NUMBER
68
NOV. 2024

IFOP
INFORMATION
BULLETIN

# El Ifopino

IN THIS NUMBER



## Undersecretary of Fisheries inaugurated International Seminar: "Management of Fisheries and Aquaculture with an Ecosystemic Approach in Times of Climate Change: Advances, Challenges and Actions"

On November 12, in the Hall of Honor of the Central House of the Pontifical Catholic University of Valparaíso (PUCV), located at Av. Brasil 2950, Valparaíso, the II International Seminar: "Management of Fisheries and Aquaculture with an Ecosystemic Approach in Times of Climate Change: Advances, Challenges and Actions", SIMPAEE2, was inaugurated. The event was attended by local and national authorities and prominent personalities from the fishing and aquaculture sector, and took place over three days in both in-person and virtual modalities.


The meeting, organized by the Chilean Society of Marine Sciences (SCHCM) and the Institute for Fisheries Development (IFOP), was sponsored by the PUCV, the National Fisheries Society (SONAPESCA), the Interdisciplinary Center for Aquaculture Research (INCAR), the Fisheries Research Institute (INPESCA), Oceana Chile, and the Salmon Technology Institute (INTESAL). It was also sponsored by the Hydrographic and Oceanographic Service of the Chilean Navy (SHOA), the COPAS Coastal Center, the Chilean Antarctic Institute (INACH), the University of Magallanes (UMAG), The Nature Conservancy Chile (TNC) and the Patagonian Ecosystem Research Center (CIEP).

Editorial committee
Gonzalo Pereira P. / Executive Director
Gabriela Gutiérrez V. / Journalist

Graphic design
Mario Recabal M. / Senior graphic designer

Throughout the seminar, attendees had the opportunity to participate in 8 specialized modules that addressed different aspects of fishing and aquaculture in the context of climate change. These modules included: institutional perspectives on ecosystem-based management, user commitments to implement this approach in Chile, considerations on climate change adaptation in ecosystem-based management, aquaculture management under this approach, resource sustainability and the challenges of ecosystem-based fisheries management, international experiences, and a general discussion session focused on public policy proposals.

In addition, this event featured the participation of prominent international speakers, who shared their knowledge and experiences regarding the advances, challenges, and actions related to ecosystem-based management of fisheries and aquaculture. Among the international experts who participated were: Dr. Gabriella Bianchi (Institute of Marine Research, Norway), Dr. Barry Costa-Pierce (Nord University, Norway), and Dr. Josè Aguilar Manjarrez (FAO).

The seminar was attended by more than 1,000 people in total, of which more than 100 were in-person attendees at the PUCV Headquarters, while the vast majority followed the event virtually. This hybrid format allowed for high participation, with registrations of participants from different countries, highlighting the presence of academics, professionals, students and representatives of government institutions.

At the opening, the Undersecretary of Fisheries, Julio Salas, presented the paper "Institutional perspectives on management with an ecosystem approach: The vision of the Undersecretariat of Fisheries", in which he highlighted the importance of science and in this case of the studies carried out by IFOP, to ensure the sustainable and sustainable use of our fishery and aquaculture resources.

For his part, Gonzalo Pereira, Executive Director of IFOP, stressed the importance of seminars such as this one, which allow us to evaluate the progress of the Institute and visualize future possibilities. "This event coincides with the celebration of the 60th anniversary of the creation of IFOP and we are very pleased with the turnout it has had, both in person and online," she said.

Pilar Muñoz, President of SCHCM, highlighted the urgency of studying the ecosystem approach in the context of climate change and how her institution has been since its origins a space for meeting and collaboration between different professionals and society in general. "Our mission is to promo-



RETURN

te the study, protection and sustainable management of marine systems, understanding that Chile is fundamentally an oceanic country. This seminar is a reflection of our commitment; we are here to reaffirm the importance of building knowledge and networks, in order to understand the use and care of our resources," she said.

Finally, Carlos Montenegro, Head of the Fisheries Research Division of IFOP and member of the SIMPAEE2 Organizing Committee, explained that this event allowed us to learn about the experiences of different regions of Chile and other places in the world, in addition to acquiring a broader vision of the actions and lessons learned in practical ecosystem-based management. "The experiences shared at this seminar will help us to face the major challenges of the fisheries and aquaculture sector," Montenegro concluded.

More details about this meeting can be found on the website (https://www.ifop.cl/simpaee2/) and on the YouTube channel of the PUCV School of Marine Sciences (Ciencias del Mar PUCV – YouTube), where recordings of the entire event can be found.

## Fisheries Development Institute inaugurated new headquarters in Aysén

### LOCATED AT ARTURO BARROS NO. 402, PUERTO AYSÉN

On Tuesday, October 8, and with the presence of local and national authorities, the Fisheries Development Institute inaugurated its new headquarters in Aysén, which will replace the one it had before. The new IFOP home is a 2-story building, of good construction quality, built in 2015. Located in the oldest residential area of Aysén, relatively close to the central area of Puerto Aysén, Plaza de Armas, civic and financial center, with good access to services and equipment. With a gross net area: 450 m2, and a built area; 135 m2.

On the 1st Floor; it has 1 collaborative space, kitchen, 2 bathrooms, storage space, office. 2nd floor; 3 collaborative spaces, storage warehouse, bathroom, an annex that was converted into a laboratory with 24m2, parking and a covered terrace.

