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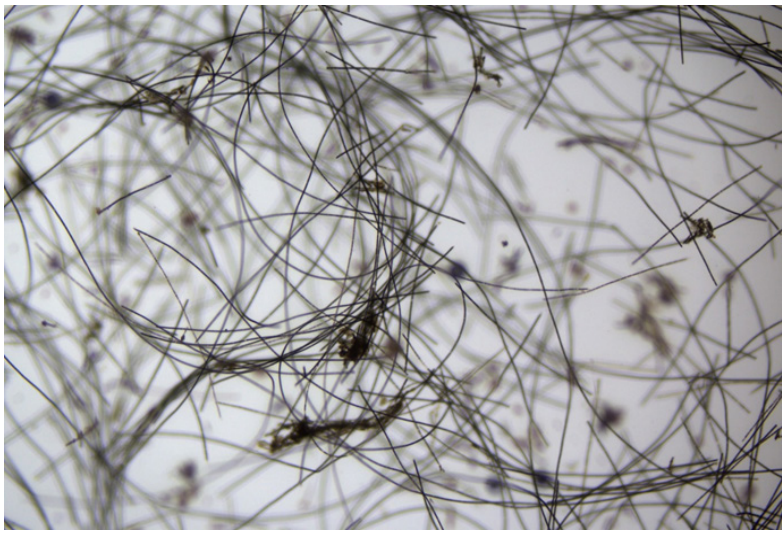
Cyanobacteria bloom detected in Lake Vichuquén

Dr. Claudia Pérez, Senior Researcher of the Aquaculture Research Division of the Fisheries Development Institute (IFOP), comments on the samples from Lake Vichuquén

An intense cyanobacterial bloom was recently detected in Lake Vichuquén, after the Ministry of Health (MINSAL) requested the Fisheries Development Institute (IFOP) to carry out a specialized analysis of water samples due to the presence of discoloration and algal proliferation in the area.

Lake Vichuquén, a coastal water body with strong marine influence, presents stratification by density and low oxygen levels at the bottom—conditions that have historically favored eutrophication episodes and algal blooms. According to previous reports (DGA 2018; EULA 2016), this ecosystem shows high nutrient and chlorophyll levels, which



have allowed recurrent cyanobacterial events. Samples taken at Playa Paula confirm the presence of the genus Nodularia.

On December 1, MINSAL professionals collected samples in the Playa Paula sector. The phytoplankton analysis carried out by IFOP, through inverted microscopy and biovolume measurements, determined—according to morphological characteristics such as straight or slightly curved fi-

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laments, vegetative cells wider than they are long, intercalated heterocysts, and larger akinetes—that the bloom is composed of cyanobacteria of the genus Nodularia.

The size of the cells matches reports for the species Nodularia spumigena, widely known for its ability to produce hepatotoxic toxins. However, IFOP noted that the definitive confirmation of the species requires additional genetic analyses.

High abundance levels exceed the World Health Organization (WHO) alert thresholds

The results revealed a concentration of 13,306,250 cells per milliliter and a biovolume of 11.7 mm^3/L, values that place this bloom at Alert Level 2, the highest established by the World Health Organization for recreational water bodies.

This level implies completely restricting recreational activities and avoiding any type of contact with the lake water, including human consumption.

The WHO has not established specific limits for the cyanotoxin nodularin—associated with some species of the genus Nodularia—but it is recommended to use the guideline values defined for microcystins due to their similar chemical nature.

Possible health risks

The toxin nodularin, when present, can cause liver damage, gastrointestinal distress, and systemic symptoms in humans and animals. Episodes of aquatic fauna and pet mortality have been reported globally in similar events.

Therefore, recreational use of the lake should be avoided, especially by children, older adults, and people with liver conditions.

IFOP has two new weather stations

These stations will be installed at Punta Angamos, Lighthouse sector (Antofagasta Region), and on Mocha Island, oceanic lighthouse sector (Biobío Region). Both are strategic locations for the study of oceanographic and climatic variability in their respective areas.

