup> Luisa Pérez García, Laura Pérez García, César Antonio Pérez Quintana, Silvia Pinardo Barco, Alicia Polidura Pérez, Jesús Postigo Fernández, Cristina Prieto Sierra, Araceli Puente Trueba, Diego Raba Navarro, Marta Ramírez Pérez, Elvira Ramos Manzanos, María Recio Espinosa, Delia Regueira Muñiz, Seyed Meysam Rezaee, Constantino Gaspar Ribes de Prada, Tamara Rodríguez Castillo, Beatriz Rodríguez Fernández, Guzmán Rodríguez Fernández, Miguel Rodríguez López, Álvaro Rodríguez Luis, Fernando Rodríguez Montoya, Jorge Rojo Gómez, Mariana Roldán Upegui, Alessandro Romano, Eva Romano Moreno, Francisco Royano Gutiérrez, Jesús Ruiz Alberti, Pablo Ruiz Ceballos, Pablo Ruiz Díaz, Amaia María Ruiz Gordon, Lorena Ruiz Prieto, Mirko Rupani, Samuel Sáinz Villegas, Natalia Sampedro Carral, Begoña Sánchez Astraín, Cristian Sánchez Fuentes, Cristina Sánchez Jiménez, Margot Sánchez Sánchez, Sara Sánchez-Gil Palomares, Javier Sarmiento Martínez, Elena Setién Ortiz, Ana Silió Calzada, Miguel Somoano Rodríguez, María Suárez Bilbao, Iria Suárez Corral, Stefano Susini, Beatriz Tejerina Vega, Katerine Elsy Ticse de la Torre, Isabel Toca Cuesta, Alexandra Toimil Silva, Antonio Tomás Sampedro, Saúl Torres Ortega, Anabela Romina Turlione, Diego Armando Urrea Méndez, Jonathan Bruno Valle Rodríguez, Marco Antonio Vega Marichalar, Ayanta Velasco Martínez, Alberto Vélez Martín, Juan Jesús Viadero Andrés, César Vidal Pascual, Adrián Villa Alonso, Gloria Zamora Sánchez, Raquel Zarauza Martínez.



## Our partners

Acri-In, Acs, Actividades de Construcción y Servicios, S.A., Aecom Spain Dcs, S.L.U., Andacar 2000, S.A., Aquatica Ingeniería Civil, S.L., Arrecife Energy Systems SI, Asociación Red Cambera, Autoridad Portuaria de Barcelona, Autoridad Portuaria de Cartagena, Autoridad Portuaria de S/C Tenerife, Autoridad Portuaria de Santander, Autoridad Portuaria de Tarragona, Ayuntamiento de Limpías, Ayuntamiento de Marina de Cudeyo, Ayuntamiento de Muskiz, Berenguer Ingenieros, S.L., Boston Consulting Group, SI, Btp Infraestructuras S.L., Carlos A. Pérez Dávila, Ceto Wave Energy Ireland Limited, Ciomar S.L., Club Náutico Ibiza, Cobra Tedagua Contracting Llc, Col-Legi d'Arquitectes de Catalunya, Comaypa S.A., Compañía Española de Petroleos, S.A.U., Consejería de Agricultura, Ganadería, Pesca y, Consejería de Medio Rural y Cohesión Territorial del Principado de Asturias, Consorcio de Aguas Bilbao Bizkaia, COST Association, Costablanca, S.A., Creocean, DG EAC, DG ECHO, DG DEFIS, DG REFORM, Dirección General de Deporte, Dnv Maritime and Energy Services S.L., Dragados Offshore, S.A., Dragados, S.A.U., Ecohydros, SI, El Programa de las Naciones Unidas para el Desarrollo, Eduardo García Alonso, Ente Vasco de la Energía (EVE), Eoliennes En Mer, Eric Iribarren, Esteyco, S.A., European Commission, Exploraciones Mineras del Cantabrico S.L., Factor Ideas Integral Services, S.L., FCC Construcción, Sa, Ferrovial Construcción, S.A., Ferrovial Corporación S.A., Fundación UCEIF, Gpo Ingeniería y Arquitectura, S.L.U., Iberblue Wind España S.L., Iberdrola France, Iberdrola, S.A., Idom Consulting, Engineering, Architecture, S.A.U., Inco Land Limited, Ingeniería Avanzada de Obras Marítimas S.L.P., Ingeniería Especializada Obra Civil e Industrial, Ingerop Conseil Et Ingenierie, Ingeteam Power Technology, S.A., Inteco Astur, S.L., Inter-American Development Bank, Interreg Atlantic Area Joint Secretariat, Isati Engineering Solutions S.L., Isigenere SI, Labaqua, S.A.U., Luigi Cárdenas Acuña, Marciglob Consultancy Solutions, S.L., Marine Construction Maroc S.A., Mazuecas Participadas, S.L., Ministerio de Agricultura, Pesca y Alimentación, Ministerio de Defensa, Ministerio para la Transición Ecológica y el Reto Demográfico, Mott Macdonald Limited, Neom Inc, Niva Denmark Water Research, Ow Offshore, S.L., Parque Eólico Marino Tarahal, S.L., Proes Consultores, S.A., Projeto Uam Botafogo Unipessoal Lda, Projeto Uam Creola Unipessoal Lda, Repsol Investig. Petrolíferas, S.A., Seaboost, Sener Ingeniería y Sistemas, S.A.U., Shoreplan Engineering Limited, Simply Blue Management (Iberia) S.L., Simply Blue Management (Ire) Limited, Smartwater Planet S.L., Sombradoble S.L., Sociedad de Promoción Económica de Gran Canaria S.A.U., Sociedad Gestora del Parque Científico-Tecnológico, Técnica y Proyectos, S.A. (Typsa), Tecnología Acuícola de Santander, S.L., The European Biodiversity Partnership (BIODIVERSA+), The European Climate, Infrastructure and Environment Executive Agency (CINEA), The European Maritime Safety Agency (EMSA), The Special Account for Research Grants of the National Observatory of Athens, The World Bank Group, Tragsatec, Trinomics B. V., Oficina de las Naciones Unidas para la Educación, la Ciencia y la Cultura (Unesco), United Nations Office at Nairobi (Unon), Universidad de Cantabria, University of California, Ute Arenas & Asociados Ingeniería de Diseño S.L.P. - Urbinsa, Ute Valleseco Fase II, Vlaams Instituut voor de Zee (VLIZ), World Wildlife Fund, Inc., Worley España S.L.U., Worley Group Inc.

