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Scientific Culture Fridays at the Fonck Museum, Viña del Mar, during the "month of the sea"

May is an ideal month to talk about the oceans, their enigmas, and challenges. For this reason, the Scientific Culture Fridays at the Fonck Museum, Viña del Mar, (6:00 PM) invite you to participate in two talks dedicated to the sea: on Friday the 16th, you will learn about the mysteries of an ancient creature, and on Friday the 23rd, there will be an opportunity to question the present and future of the ocean and our relationship with it. It should be noted that this initiative, which includes a Chilean Sign Language interpreter, is funded by the Ministry of Culture, Arts, and Heritage through its Support Program for Collaborating Cultural Organizations.

The VCCs on Fridays, May 16 and 23, 2025, will be held at their regular schedule, at 6:00 PM, at the Fonck Museum, located at 4 Norte 784, corner of 1 Oriente, Viña del Mar. They will be led by specialists dedicated to research, teaching, and scientific outreach.

In the first talk, a specialist from the Chilean Fisheries Development Institute (IFOP) will unravel some of the mysteries and enigmas of marine species that have been on our planet for millions of years. The following Friday, a scholar from the Pontifical Catholic University of Chile (UC) will delve into questions about the future of the relationship between human societies and the sea, the management of its resources, and the water crisis.

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In this initiative, funded by the Ministry of Culture, Arts, and Heritage through its Support Program for Collaborating Cultural Organizations, these talks will be held, a space for conversation that invites us to learn more and reflect on our relationship with the sea, its challenges, and complexities.

The sea is home to millions of different life forms, covers the planet in an intense blue, and is an important part of the water cycle, which is fundamental to the conditions that allow and facilitate life throughout the biosphere. In the sea, we can find sea turtles, species that have existed for millions of years, surviving numerous changes on the planet. It also represents the critical relationship between humans and the oceans: pollution, technologies, sustainable development, and possibilities for addressing the water and climate crises. The audience will be able to learn about this and more at the VCC in May on the second floor of the museum.

Getting to Know Sea Turtles: The Enigmas of an Ancient Animal

On Friday, May 16, 2025, the VCC session will be led by Patricia Zárate, a marine biologist from the Universidad Católica del Norte (Coquimbo, Chile) with a PhD in Zoology from the University of Florida (United States). She is recognized for her commitment to the conservation of migratory marine species, especially sharks and sea turtles. She currently leads the Fisheries Assessment Department of the Chilean Institute for Fisheries Development (IFOP).

This professional invite everyone to discuss sea turtles and learn more about them. There are sea turtle species that have existed for millions of years, surviving numerous changes on the planet. Their “enigmas” allude to the mysterious or little-understood aspects of their biology, behavior, and ocean journey. In a sense, the term also highlights the challenges they face today due to human activity and other environmental factors.

Seawater: Solution or Challenge?

The next VCC 2025 session on Friday, May 23, will be led by Ricardo Salazar González, Associate Professor at UC, where he is Director of Outreach and Continuing Education. He holds a degree in Chemistry, a Chemist, and a PhD in Chemistry with more than 15 years of experience in research, teaching, university management, and scientific outreach.

In this talk, attendees will learn about the critical relationship between the water crisis and

seawater quality. They will discuss microplastics and emerging pollutants, and their impact on the marine environment. They will also discuss the challenges these pollutants pose for seawater desalination as a viable solution to water scarcity. Salazar will address emerging technological innovations to address these challenges and improve the quality of treated water. At the end, participants will have tools to understand why addressing pollution is essential to harnessing the potential of seawater for a sustainable future.

RETURN

The Fonck Museum is part of the Support Program for Collaborating Cultural Organizations of the Ministry of Culture, Arts, and Heritage, Government of Chile.

Fisheries Development Institute installs meteorological stations on Mocha Island

Between April 8 and 10, the specialized technical group from IFOP's Department of Oceanography and Environment installed two meteorological stations on Mocha Island, 40 km off the coast of Tirúa, in the Biobío region. Oceanographers Andrés Varas and Adrián Bustamante, along with Navy Metrology Service specialist Sergeant Daniel de la Fuente, installed these automatic recorders on the east and west sides of the island to capture all the spatial and temporal variability of the local wind. The wind recorded on this island (https://giscc.ifop.cl/web/estacion/34/tiposensor/5) will help us understand the impact of ENSO events and climate change on local meteorological and oceanographic processes, which characterize and define the main spawning area for common sardine and anchovy in south-central Chile, as well as the annual and interannual disturbances forced by these large-scale processes.