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The Institute for Fisheries Development conducted a training workshop together with the company Thot System, as part of the acquisition process of two new meteorological stations, financed by CORFO-DPS 2025 “Strengthening of the Climate Change Monitoring System (SAPO)”.

The Department of Oceanography and Environment (DOMA) already operates 18 meteorological stations throughout Chile, so this expansion will strengthen the comprehensive monitoring of the national coastal zone, which is characterized by high fisheries productivity associated with upwelling processes.

The activity was attended by DOMA personnel, MSc. Andrés Varas, together with professionals from the Navy’s Meteorological Service and the Valparaíso Meteorological Center, within the framework of the cooperation agreement in force since 2020. This agreement promotes collaborative work in the installation and safeguarding of scientific equipment, as well as training activities aimed at improving knowledge and the quality of scientific information in a context of accelerated climate change.

The scientific information collected by DOMA is available for public use on the SAPO Climatic Oceanographic Portal (https://sapo.ifop.cl/).

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Mussel larval monitoring team participates in international workshop on oceanography and aquaculture in Puerto Montt

With the full participation of the mussel larval monitoring team, researchers from the Fisheries Development Institute (IFOP) took an active role in the workshop “Oceanography for a Changing Future: Extreme Events, Mollusk Aquaculture, and Interdisciplinarity”, held on December 11 and 12 at the Hotel Vicente Costanera in Puerto Montt.

The event, organized by the Milennium Institute in Coastal Socio-Ecology (SECOS) in collaboration with AmiChile, Intemit, and Innovex SpA, brought together leading researchers, students, public sector representatives, and key stakeholders from the aquaculture industry. Its objective was to analyze how oceanography helps to understand processes, anticipate impacts, and strengthen the adaptive capacity of mollusk aquaculture in a context of increasing environmental variability and extreme events.

In this context, the project leader of the Mussel Larval Monitoring Program, Dr. Cristián Segura, delivered a presentation highlighting the main advances of the program and introducing participants to the Semilla Endémica platform, a technological tool designed to support decision-making in mussel seed collection by integrating relevant oceanographic and biological information for the productive sector.

The mussel team is composed of José Videla, Cristina Stuardo, Óscar Ramírez, and Macarena Herrera, and is led by Dr. Cristián Segura. They actively participated throughout the workshop, exchanging experiences with scallop and mussel farmers from Caldera, Tongoy, and Chiloé, as well as with national researchers involved in oceanographic observation applied to aquaculture.

During the first day of the workshop, presentations focused on oceanographic observation in farming areas, the integration of monitoring systems for productive management, the response of aquaculture to oceanographic variability and extreme events, and technological innovations aimed at decision-making. The second day included a participatory group workshop focused on gathering perceptions regarding current and future challenges of oceanographic research and monitoring applied to mussel farming, identifying key information gaps relevant to the sector.

Presentations from the Fisheries Development Institute were delivered by Cristián Ruiz, who presented CHONOS: an Oceanographic Information Platform for Territorial Management, and by Dr. Jurleys Ve-

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llojin, who presented on the Environmental Data Center: coastal observation applied to aquaculture management in the face of future changes and extreme events.

The participation of the mussel larval monitoring team in this meeting reinforces the institution's commitment to the development of scientific and technological tools that contribute to a more resilient, sustainable, and evidence-based aquaculture, promoting dialogue and collaboration between science, public management, and the productive sector.

The Mussel Larval Monitoring Program is part of the work carried out by the Environmental Department of the Aquaculture Division of the Fisheries Development Institute (IFOP), whose mission is to generate scientific and applied information for the sustainable use of aquaculture resources, considering the interaction between productive systems and the environmental context in which they operate.

From this perspective, the Environmental Department promotes initiatives aimed at understanding the effects of oceanographic variability, extreme events, and climate change on key aquaculture processes, including seed collection, larval survival, and productive planning. The larval monitoring program constitutes a strategic tool in this regard, as it integrates biological and oceanographic observations that strengthen the adaptive management of mussel farming at different territorial scales.