# Annexes

## Relevant news 2023

### Some events and conferences at the facilities of IHCantabria



IHCantabria received the international group of students of the Erasmus Mundus COASTHAZAR Master's program

[Access to press release](#)



IHCantabria presented final results of the SIAMETOC-2 project

[Access to press release](#)



The metaverse and augmented reality are already part of the ICT tools that IHCantabria will use to provide information, thanks to a project developed with companies from South Korea

[Access to press release](#)



IHCantabria celebrates the inauguration of the project 'Complementary Studies for the Comprehensive Solution to Flooding on the Malecón in Havana, Cuba'

[Access to press release](#)



Specialists in Blue and Sustainable Tourism participated in the first industry round table of the Bahía Plan

[Access to press release](#)



Five entities from Cantabria presented the NBRACER European project, which offers nature-based solutions for the regional climate resilience of the Atlantic Ocean

[Access to press release](#)



IHCantabria organised a meeting announcing the coordination the Integrated Management Plan for the Santander Bay

[Access to press release](#)



IHCantabria brought to Santander members of a European project for operational forecasting of maritime transport pollution

[Access to press release](#)



First Meeting on Blue Economy: Progress and Future being held in Cantabria at IHCantabria

[Access to press release](#)



IHCantabria received a delegation of companies from South Korea which will develop a project based on the use of IT and communications technologies

[Access to press release](#)



IHCantabria hosted the "BEACON" International Symposium on the adaptation to climate change in the coastal built environment

[Access to press release](#)



Scientific and technological knowledge and experience exchange mission between experts of IHCantabria and of the Environmental Agency of Cuba

[Access to press release](#)



IHCantabria hosted a scientific-technical coordination meeting for the R&D&I Complementary Plan in Marine Science, 'ThinkInAzul'

[Access to press release](#)



IHCantabria hosted the first coordination meeting of the R&D&I Complementary Plan in Marine Science in Cantabria

[Access to press release](#)



The Ministry of Science, Technology, and Environment of Cuba and IHCantabria update their agreement for scientific and technological cooperation for 2023

[Access to press release](#)

# Annexes

## Relevant news 2023

### Some events and conferences outside the facilities of IHCantabria



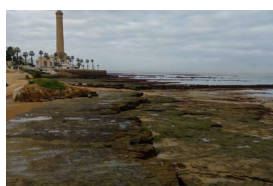
Completion of the COASTAL-COVER European project for the protection of the coasts of Malta, with a major participation of IHCantabria

[Access to press release](#)



The Port Authority commissions IHCantabria to carry out a hydrodynamic study of the navigation channel and the beach system

[Access to press release](#)



NEAMWave23: exercise to assess communication and response to tsunami events in the North East of the Atlantic Ocean on 6th of November

[Access to press release](#)



IHCantabria participated in the Latin American and the Caribbean Climate Week (LACCW) being held in Panama

[Access to press release](#)



IHCantabria participated in the II Environmental Sustainability and Port Management Conferences held in Huelva