Furthermore, these two new stations join and strengthen the Climate Change Monitoring System for Fisheries Resilience (S.A.P.O) (https://sapo.ifop.cl/), contributing new observations to improve the numerical models of the local ocean being developed by IFOP to contribute, from an environmental, ecological, and biological perspective, to the ecosystemic understanding of two of the country's main fisheries resources.

The installation of these scientific meteorological stations will also have a social impact on the safety of the local community by providing real-time data on local meteorological conditions to the island's airport and local pilots.

The installation of this type of recorder has been possible thanks to the committed collaboration between SERVIMET and IFOP within the framework of the cooperation agreement between the Institute and DIRECTEMAR, where both institutions share efforts to monitor the entire Chilean coast.

RETURN

IFOP incorporates advanced scientific equipment for the digitization of planktonic samples and the detection of greenhouse gases

Researchers, technologists, and analysts from IFOP's Department of Oceanography and Environment received state-of-the-art scientific equipment.

A ZooSCAN allows the digitization of historical zooplankton samples and gives new value to organisms collected more than 40 years ago, enabling new studies as well as the generation of climate indicators that represent changes in planktonic ecosystems along the Chilean coast over the last half-century. This equipment is incorporated into the Digital Library of Marine Plankton project, funded by CORFO.

Furthermore, DOMA also incorporated a sensor for methane gas, one of the main greenhouse gases and a cause of major strandings off the coast of Africa. This gas appears to be contributing to mass strandings between the Gulf of Arauco and the Chacao Channel, affecting the natural mortality rate of important fisheries resources such as anchovy and common sardine.

The compatibility with CTD equipment and the rosette of the Abate Molina and Dra. Barbieri vessels allows for ductile mobility suitable for deep measurements along the entire Chilean coast and therefore for the presence of this gas in the water column due to climate change.

The acquisition of this equipment was made possible thanks to funding for the Strengthening of the Climate Change Monitoring System for Fisheries Resilience (S.A.P.O) (https://sapo.ifop.cl/), financed by the performance agreement for Sustainable Productive Development of CORFO, focused on the sustainable development of fisheries within a context of climate change.

RETURN

Workshop on the environmental performance of aquaculture in Chile

On Wednesday, April 23rd, at the Grand Hotel Vicente Costanera, at 450 Diego Portales Avenue, Puerto Montt, the workshop "Environmental Performance of Aquaculture in Chile" was held. It was convened by Gastón Vidal Santana, head of the Aquaculture Research Division of the Fisheries Development Institute, as part of the dissemination activities for the results of the study on the environmental performance of aquaculture in Chile. This study is part of IFOP's efforts to generate relevant scientific information for decision-making in the environmental management of the aquaculture sector.

The workshop was attended by 146 participants: 38 attended in person and 108 connected remotely. Attendees represented a wide range of institutions, including government agencies, aquaculture companies, universities, laboratories, environmental consulting firms, and research centers. During the event, four presentations were given that addressed crucial topics related to the environmental impact of aquaculture in Chile, with an emphasis on the situation in the Los Lagos, Aysén, and Magallanes regions. The presentations highlighted emerging issues such as the proliferation of filamentous green algae, the assimilative capacity of fjords, the environmental condition of Salmon Farming Concession Groups (ACS), and the development of tools such as Macrobent for the scientific community.

Welcome and Project Presentation

The day began with welcome remarks and a general presentation of the project by Alejandra Oyanedel, Head of the Environment Department, Aquaculture Research Division, IFOP. In her remarks, she contextualized the importance of studying the environmental performance of aquaculture within the framework of IFOP's 60th anniversary and its commitment to research for the sustainable development of the sector. It was emphasized that the study is part of an ongoing effort to monitor and assess the environmental impacts of aquaculture activities on the marine ecosystems of southern Chile.

Filamentous Green Algae Blooms in the Los Lagos Region

Speaker: Johana Ojeda P., Department of Environment, Aquaculture Research Division, IFOP.

This presentation addressed an emerging problem in the Los Lagos Region: the blooms of filamentous green algae in naturally protected coastal systems. The researcher presented evidence of the increase in these blooms in recent years and their potential relationship with environmental and anthropogenic factors, including aquaculture activities.