The participation of the Environmental Department team of the Aquaculture Division in this workshop reaffirms IFOP's role as a key technical-scientific actor in supporting decision-making in the national aquaculture sector, promoting coordination between research, technological development, and the needs of the productive sector. Likewise, exchange spaces such as this allow for the projection of new lines of collaborative work aimed at increasing the resilience of mussel farming in the face of present and future environmental challenges.

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Chilean researchers and fishermen are undertaking an internship in Mexico as part of a project that seeks to improve the management of small-scale fisheries

THE INITIATIVE IS FUNDED BY THE CHILE–MEXICO FUND, MANAGED BY THE COOPERATION AGENCIES AGCID AND AMEXCID.

A delegation of seven people, made up of researchers from the Institute for Fisheries Development (IFOP), the Universidad Austral de Chile (UACh), the NGO Conectar para Conservar, together with fishers from Ancud Bay and the town of Melinka, carried out a technical internship in Mexico, on the Yucatán Peninsula, aimed at exchanging experiences and knowledge in the field of small-scale fisheries.

During the visit, the delegation held meetings with professionals from the Regional Center for Aquaculture and Fisheries Research (CRIAP) of Progreso, part of the Mexican Institute for Sustainable Fisheries and Aquaculture Research (IMIPAS), as well as with academics from the Center for Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV) and the National Autonomous University of Mexico (UNAM). Likewise, dialogue and exchange sessions were held with fishermen and women from the localities of Río Lagartos, Sisal, and Celestún, coastal communities located on the Yucatán Peninsula.

The internship is part of a binational cooperation project that seeks to develop co-management processes in small-scale fisheries, with an emphasis on benthic resources, in localities in both Chile and Mexico. Technical visits to the different academic centers allowed delegation members to gain in-depth knowledge of the progress and studies that each institution is developing around various marine resources, as well as to establish links that will fa-

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cilitate future interactions between researchers from both countries. Likewise, interesting conversations were held with fishing communities about highly relevant resources, such as the Mayan octopus, mangrove reforestation initiatives, marine reserves, and marine protected areas that they have in place. As a complement to these activities, meetings were also held with representatives of the industry associated with octopus processing.

This initiative is part of the collaboration project between IFOP and IMIPAS on co-management in coastal communities, which began in August 2024 and is scheduled to conclude in August 2026. The exchange of experiences and knowledge is especially relevant in the context of binational projects, as it helps strengthen institutional and academic ties, as well as relationships with organizations in the artisanal fisheries sector.

In this regard, Nancy Barahona Toledo, head of the project, highlighted the importance of the internship, stating that it "allows us to learn about the development of fisheries and aquaculture in both countries, to understand how fishermen and women approach the local management of their resources, and at the same time to exchange knowledge with professionals from research centers as prestigious as those visited on the Yucatán Peninsula".

It should be noted that this cooperation project is being implemented on the island of Chiloé, specifically in Ancud Bay, in southern Chile, and in the localities of Celestún, Sisal, Progreso, and Río Lagartos, in the state of Yucatán, Mexico. The initiative also incorporates principles of gender equality, inclusion, aquaculture–fisheries technological training, and adaptation to climate change.

IFOP Talcahuano carries out scientific dissemination activity at Alonkura School

On Thursday, December 11, in Hualpén, the 2025 closing ceremony of the Semillas del Cambio program was held, organized by the Municipal Education Administration Directorate (DAEM) of the Municipality of Hualpén.

The project consisted of a learning cycle and collaborative efforts for a selected group of outstanding students from various educational institutions in the municipality.

A total of 38 students were selected, ranging from third grade of primary school to third grade of secondary school, representing 10 schools and forming the environmental group of municipal schools of Hualpén. This group is expected to continue working on these topics in the coming years, according to the scientific observers participating in the activity, Bastián Muñoz and Diego Mendoza.