[Access to press release](#)



IHCantabria Managers participated in the final session of Blue Growth projects and in the Annual Meeting of the National Network of Knowledge Spaces

[Access to press release](#)



Artificial intelligence and Climate Change Risks, two courses led by IHCantabria in the Ports Week

[Access to press release](#)



Workshop on Standardized Operations Procedures (SOP) for early warning and the emergency response to tsunamis

[Access to press release](#)



IHCantabria Researcher María Maza, delivered the 8th edition of the Brunings Lecture at Utrecht University

[Access to press release](#)



Presentation of the Institutional Chair in Artificial Intelligence applied to Ports "AI Santander Port"

[Access to press release](#)

### Some actions of Communication and Scientific Outreach



Participation in the XI European Night of Researchers at the University of Cantabria

[Access to press release](#)



Organization of the III Meeting with female scientists from Cantabria for the International Day of Women and Girls in Science

[Access to press release](#)

### Some international research and cooperation scholarships:



The European Commission awards a Marie Skłodowska-Curie postdoctoral fellowship to Itxaso Oderiz for research at IHCantabria

[Access to press release](#)



IHCantabria's commitment to international cooperation has an impact beyond the academic and professional realms

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## List of scientific publications

Name	Journal
<a href="#">Laboratory evaluation of the effectiveness of nature-assisted beach enhancement techniques</a>	Coastal Engineering
<a href="#">Hydrodynamic analysis and optimization of a floating wave energy converter with moonpool using OpenFOAM®</a>	Applied Ocean Research
<a href="#">Lagrangian modelling of oil concentrations at sea: A sensitivity analysis to the grid resolution and number of Lagrangian elements</a>	Marine Pollution Bulletin
<a href="#">Mediterranean springs: Keystone ecosystems and biodiversity refugia threatened by global change</a>	Global Change Biology
<a href="#">Use of Big Data for Flood Assessment Through HEC-RAS Model: A Study of Purna River of Navsari</a>	Lecture Notes in Civil Engineering
<a href="#">Chronic exposure to environmental temperature attenuates the thermal sensitivity of salmonids</a>	Nature Communications
<a href="#">Global dataset of soil organic carbon in tidal marshes</a>	Scientific Data
<a href="#">Flaws in the methodologies for organic carbon analysis in seagrass blue carbon soils</a>	Limnology and Oceanography: Methods
<a href="#">Wave forces on vertical caissons with retreated wall: A first experimental insight</a>	Coastal Engineering
<a href="#">Numerical modeling of tsunamis generated by granular landslides in OpenFOAM®: A Coulomb viscoplastic rheology</a>	Coastal Engineering
<a href="#">On the assessment of the wave modeling uncertainty in wave climate projections</a>	Environmental Research Letters
<a href="#">Demonstrating the value of beaches for adaptation to future coastal flood risk</a>	Nature Communications
<a href="#">Assessment and exploitation of coastal low resolution mode sea level data from CryoSat-2 on the entrance to the Gulf of California</a>	Advances in Space Research
<a href="#">Are We Underestimating the Risk of Coastal Flooding in Europe? The Relevance of Critical Infrastructure</a>	Journal of Marine Science and Engineering
<a href="#">Status of global coastal adaptation</a>	Nature Climate Change
<a href="#">A nearshore evolution model for sandy coasts: IH-LANSloc</a>	Environmental Modelling and Software
<a href="#">Gain scheduling model predictive control for dynamic positioning of floating caissons at different draughts</a>	International Journal of Adaptive Control and Signal Processing
<a href="#">Human activities disrupt the temporal dynamics of salinity in Spanish rivers</a>	Hydrobiologia
<a href="#">Large-scale factors controlling biological communities in the Iberian Peninsula: an insight into global change effects on river ecosystems</a>	Aquatic Sciences
<a href="#">A new predictive tool for modeling wave attenuation produced by saltmarshes in SWAN based on standing biomass</a>	Coastal Engineering
<a href="#">Observation of the Coastal Areas, Estuaries and Deltas from Space</a>	Surveys in Geophysics
<a href="#">NEOPRENE v1.0.1: A Python library for generating spatial rainfall based on the Neyman-Scott process</a>	Geoscientific Model Development