Highlights:

- Identification of the main species of filamentous green algae present in the region
- Analysis of the temporal and spatial distribution of blooms
- Assessment of contributing factors, with emphasis on nutrient input
- Potential impacts on coastal ecosystems and other productive activities
- Proposed monitoring and mitigation measures

Assessment of assimilative capacity in southern Chilean fjords

Speaker: Heraldo Contreras C., Department of Environment, Aquaculture Research Division, IFOP

RETURN

The presentation focused on an integrated approach to assessing the capacity of southern Chilean fjords to assimilate the impacts of aquaculture, combining elements of benthic ecology and ocean modeling.

Highlights:

- Integrated methodology for assessing assimilative capacity
- Presentation of results from case studies in selected fjords
- Analysis of the relationship between aquaculture production and environmental response
- Importance of predictive modeling for activity planning
- Recommendations for adaptive management of fjord aquaculture

Environmental condition of the AECs in the Los Lagos, Aysén, and Magallanes regions

Speaker: Angélica Alarcón D., Department of Environment, Aquaculture Research Division, IFOP

This presentation provided a comprehensive overview of the environmental situation of the Salmon Farming Concession Groups (ACS) in the three main salmonid-producing regions in Chile, with an emphasis on the integration of environmental and production variables.

Highlights:

- Current status of key environmental variables in the ACSs of the three regions
- Comparative analysis between regions and evolution over time
- Correlation between production intensity and environmental condition
- Identification of critical and recovery areas
- Proposal for integrated indicators for the environmental management of ACS

MACROBENT: Exploring Its Uses and Benefits for the Scientific Community

Speaker: Lilian Díaz G., Department of Environment, Aquaculture Research Division, IFOP.

The final presentation of the workshop introduced MACROBENT, a tool developed by IFOP for the analysis and management of benthic community data, highlighting its usefulness for researchers and decision-makers in the field of aquaculture.

Highlights:

- Features and functionalities of the MACROBENT tool
- Practical applications in environmental data analysis

RETURN

- Successful use cases and lessons learned
- Access and availability for the scientific community
- Future development prospects and planned improvements

MAIN FINDINGS AND CONCLUSIONS

From the presentations and discussions during the workshop, the following relevant findings and conclusions can be drawn:

- Emergence of new environmental challenges: The proliferation of filamentous green algae represents an emerging problem that requires attention and continuous monitoring, particularly in sensitive coastal systems.
- An ecosystem approach is necessary: The need to integrate multiple disciplines and methodologies (benthic ecology, oceanography, modeling) is evident to adequately understand the impacts of aquaculture on marine ecosystems.
- Significant regional differences: There are significant contrasts in the environmental condition of aquaculture reserves between the Los Lagos, Aysén, and Magallanes regions, suggesting the need for differentiated management approaches.
- Promising technological tools: The development of platforms such as MACROBENT represents a significant advance in the standardization and analysis of environmental data associated with aquaculture.
- Multisectoral collaboration: The broad participation of diverse stakeholders in the workshop demonstrates the cross-cutting interest in the topic and the potential for establishing collaborations between the public, private, and academic sectors.

RECOMMENDATIONS

Based on the results presented and the discussions generated during the workshop, the following recommendations can be formulated:

- Strengthen monitoring: Implement specific monitoring programs for emerging phenomena such as filamentous green algae blooms.
- Adaptive management: Incorporate the results of the assimilative capacity assessment into the planning and regulation of fjord aquaculture activities.
- Differentiated approach by region: Develop specific environmental management measures for each region, considering their ecosystem and production characteristics.
- Promote the use of integrative tools: Encourage the adoption of platforms such as MACROBENT among the scientific and technical community to standardize analyses and facilitate comparability of results.
- Maintain spaces for dialogue: Continue dissemination and discussion opportunities that bring together various stakeholders in the sector, strengthening collaboration and knowledge exchange.

FINAL COMMENTS

The dissemination workshop held by the IFOP represents a valuable contribution to knowledge about the environmental performance of aquaculture in Chile. The quality of the presentations, the diversity of participants, and the relevance of the topics covered reflect the institutional commitment to the generation and transfer of scientific information for decision-making. The results presented constitute a fundamental input for the sustainable development of the Chilean aquaculture sector, especially in a context of growing environmental challenges and greater demands from markets and consumers.

The continuation of these studies and the implementation of the resulting recommendations will be key to ensuring compatibility between the productive development of aquaculture and the preservation of marine ecosystems in the southern regions of Chile.

RETURN

IFOP Data Center Services Renewal

During 2025, the Fisheries Development Institute (IFOP) has renewed its Data Center service. Jaime González, Head of the Information Technology Department, explained, “We are pleased to announce that, as part of the renewal of our Data Center services, IFX has been awarded the management of this service through a public tender. It is worth noting that this management entails benefits in terms of service quality, as well as savings in the institutional budget.