Sergio Flores Claramunt, Regional Director of IFOP in Biobío, referred to the presentation, stating that "the transfer of information to students is mainly focused on marine ecosystems and blue biological corridors. It also includes knowledge about bodies of water within the city, such as wetlands, but its main focus is life in the oceans and their connections.

The activity was carried out at Alonkura School. We hope to continue adding more activities of this kind throughout the year, as well as in 2026, with a focus on future generations."

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Researcher Cristián Henríquez from IFOP, participated in the 3rd International Congress on Physical of Estuarine and Coastal Ocean

Between November 24 and 28, IFOP researcher Cristián Henríquez Pastene participated in the 3rd International Congress on Physical of Estuarine and Coastal Ocean in Puerto Varas, where he presented the work:

"Hydrographic Variability in Northern Chilean Patagonia (2018–2025): Preliminary EOF Analysis"

At this event, the researcher was able to exchange experiences and knowledge with national and international experts specialized in coastal and estuarine physical oceanography, thus strengthening collaboration networks for our institution.

His research applies the Empirical Orthogonal Function method to hydrographic data collected during autumn between 2018–2025 in the Los Lagos and Aysén regions, in order to understand how interannual environmental variability could influence the distribution of pelagic resources in northern Patagonia.

These analyses complement previous studies based on GIS and GAM models by incorporating temporal variability, and can eventually be applied to other similar projects.

The author thanks the funding provided by the PACAN-PAVAN Program (2025 Agreement) and colleagues from the Direct Assessments Department for their constant support.

IFOP Scientific Observer embarks on second research cruise in Argentina

Within the framework of the current scientific observers (SO) exchange agreement between IFOP and the National Institute for Fisheries Research and Development (INIDEP), Argentina, the second deployment of an SO from our institution was recently carried out on the cruise, 'Survey for the evaluation of the abundance of Argentine anchovy (Engraulis anchoita) of the Buenos Aires stock'. A prospecting survey to estimate the resource stock, jointly developed by INIDEP and the National Directorate of Aquatic Resources (DINARA) of Uruguay, between October 22 and November 14.

On this occasion, the assignment corresponded to Senior SO of the Sampling Management Department (DGM) at the Coquimbo regional office, Alberto Olivares. A biologist and Master in Applied Statistics, who has extensive expertise in sampling and the biology of the nationally distributed engraulid, anchoveta (Engraulis ringens).

Regarding this major experience of around 24 days of navigation aboard the research vessel Víctor Angelescu, Alberto stated that from the first day on board, the cruise leader, Lic. Claudio Buratti, quickly integrated him into the fisheries biology work group in field tasks that he routinely performs in our country, such as proportion and length sampling, extraction and preservation of otoliths, as well as stomachs, and everything related to recording this type of information. Additionally, he supported the primary production area during the different sampling stations. This performance allowed him to fulfill the main objective of the agreement, aimed at internationalizing competencies and sharing specialized knowledge that helps consolidate standards of fisheries observation for the benefit of both institutions.

Alberto highlighted that beyond the strictly technical aspects, it was the pleasant environment generated on board, the cooperation from each member of the scientific crew as well as the vessel's crew, which left him with the feeling of having contributed and at the same time gained a different and

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enriching experience as a scientific observer. He returned to Chile with new skills and renewed motivation to continue improving his duties. He appreciated being selected for this important instance, which he considered not just recognition but a real opportunity for training and growth.

From this same perspective, Mg. Gonzalo Muñoz, general coordinator of the DGM and currently acting head of the IFOP Regional Office in Coquimbo... positively evaluated this second participation of an SO in this agreement, indicating that this type of arrangement strengthens cooperation between both institutions, whose components of various sampling types form the fundamental basis of their applied research aimed at the sustainability of fishery resources and their ecosystems.