# Annexes

Name	Journal
<a href="#">Towards Adaptive Water Management—Optimizing River Water Diversion at the Basin Scale under Future Environmental Conditions</a>	Water (Switzerland)
<a href="#">A Dynamic Estuarine Classification of the Vertical Structure Based on the Water Column Density Slope and the Potential Energy Anomaly</a>	Water (Switzerland)
<a href="#">Towards blue growth: Multi-use possibilities for the development of emerging sectors in the Brazilian sea</a>	Ocean and Coastal Management
<a href="#">Multivariate assessment of port operability and downtime based on the wave-induced response of moored ships at berths</a>	Ocean Engineering
<a href="#">The recovery of European freshwater biodiversity has come to a halt</a>	Nature
<a href="#">Drivers of variability in Blue Carbon stocks and burial rates across European estuarine habitats</a>	Science of the Total Environment
<a href="#">Performance evaluation of a global CMIP6 single forcing, multi wave model ensemble of wave climate simulations</a>	Ocean Modelling
<a href="#">Biofilm-induced effect on the buoyancy of plastic debris: An experimental study</a>	Marine Pollution Bulletin
<a href="#">Numerical modeling of wave overtopping of damaged and upgraded rubble-mound breakwaters</a>	Ocean Engineering
<a href="#">Improved hydrodynamic performance of an OWC device based on a Helmholtz resonator</a>	Energy
<a href="#">Inside a beach drainage system: A three-dimensional modeling</a>	International Journal of Offshore and Polar Engineering
<a href="#">Characterization of Gelidium corneum's (Florideophyceae, Rhodophyta) vegetative propagation process under increasing levels of temperature and irradiance</a>	Marine Environmental Research
<a href="#">Analysis of the Mooring Effects of Future Ultra-Large Container Vessels (ULCV) on Port Infrastructures</a>	Journal of Marine Science and Engineering
<a href="#">Simulation of mooring Lines in complex bathymetries using a finite element method</a>	Ocean Engineering
<a href="#">A changing wave climate in the Mediterranean Sea during 58-years using UERRA-MESCAN-SURFEX high-resolution wind fields</a>	Ocean Engineering
<a href="#">Multimodal harbor wave climate characterization based on wave agitation spectral types</a>	Coastal Engineering
<a href="#">Ecosystem-level effects of re-oligotrophication and N:P imbalances in rivers and estuaries on a global scale</a>	Global Change Biology
<a href="#">Working with nature to enhance beach accretion: Laboratory experiments of beach ploughing</a>	Coastal Engineering
<a href="#">Mangrove forests as a nature-based solution for coastal flood protection: Biophysical and ecological considerations</a>	Water Science and Engineering
<a href="#">Connection between Weather Types and Air Pollution Levels: A 19-Year Study in Nine EMEP Stations in Spain</a>	International Journal of Environmental Research and Public Health
<a href="#">Wave-induced cross-shore distribution of different densities, shapes, and sizes of plastic debris in coastal environments: A laboratory experiment</a>	Marine Pollution Bulletin
<a href="#">The hydrodynamic performance of a shore-based oscillating water column device under random wave conditions</a>	Ocean Engineering

# Annexes

Name	Journal
<a href="#">Large-scale spatial patterns of riverine communities: niche versus geographical distance</a>	Biodiversity and Conservation
<a href="#">Editorial: Consequences of global change in coastal ecosystems from a multidisciplinary perspective</a>	Frontiers in Marine Science
<a href="#">Exploring the newly emerging effects of native seagrasses on survival and growth of non-native juvenile clams</a>	Frontiers in Marine Science
<a href="#">A numerical study of the mixing and stratification alterations in estuaries due to climate change using the potential energy anomaly</a>	Frontiers in Marine Science
<a href="#">Tracing the introduction of <i>Dictyota acutiloba</i> (Dictyotales, Phaeophyceae) in the Mediterranean Sea, with a reassessment of its geographic distribution</a>	European Journal of Phycology
<a href="#">Passive rewilding in the Cantabrian Mountain Range: scientific basis and challenges for socio-ecological sustainability [Renaturalización pasiva en la Cordillera Cantábrica: bases y retos científicos para una sostenibilidad socio-ecológica]</a>	Ecosistemas
<a href="#">Estimating extreme monthly rainfall for Spain using non-stationary techniques</a>	Hydrological Sciences Journal
<a href="#">Correction: Environmental Compatibility of the Parc Tramuntana Offshore Wind Project in Relation to Marine Ecosystems (J. Mar. Sci. Eng., (2022), 10, (898), 10.3390/jmse10070898)</a>	Journal of Marine Science and Engineering
<a href="#">Neglecting the effect of long- and short-term erosion can lead to spurious coastal flood risk projections and maladaptation</a>	Coastal Engineering
<a href="#">An evaluation of freshwater monitoring programs in ILTER nodes and mountain national parks: identifying key variables to monitor global change effects</a>	Biodiversity and Conservation
<a href="#">Computations of pressure loads on an oscillating water column with experimental comparison for random waves</a>	Coastal Engineering
<a href="#">SOSeas Web App: An assessment web-based decision support tool to predict dynamic risk of drowning on beaches using deep neural networks</a>	Journal of Operational Oceanography





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