IFX is an internationally recognized company that offers specialized Data Center services and has certifications that ensure our servers operate under high standards of security and operational continuity.

In addition, we have increased our Internet browsing capacity, increasing from 400 megabytes to 1 gigabyte nationally and from 200 megabytes to 500 megabytes internationally. These improvements are essential to optimize our operations and ensure proper and efficient operation.”

In this context, the Head of the Administration and Finance Division, Jorge Miranda, along with the Head of the Information Technology Department, Jaime González, visited the Data Center facilities. During the visit, they met with Jack Haime, Vice President of Regional Sales and Marketing; Catherine Allende, Commercial Manager; and Gabriel Guixe Roma, Senior Account Manager – Government.

“It is important to highlight that, in the process of migrating our servers from Viña del Mar to the IFX facilities in Huechuraba (Santiago), the Information Technology Department team carried out an extraordinary job, demonstrating a deep commitment to the success of this process.

We thank everyone involved for their support in this important and successful transition,” González concluded.

Freshwater in Chile: How do public monitoring contribute to the management of human activities?

Researchers from the Fisheries Development Institute, to commemorate World Water Day, gathered for an online workshop entitled: Freshwater in Chile: How do public monitoring contribute to the management of human activities? This workshop sought to highlight the importance of freshwater in our lives and to highlight the country’s need for environmental monitoring to understand, classify, assess, and sustainably manage activities carried out in continental aquatic systems.

To kick off the workshop, Gastón Vidal Santana, head of the Aquaculture Division, gave the opening remarks, inviting everyone to raise awareness about the importance of freshwater as a limited resource, essential for life, and above all, because we must manage it sustainably. He addressed freshwater management, emphasizing the need for a sustainable approach

RETURN

to the influence of human activity on water quality. This year, the theme was "Let's save our glaciers." The seminar began with a talk by researcher Cristian Ruiz Soto, whose presentation "A look at Patagonian glaciology." He showed how glaciers were formed and how they are classified. He explained how the glaciers we see today in Patagonia are remnants of the last glaciation, which occurred approximately 12,000 years ago. They are crucial in providing freshwater to the Patagonian channel system and have significant effects on estuarine circulation.

Afterwards, researcher Carolina Rösner Oyarzo, with her presentation "Discussing the importance of safeguarding the health of lakes," urged the audience to reflect on the management and sustainable use of water, emphasizing that the cost of restoration is greater than the cost of monitoring and management. He outlined some of the main environmental problems facing lake systems, such as pollution, eutrophication, drought, harmful algal blooms, overexploitation of water resources, and climate change. She presented the background of the study program "Evaluation of the Environmental Status of Lakes Used for Aquaculture Activities in Southern Chile," which has allowed for the identification of sources of nutrient input to the lakes, highlighting the influence of human activity on water quality. She also addressed the status of environmental quality standards in Chile, emphasizing the need for scientific studies and inter-institutional collaboration to address pollution and improve water resource management. She urged the implementation of environmentally sustainable production practices and improved management of nutrient inputs to the lake.

Then, researcher Claudia Pérez Sáez gave the presentation "Cyanobacteria in Chiloé: A Risk to the Health of Our Lakes." She explained in detail the specific characteristics of cyanobacteria, their morphological and physiological characteristics that allow them to be a highly cosmopolitan group and strong competitors for resources in the aquatic environment. They can generate algal blooms, which not only produce a high algal biomass, but also Potentially toxic. The toxins produced by cyanobacteria can cause skin, respiratory, cytotoxic, liver, and neurological problems, among others, which can lead to problems in the aquatic environment and human health. Therefore, it is very important to conduct studies and take action to control and manage cyanobacteria algal blooms in freshwater. This is a clear and recurring problem for the lakes of Chiloé and other freshwater systems in the country, such as Lake Villarrica.

Alejandra Oyanedel Pérez, Chief Researcher of the Department of Environment, then presented "Aquatic Invasive Species: Biosecurity and Tourism in Southern Chile." She explained how invasive species are capable of modifying aquatic habitats and interfering with the ecosystem services provided by rivers and lakes. Based on the information gathered by the Monitoring, Prospecting, and Research Program for the Pest Species Didymosphenia geminata in River and Lake Ecosystems in Central, Southern,

RETURN

and Austral Chile, the research team explained in detail the location of the freshwater microalgae declared a pest in Chile, D. geminata, colloquially known as Didymo (rock slime), which would produce negative effects on activities such as tourism, specifically recreational fishing. The urgent need to clean and disinfect equipment used in recreational and research activities to prevent the spread of Didymo and other invasive species was also highlighted.