IFOP conducts educational and recreational activities at the Alerce Kindergarten in Puerto Montt

On the morning of November 20, professionals from the Fisheries Development Institute participated in an enriching scientific outreach activity aimed at the boys and girls of the Antulem Kindergarten, located in the locality of Alerce in Puerto Montt. Mario Ortiz and Macarena Herrera attended the event, and specially characterized for the occasion, they turned the day into a magical experience focused on early learning about marine and freshwater ecosystems.

The initiative aimed to bring science closer to young children through playful dynamics that would spark their natural curiosity. Through games, the children explored basic concepts of ecology, trophic relationships, and biodiversity, achieving meaningful learning in an environment filled with surprise, participation, and discovery. The methodology used integrated sensory and narrative elements that facilitated the understanding of phenomena inherent to the aquatic world, adapted to the preschool stage.

The activity is part of coordinated efforts between the IFOP divisions, highlighting the collaboration of the administrative staff of the Aquaculture Research Division, who maintain a direct connection with the educational institution. This relationship has been built through cooperation and openness to initiatives that promote the integral development of the boys and girls belonging to the 13 families that make up the kindergarten community. In this context, the children, with great affection and creativity, have nicknamed IFOP as “their magical godparents,” a gesture that reflects the positive impact and closeness that the institution has established.

During the event, IFOP installed two aquariums — one representing a marine environment and the other a freshwater environment — allowing attendees to closely observe organisms inhabiting both ecosystems. One of the most significant moments was the introduction to the pennate microalga Didymosphenia geminata (Didymo), whose details could be appreciated through a microscope, opening the door to the fascinating microscopic world. Afterwards, the children participated in a game based on shells and bivalves, through which they learned the concept of bivalvia in a concrete and entertaining manner. The activity concluded with a guided interaction with various aquatic animals, where names, habitats, and trophic relationships were identified, fostering early understanding of wildlife.

The kindergarten surprised IFOP professionals with a gift crafted by the children themselves, an emotional gesture that reflects the enthusiasm and gratitude generated by this experience. The educators deeply valued the visit, highlighting its contribution to meaningful learning and the building of connections with institutions committed to environmental education.

For the participating professionals, the event also represented a profoundly novel experience. Accustomed to

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technical and research work, engaging with such a young and receptive audience posed an enriching challenge that allowed them to view their work from a different perspective. The interaction with the children not only required translating complex content into accessible language but also adapting communication to each playful moment, to the emotional rhythm, and to the natural disposition of childhood.

As the activity progressed, both Mario Ortiz and Macarena Herrera emphasized how captivating it was to become part of children's learning processes. Observing how the children incorporated knowledge through surprise, touch, spontaneous questions, and play reaffirmed the importance of bringing science closer from an early age, using resources that connect with their world and ways of exploration.

One of the most significant aspects for the team was the opportunity to appreciate the uniqueness of each child. From those who silently observed the salt dissolution experiment and timidly approached the aquariums, to those who participated enthusiastically, touched the shells, or wanted to look through the microscope over and over again, each reaction allowed an understanding of the diversity of rhythms and socialization styles present in early childhood. This diversity enriched the interaction, reminding them of the importance of creating inclusive experiences that respect each child's developmental path.

Likewise, the professionals highlighted how the event allowed them to strengthen skills related to scientific communication in non-formal contexts. Exploring new ways of communicating, improvising in response to the children's unexpected questions, and adapting the complexity of science to dynamic environments reinforced the relevance of the connection between research, education, and community. The experience reaffirmed IFOP's commitment to the social appropriation of knowledge and to educational support during early childhood.

From IFOP, the importance of strengthening direct contact with the community was emphasized, especially with young children, a stage in which the foundations of curiosity, environmental care, and appreciation of natural heritage are sown. Activities like this help connect science with everyday life in an accessible, emotional, and participatory manner, reinforcing the Institute's role as an active promoter of knowledge and sustainability.