Finally, researcher Carlos Velásquez Gallardo, with his presentation "River Shrimp: Why Protect Them? Experiences from the Choapa to Maullín Basins," showed how shrimp are fundamental species in the structure of their habitat. Thanks to their omnivorous, detritivorous lifestyle, migratory behavior, and intermediate position in the food chain, these shrimp act as recyclers and regulators of water quality in the face of environmental degradation. They are a food source for endemic native species and support local fishing and gastronomic activities. They act as indicators of the ecological health of rivers. This knowledge can be used for water management with a focus on biological conservation. This study emphasizes that work can be better planned by considering socio-ecological criteria and by observing the basin and water scarcity as a common theme that requires collaboration among the social actors in the system. The river shrimp is classified as an "umbrella" species, since its protection entails the protection of its habitat, highlighting the importance of its conservation and management.

Finally, Nicole Pesse Lastra, a researcher who moderated the activity, emphasized the importance of public monitoring systems that provide strategic and reliable information to sectoral authorities for decision-making, thus enabling standardized and comparable data over time, which is critical for the integrated management of aquatic ecosystems. It is important to highlight the importance of having an informed community that implements best management practices and encourages the development of human capital for the study and management of water. Having water for the future is everyone's responsibility.

Vessel Dra. Barbieri sets sail to research anchovy and common sardine between the Valparaíso and Los Lagos regions

On Saturday, April 26, the scientific vessel Dra. Barbieri set sail from the Port of Valparaíso to conduct an acoustic survey cruise to characterize and assess the anchovy and common sardine stocks present between the Valparaíso and Los Lagos regions in the fall of 2025.

The cruise is led by fisheries engineer Álvaro Saavedra, and the vessel's captain is Rolando Cabrera. Cabrera, accompanied by an expert team of professionals, technicians, and the vessel's crew, will conduct studies related to anchovy and common sardine for 20 days.

The specific objectives of the cruise are to:

- Estimate the size of the anchovy and common sardine stocks and their spatial distribution during the cruise period in the study area.
- To characterize and analyze, in a spatial and temporal context, the demographic composition and interannual variation of the stocks assessed using biological indicators.
- To carry out a minimum of 46 mid-water trawl sets in the study area.

RETURN

The Fisheries Development Institute (IFOP) held a training workshop and dissemination activities for the Benthic Fisheries Monitoring Program in the Magallanes Region

From April 21 to 25, IFOP Valparaíso professionals Pablo Araya, José Fuentes, and Oscar Gallo visited the Magallanes Region to conduct training workshops for scientific observers working at the monitoring centers in Punta Arenas (Barranco Amarillo), Puerto Natales, and Porvenir.

In this regard, Researcher Pablo Araya, head of the southern and austral subzone of the monitoring program, stated: "A group of professionals visited the region with the goal of strengthening and standardizing the methodological processes associated with data collection for monitoring benthic fisheries of great importance to the Magallanes region, such as sea urchin, red lua, and southern oyster, among others. Topics covered included data collection protocols in different locations, problems detected in data entry and validation by the institutional computer system (SID-MP) and expert corrector, and training on georeferencing and standardization of benthic information."

Juan Miranda, a scientific observer from Puerto Natales, stated: "Without a doubt, these workshops serve to enhance our technical and scientific capabilities, which we can then apply to the monitoring activities we carry out at landing ports and aboard artisanal boats that extract benthic resources."

Additionally, on Wednesday, April 23rd, an outreach activity was held at the María Behety de Menéndez Comprehensive Technical High School, attended by junior and senior high school students (specializing in aquaculture), along with its director, Marcela Andrade, teachers, regional authorities, and private companies. During this event, Erik Daza, Regional Head of IFOP, gave a talk aimed at disseminating the strategic role IFOP plays in generating scientific and technical knowledge for the sustainable development of fisheries and aquaculture in the region. He also highlighted the link between María Behety High School and IFOP, which has resulted in students completing internships in artisanal fisheries monitoring.

Pablo Araya also presented the objectives of the Benthic Fisheries Monitoring Program to the attendees, emphasizing the continuous collaboration with the artisanal benthic fishing sector for more than two decades in the Magallanes Region.