IFOP Strengthens Collaborative Work with the Northern Fishing Sector Through Workshops in Mejillones, Iquique, and Arica

Between November 25 and 27, within the framework of the Pelagic Fisheries Monitoring Program for the northern zone (between the Arica and Parinacota and Coquimbo regions), a series of meetings were held to disseminate information about the monitoring program and strengthen the relationship with the fishing sector and the work of the Scientific Observers (SOs). Meetings were coordinated with the SOs at the various IFOP bases, primarily addressing form completion procedures and technical inquiries. The importance of maintaining

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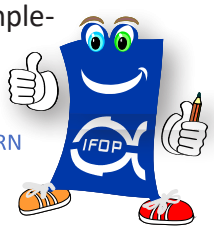

fluid communication between those participating in the sampling process and the teams at the institutional bases was also emphasized. In addition, meetings were held with the artisanal and industrial fishing sectors, with the participation of leaders, vessel owners, representatives from the Port Authority, SERNAPESCA (National Fisheries Service), and SUBPESCA (Undersecretariat of Fisheries and Aquaculture). The objectives of the monitoring program were explained, focusing on the monitoring of the main biological processes of the anchovy species and the implications of the regulations for scientific observers, as well as the importance of data collection for the sustainability of fisheries resources. This activity was carried out with the support of SUBPESCA.

The meetings were conducted by an IFOP (Fisheries Development Institute) team led by Carola Hernández, project manager of the monitoring program, along with Ljubitza Clavijo, a researcher with the program, and Graciela Manquehual, head of the systems section of the IT department, as well as regional directors, coordinators, and researchers from each base.

The first day of activities took place on Tuesday, November 25th. The IFOP team, along with regional director Claudia Molina and field coordinator Carolina Navarro, met with the Scientific Observers at the base and, in the afternoon, with the fishermen's association ASOQRMEJ. On Wednesday, November 26th, in Iquique, the activities began with a technical meeting with the Scientific Observers at the local base. In the afternoon, the team traveled to the Camanchaca Fishing Company for an expanded meeting with representatives from the artisanal and industrial sectors. The Undersecretariat of Fisheries and Aquaculture (SUBPESCA) also participated, presenting on current regulations and emphasizing the importance of collaboration to ensure the quality of fisheries data.

The final session took place on Thursday, November 27th in Arica, with the participation of Regional Director Hernán Padilla and Field Coordinator Patricio Muñoz. In the morning, a meeting was held with representatives from the artisanal and industrial fishing sectors, including leaders, vessel owners, and representatives from Corpesca Fishing Company, the Port Authority, SERNAPESCA (National Fisheries Service), and SUBPESCA (Undersecretariat of Fisheries and Aquaculture). This meeting provided an opportunity to gather concerns, review operational aspects, and strengthen the coordination mechanisms necessary to improve the collection of biological and fisheries data. In the afternoon, a workshop was held with both in-person and online participation from the Scientific Observers based in Arica, Iquique, Mejillones, and Coquimbo. The workshop focused on standardizing procedures, reviewing forms, and strengthening teamwork.

These sessions highlighted the excellent willingness of the various actors (public, private and community) to work together to strengthen fisheries monitoring processes, a fundamental aspect to guarantee quality information and move towards sustainable management of pelagic resources in the north of the country.

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Workshop on the Biological Study Program for Squid in Areas Outside the Fishing Grounds

In Valparaíso, a workshop was held to disseminate information about the BIOLOGICAL STUDY PROGRAM FOR SQUID IN AREAS OUTSIDE THE FISHING GROUNDS, WITH AN EMPHASIS ON RENEWAL AND GROWTH RATES. This program complements the studies carried out in the MONITORING PROJECT. The workshop was led by project manager Karen Belmar, who stated, "This project lasted two years and collected data from Arica to Biobío. The data obtained improves our understanding of the species, especially regarding age estimation. In terms of tagging, we successfully deployed 18 transmitters between the Atacama and Biobío regions—a groundbreaking study of its kind—and obtained valuable results regarding both horizontal and vertical movements, as well as characterizing the habitat. We hope that the implementation of this exciting project will pave the way for future research to further explore this topic." The project aimed to increase knowledge of the giant freshwater shrimp (Dosidicus gigas) in Chile and improve fishery management.