During the 24th and 25th, a visit to Puerto Natales took place where a talk was held at the SIPRUMAR fishing plant where they were cordially received in their facilities and then gave way to the presentation of the Benthic results in the period between the years 2020-2024 in the Magallanes region, highlighting the support provided by the company for the embarkation of our scientific observers in fishing operations, as well as the willingness to show us the production process of the sea urchin.

RETURN

IFOP Inaugurates New "Immersion" Exhibition for Marine Diversity Month

Today, May 22nd at 12:00 PM, the restocking and farming team will hold the event "Small-Scale Aquaculture and Marine Diversity: Books and Visual Immersion," which will be held at Casa Pauly in Puerto Montt.

The Fisheries Development Institute (IFOP), Balmaceda Arte Joven (BAJ), the Casa Pauly Oelckers Interpretation Center, and the Municipality of Puerto Montt formed a strategic alliance to promote science and culture. This exhibition will be presented by Sebastián Cook Alvarado, a researcher from the Department of Restocking and Farming. He states that this will be an opportunity for scientific outreach to promote the conservation of regional marine ecosystems. This event also includes the official launch of two reissues of educational materials aimed at promoting small-scale aquaculture as a way of life. Both books are part of the dissemination products of the study "Comprehensive Aquaculture Development Program for Artisanal Fishermen and Small-Scale Aquaculturists, Stage VIII." This is part of the Research Program for the Regulation of Fisheries and Aquaculture, carried out under the agreement signed between the Undersecretariat of Economy and Small-Sized Enterprises and the IFOP, with the scientific and technical counterpart being the Undersecretariat of Fisheries and Aquaculture.

One of the books is the manual "Farming Systems for Small-Scale Aquaculturists," led by Francisco Galleguillos, a semi-senior researcher at IFOP, and featuring illustrations by María Ester Chapa and photographs by Rafael Arenas Encinas. It was designed by Liset Mansilla and printed at the Gráfica Magenta S.A. workshops.

The other is the manual "Macroalgae Cultivation: Diversification of Small-Scale Aquaculture in Chile," led by semi-senior researcher MSc. Sandra Saavedra, and designed by Puerto Sur Ltda.

Everyone is cordially invited to the launch. Register with Carolina Barrientos at carolina.barrientos@ifop.cl. However, the exhibition will remain open to the public until July during business hours.

Southern Science Node, IFOP, and public services strengthen alliance to conserve aquatic ecosystems in Magallanes

Punta Arenas, As part of the process of promoting the Science, Technology, Knowledge, and Innovation (CTCI) Roadmap, regional authorities and representatives from the economic, environmental, and scientific sectors met to advance a joint strategy to strengthen the conservation of marine and freshwater ecosystems in the Southern Macrozone.

The Southern Science Node network promotes decentralization and equity in science and technology in the southern regions of Chile. One of its main

RETURN

instruments is the CTCI Roadmap, a collaborative planning process aimed at 2030. Among its strategic pillars, it focuses on aquatic ecosystems, whose objective is to generate key scientific information to support decision-making toward sustainable development in the region.

As part of this process, the workshop "CTCI Roadmap: Strengthening the Conservation of Aquatic Ecosystems in the Magallanes Region and the Chilean Antarctic" was held last Friday in Punta Arenas, organized by the Fisheries Development Institute (IFOP) and the Southern Science Node.

This day of intersectoral discussion and coordination included the participation of representatives from public services and regional authorities, including the Regional Secretary of Science, Technology, Knowledge, and Innovation, Verónica Vallejo; the Regional Secretary of Economy, Marlene España; the Regional Secretary of the Environment, Enrique Rebolledo; the regional director of CONAF, Mauricio Ruíz; the director of the Southern Science Node, Juan Carlos Aravena; as well as executives and professionals from Sernapesca, IFOP, and the Zonal Fisheries Directorate.

During the meeting, practical and participatory work was carried out to identify challenges, opportunities, and key initiatives in the conservation of aquatic ecosystems. In addition, progress was made in defining specific milestones and goals for the implementation of the CTCI Roadmap in the region.

"The Roadmap is a methodology that allows for the coordination of various stakeholders and the collaborative identification of lines of action and initiatives. The objective is to connect the needs of scientific and technical research with the requirements of the economic, productive, development, and social welfare sectors, integrating public institutions and, in a next stage, end users," said Eduardo Barros, the professional in charge of developing the Roadmap from the Austral Science Node and associated with the Cape Horn International Center (CHIC).

Along these lines, one of the prioritized topics in the Roadmap is aquatic ecosystems. "We are in a macro-zone that has more than half of its territory as maritime territory," emphasized Verónica Vallejo, Regional Secretary of Science, Technology, Knowledge, and Innovation. "Therefore, the contribution of the various institutions currently conducting specific research in the areas of oceanography and marine biology, such as IFOP, which is also leading this particular session to advance the Roadmap update, is extremely relevant," the regional authority added.

Representing the regional directorate of the Fisheries Development Institute (IFOP), Erik Daza emphasized that at this meeting, "public services expressed that there are various issues where the generation of scientific and technical knowledge can strengthen the decision-making process for the efficient management and sustainable use of aquatic ecosystems in Magallanes." Daza emphasized that it is necessary "to have a research strategy linked to public services that allows for the conduct of studies on hydrobiological resources, invasive species, green hydrogen, marine pollution, ecosystem services, carrying capacity, among others."

During the meeting, a relevant discussion took place regarding the next steps and how this process can contribute scientific evidence to the formulation of public policies and contribute to the regional development strategy.

Finally, regarding the scope of collaborative work in this area, Bernardo Pardo, the Zonal Director of Fisheries and Aquaculture for the region, from the Undersecretariat of Fisheries and Aquaculture, emphasized that "this Hub not only brings together ideas and concrete project proposals, but also consolidates itself as a strategic coordination body between institutions with an interest in and responsibility for the con-

RETURN

servation of marine ecosystems. Today more than ever, we must advance in strengthening knowledge generation and the conservation of our aquatic ecosystems, with a long-term perspective and a regional approach that responds to the environmental and social challenges of Magallanes."

IFOP Arica Participates in Maritime Fair during the Month of the Sea

As part of the activities commemorating the Month of the Sea, the Fisheries Development Institute (IFOP) actively participated in the Maritime Fair organized by the Arica Maritime Government. The event took place at the Mall Plaza.

The fair, already a tradition in the region, brought together various institutions linked to the maritime and coastal areas, including Sernapesca, the Arica Port Company, the University of Tarapacá, the Yacht Club, and the IFOP.

The main objective of this activity is to promote maritime awareness among the region's residents. The Maritime Government has led this initiative for years, which seeks to bring the community closer to the daily work carried out by institutions in the maritime sector.

During the opening ceremony, Arica Harbor Master Felipe Rodríguez highlighted the importance of this type of event for the city:

"This Maritime Fair is of great importance to our region, as it allows us to bring the daily work of those of us connected to the naval and maritime world closer to the community, creating a favorable space for interaction with a large number of people who are not normally involved in this activity."

Hernán Padilla, Regional Head of IFOP, praised the event and the interest shown by attendees in each of the exhibitions:

"It is essential for us to participate in these activities, as they allow us to bring our institutional work closer to the Arica community. On this occasion, IFOP administrators and scientific observers provided information among the visitors about the International MARPOL 73/78 Convention, which seeks to prevent marine pollution by debris from vessels, whether due to regular operations or accidents. Chile has been a party to this treaty since 1973."

IFOP employees Verónica Valdés, Miguel Navea, and José Hernández agreed that it was particularly gratifying to see how the attendees, especially young people and children, showed great interest and quickly learned about aquatic species and the care and respect for the marine ecosystem.

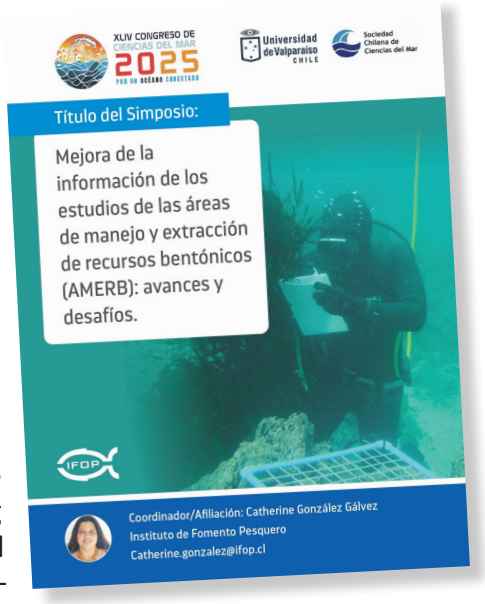
After the ceremony, the authorities toured the various stands, where they were able to learn more about the work carried out by both public and private companies related to the sea.