The project's objective was to study growth parameters, spatial distribution, reproductive biology, and migratory patterns. It was funded by the UNDP and implemented by IFOP.

Participants included professionals from the Undersecretariat of Fisheries and Aquaculture (Subpesca), IFOP, scientific observers, and representatives from the UNDP and the GEF Humboldt II project.

Juan Santibáñez, Head of the Fisheries Development Division of the Undersecretariat of Fisheries and Aquaculture (Subpesca) and National Director of the GEF Humboldt II Project, said, "The jumbo squid workshop is very relevant to Chile's interests, considering that this is a 100% artisanal fishery with great potential. Despite regulatory changes in recent years, it has shown significant growth in exports, catches, and therefore in the number of people who benefit economically and socially from this fishery. Therefore, this workshop and all the information it provides are very important."

Alejandro Gertosio, binational coordinator of the Humboldt II Project, explained, "We are funding the jumbo squid project. This project is very special for us because it has yielded information that greatly helps in jumbo squid management, with an emphasis on growth and migration. For us, the opportunity to incorporate technology and an innovative approach to advancing our knowledge of fisheries is a major breakthrough."

IFOP Strengthens Initial Teacher Training with Practical Activity at the Austral University of Chile

The Fisheries Development Institute (IFOP) participated on Friday, November 21, in a training session with second-year students of the Bachelor of Education in Primary Education program at the Austral University of Chile (UACh), Puerto Montt campus. The activity took place at the Faculty of Sciences and Nature on the Pelluco Campus and aimed to enrich initial teacher training with direct experiences related to aquatic ecosystems, their functioning, and their relevance to the Los Lagos Region.

The invitation was extended by Professor Fabiola Rojel, instructor of the course "Structure and Function of Living Beings in the Ecosystem." She noted that there is a persistent gap in initial teacher training regarding the study of aquatic ecosystems, because text-

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books and traditional materials prioritize terrestrial environments. In this regard, IFOP's expertise in marine and freshwater ecology makes a significant contribution to strengthening science education in coastal regions like southern Chile.

Representing IFOP, researchers Mario Ortiz and Macarena Herrera from the Environmental Department of the Aquaculture Research Division conducted a hands-on workshop with two groups of students, providing an educational experience based on observation, analysis, and direct contact with biological material. The activity aligned with the course's learning outcomes, covering key concepts such as ecosystem hierarchies, functional dynamics, interspecies interactions, ecosystem services, human impact, and environmental sustainability.

The professionals presented IFOP's work in monitoring aquatic ecosystems and assessing benthic resources, focusing on the technical knowledge surrounding mussel larvae monitoring and the Didymo Monitoring Program. They explained how this research allows for a better understanding of the role of producer organisms, population fluctuations, and the complexity of food webs. Furthermore, they addressed specific examples from the region, highlighting the relationship between human activity—including aquaculture—and the natural balance of marine and freshwater systems.

The event brought together students and academics interested in gaining a deeper understanding of this invasive species, its propagation dynamics, and the monitoring processes associated with its habitats, ecosystem impacts, and links within the food webs of aquatic systems.

One of the most valued aspects of the day was the incorporation of interactive activities, adapted from previous experiences with children but now geared toward the university level. Through simulation games, participants modeled how species from both habitats are linked, identifying them taxonomically and their different roles. These exercises allowed for the concrete integration of ecological interactions observed in the field and the recognition of patterns that are typically analyzed only from technical data.

In addition, group activities were developed where students acted out roles within an aquatic food web—from producers to top predators. This methodology facilitated the assimilation of complex content and strengthened an integrated understanding of ecosystem processes.

Students had the opportunity to observe benthic organisms, microscopic structures, and representative samples from different levels of biological organization, which facilitated the understanding of concepts such as individual, population, community, habitat, and ecosystem. This practical approach allowed theory to be transformed into experience, reinforcing learning through inquiry and direct contact with real elements of the regional environment.

Academic Fabiola Rojel highlighted the importance of the meeting, stating that "IFOP's presence allows students to access an updated and contextualized scientific perspective, essential for training teachers capable of teaching ecology from a territorial perspective." She also expressed her gratitude for the professionals' availability and commitment demonstrated during the event.

For IFOP, this activity represents a valuable opportunity to connect with teacher training, strengthening the dissemination of scientific knowledge and promoting a deeper understanding of the region's aquatic ecosystems. The institution reaffirms its commitment to continue collaborating with educational institutions and contributing to the development of professionals prepared to educate about the ocean and its ecological dynamics.

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Sernapesca and CONA Commemorate World Aquaculture Day with a Day of Reflection and Dialogue on the Sector's Development

The National Fisheries and Aquaculture Service (Sernapesca) hosted a comprehensive day of analysis and discussion this Friday as part of World Aquaculture Day. The event, organized by the Aquaculture Working Group of the National Oceanographic Committee (CONA) with support from Sernapesca, brought together representatives from the public sector and specialists in aquaculture in Chile.

The day included welcoming remarks from the president of the CONA Aquaculture Working Group, Marcelo Campos Larraín, and the CONA executive secretary, Juan Cuneo Arenaldi, who emphasized the strategic role of aquaculture in food security and the country's economic development.

For her part, the National Director of Sernapesca, Soledad Tapia Almonacid, highlighted the Service's commitment to modern oversight, strengthened traceability, and the promotion of regulatory compliance as pillars for safeguarding environmental sustainability.

"Aquaculture is, without a doubt, one of the most concrete and strategic responses to global challenges in food security, sustainable development, and climate change. The FAO's SOFIA report projects an increase in this activity, and Chile, as one of the world's leading producers, has the challenge and the responsibility to move towards modern, transparent, and environmentally responsible aquaculture, for which we must work collaboratively," emphasized the National Director of Sernapesca.

The meeting also included the participation of the Regional Director of CORFO, Etienne Choupay Magna, who emphasized the role of innovation and investment in technologies to continue driving a more competitive sector. and from Constanza Silva Hernández, head of the Aquaculture Division of the Undersecretariat of Fisheries and Aquaculture, who praised the regulatory progress and current challenges in contributing to the sustainable development of the industry.

The first of the main presentations was "A Historical Overview of Salmon Farming in Chile," given by Alfredo Valenzuela Leal, one of the pioneers of industrial salmon farming in the country. He reviewed the milestones, lessons learned, and transformations of an activity that today positions Chile as one of the world's leading producers.

Next, Francisco Cárcamo Vargas, head of the Repopulation and Cultivation Department of the Fisheries Development Institute (IFOP) in Puerto Montt, presented "A Systemic Perspective for the Sustainable Development of Small-Scale Aquaculture in Chile," addressing the challenges and opportunities for strengthening the fish farmers and fishers involved in this production method.

The President of the CONA Aquaculture Working Group thanked the speakers and attendees who enriched the event: "It was a very productive session. The perspective we gained on what is being done and what is to come is very important (...) we must continue to promote and develop; we have much to do." Campos emphasized the importance of diversifying crops in the country, as well as training highly qualified professionals to ensure the continuity of aquaculture and addressing the social concerns of those working in isolated aquaculture facilities.

The day concluded with a roundtable discussion open to questions from the audience, which allowed for direct exchange with authorities and specialists and highlighted the importance of moving towards innovative, transparent, and sustainable aquaculture, emphasizing applied science.

With activities like this, Sernapesca and the National Oceanographic Committee reaffirmed their commitment to promoting responsible aquaculture development, bringing together knowledge and perspectives from different sectors to face the country's future challenges in this area.

News and photos: Sernapesca

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