RETURN

“Improving Information on Studies of Chilean Management Areas”

The Symposium “Improving Information on Studies of Chilean Management Areas” will be presented within the framework of the 2025 Congress of Marine Sciences. Benthic Resource Management and Exploitation Areas (AMERBs) have represented a significant change in fisheries management, promoting greater responsibility among fishing organizations regarding resource sustainability. The AMERB regime grants exclusive use or exploitation rights to benthic resources—invertebrates and algae—present in previously delimited geographic areas, which are assigned exclusively to legally constituted artisanal fishing organizations. The assigned spaces are managed under an area management and exploitation plan (AMEP) submitted by the organizations, with technical advice from an institution linked to marine sciences (university, institute, or consulting firm). The plan is periodically evaluated by the Undersecretariat of Fisheries through the review of monitoring studies on the main resources of the AMERB.

The objective of the symposium is to present the main advances and challenges for improving the monitoring and control of AMERB information. The progress and challenges in conducting monitoring studies will be reviewed, from the perspective of planning, analysis, control, and oversight of data collection. The symposium will conclude with a discussion reflecting on the challenges for improving the monitoring and control of AMERB information, leading to the evaluation of the exploitation status of benthic resources and their ecosystems, based on the information collected in AMERB monitoring studies.



CSIC-ICM scientists will visit IFOP and participate in the 2025 Marine Sciences Congress

Scientists Dr. Joan B. Company and Dr. Nixón Bahomon from the Barcelona Institute of Marine Sciences, CSIC-ICM (icm.csic.es), along with doctoral students Pablo Couve and Jacop Aguzzi from the University of Barcelona, will visit IFOP between May 27 and 29. Their agenda includes participation in the Symposium on “Challenges for Fisheries Management: Co-management, Evaluation of Management Strategies, Ecosystem Recovery, and Climate Change” (Link), which will be held on May 29 at the Marine Sciences Congress (congresocienciasdelmar.uv.cl). The symposium is coordinated by Ignacio Payá, a researcher in the IFOP Resource Assessment Department.

Also, during their visit to IFOP, they will work on the doctoral theses of University of Barcelona-CSIC-ICM doctoral candidates Ignacio Payá, Pablo Couve, and Marcelo San Martin.

RETURN

First Workshop on Standardization of Fisheries Biological Data for the Shared Anchovy Stock in Southern Peru and Northern Chile

Between June 2 and 6, 2025, the First Workshop on Standardization of Fisheries Biological Data for the shared anchovy stock in southern Peru and northern Chile was held in Lima, Peru, between specialists from the Peruvian Marine Institute (IMARPE) and the Chilean Fisheries Development Institute (IFOP). This activity was carried out within the framework of the activities planned by the Binational Working Group on Fisheries Biology and the Scientific and Technical Subcommittee of the Humboldt II Project, which is being implemented by the Undersecretariat of Fisheries and Aquaculture of Chile and the Vice Ministry of Fisheries and Aquaculture of Peru, with funding from the Global Environment Facility (GEF). This activity was attended by 29 specialists from both countries in anchovy reproductive biology, fishery monitoring, catch per unit effort estimation, and age and growth.

photographic source: IMARPE

Representing IFOP, attended nine specialists from the Arica, Iquique, and Valparaíso bases. Along with their Peruvian counterparts, they discussed methodological aspects of anchovy reproductive biology, age and growth, demographic aspects, and catch per unit effort. The objective of the workshop was to advance the standardization of data routinely collected by the two institutions responsible for scientific research for fishery management of the stock, and thus facilitate data exchange between the two countries to advance anchovy stock modeling.

The event was opened by the President of the IMARPE Board of Directors, Vice Admiral Jorge Paz Acosta, IMARPE Scientific Manager Dr. Edward Barriga, and the Director of the General Directorate of Pelagic Resources Research, Dr. Marilú Bouchon. The President of the IMARPE Board of Directors emphasized the importance of cooperation between the two countries in scientific research, which supports sustainable management of the anchovy stock. Alejandro Gertosio, Binational Coordinator of the project, highlighted the support of the Humboldt II project in facilitating these meetings of scientists from both countries to achieve the project's objectives.

Carola Hernández, Senior Researcher at IFOP, valued the opportunity of holding these in-person meetings, which allow for the completion of the progress made in the series of previous virtual meetings. These meetings have led to the identification of some differences in technical approaches, but are vital for consolidating information and achieving the expected results of this meeting. These meetings also allow for strengthening personal ties between researchers working in the same areas.

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