Alejandra Lafon, Head of IFOP Aysén Headquarters, explained that "it is very pleasant for us, we are very happy to be inaugurating our new headquarters today, where we will concentrate our deployment with more effort and our development and research projections in the Region in the area of fishing, aquaculture and related environment, in which our scientific observers, analysts of the red tide team, technologists and oceanographers are permanently doing work that tells us what the status of our resources is for better management."

RETURN

# IFOP professionals participate in the XVII Congress of the Limnology Society, in Futaleufú

Between October 7 and 11, the XVII Congress of the Chilean Limnology Society "Connecting Science and Society" was held in the city of Futaleufú, Palena Province, Los Lagos Region. On this occasion, the congress was organized by the Municipality of Futaleufú, the Austral University, the University of Los Lagos, the CIEP and the Fisheries Development Institute. The event brought together researchers in the limnological sciences (science focused on continental waters) from Chile and Argentina where topics related to ecological, hydrological, conservation, biosecurity and the relationship between aquatic systems and communities present in watersheds were addressed. The Fisheries Development Institute had an outstanding participation in the 2024 version of this congress, in which results were shown from the two monitoring programs that, through funding provided by the Undersecretariat of Fisheries and Aquaculture, generate relevant information for decision-making in freshwater ecosystems where aquaculture activities exist.

In the work presented by researcher Rodrigo Vera Sepúlveda, results related to the trophy of lakes with aquaculture in southern Chile, which are the world's freshwater reserve, were included. Lakes such as Puyehue, Yelcho and Riesco show an upward trend in the concentration of nutrients in the water column over the last 11 years. Indices such as the TLI (trophic index for New Zealand lakes) show this same trend. Using Machine Learning (Random Forest) and using the TLI as a reference, a New Trophic Index for Lakes of Chile (ITLC) is created based only on total nitrogen, Chlorophyll-a and water transparency and that can serve as a traffic light for decision making.

The participation of the researcher Rodrigo Jaramillo Teufert in the study on the invasive algae Didymosphenia geminata (commonly known as Didymo) in southern Chile, provided results on the invasion potential of this species. Using data from the monitoring program and models that evaluate possible changes in the distribution of Didymo, the study projects an increase in the distribution range by 2040, due to climate change, dispersing 250 km to the north of the Maule River basin reaching the mountain rivers of the Maipo basin. This work underlines the need for biosecurity measures as crucial tools to prevent the expansion of the pest, given the known negative effects on the ecosystems on which various communities depend.

Researcher Paula Ramírez Moenne-Loccoz also presented some of the results obtained within the objectives addressed in the Didymosphenia geminata monitoring, prospecting and research program. In this work, the adherence of Didymo to different recreational fishing waders was evaluated, comparing fabrics, depths within the water column and parts of the wader. The experiments carried out in different rivers in Patagonia indicate that fishing waders made of neoprene retain a greater quantity of Didymo cells and the part of the wader that captures the greatest number of cells is the sole, as it is in direct contact with the Didymo blooms. These findings are relevant for the development of control strategies in the dispersion of this pest species.

Researcher Alejandra Oyanedel Pérez participated in the symposium "River awareness: territorial initiatives and governance for the protection of rivers and other wetlands" where she referred to the main results obtained in the 8 years of monitoring of the pest species Didymosphenia geminata carried out by IFOP, highlighting the prevalence of blooms and the loss of biodiversity of benthic organisms in rivers of Patagonia, the negative social assessment of the pest in communities surrounding the Puelo River and incipient results on

RETURN

the economic valuation of the effects of Didymo and potential contributions to local governance processes. Additionally, Alejandra Oyanedel was elected secretary of the Chilean Society of Limnology for the period 2024-2026, forming the new board of directors together with researchers from the Universidad Austral.

## Launch of the photobook Women of the Sea of Aysén

In the Aysén Region, and with the presence of local and regional authorities, female fishermen from Aysén, the launch of the digital photobook Women of the Sea, Coast and Islands of the Aysén Region was held, which portrays the stories of many women who made fishing their source of work and passion. In addition, the women portrayed were recognized.

Gonzalo Pereira, Director of the Institute for Fisheries Development, referred to the photobook "Fishing is an ancient trade that has woven the foundations of entire communities throughout history. In the remote areas of Chile and with the most adverse climate, these traditions are kept alive thanks to the tenacity and effort of both men and women who, every day, face the sea with courage and skill. This photo book is a tribute dedicated to female fishermen and their indomitable spirit.

The images you will find in these pages are much more than a simple visual record, they are an artistic work that seeks to highlight and value the tireless work of the women who live in the Aysén Region. Each photograph immortalizes not only the act of fishing and related activities, but also the essence of those who, with firm hands, defy the waves, the rain and the wind to bring sustenance to their homes.

The author, a distinguished professional in marine sciences and with a deep passion for photography, has dedicated her life to studying the oceans and working side by side with those who

dedicate themselves to this ancient activity. Her admiration and respect for those who challenge the sea are reflected in each snapshot. Through her lens, she invites us to contemplate the beauty and hardship of this trade, highlighting the essential role that women play in artisanal fishing.

Dr. Alejandra Lafon, author of the photobook, explained that "Women of the sea, coast and islands of the Aysén Region" is a publication aimed at promoting female participation in the artisanal fishing sector from Melinka, on the northern coast, to Caleta Tortel, in the southern part of the country.

It is dedicated "to all the women of the sea, who live, work, research and love the coast."

This book was created spontaneously, rooted in my contact with fishing activity and desire to make its feminine side visible, to show its work and strong link with the sea," said its author.

## IFOP conducts training courses for Scientific Observers 2024

As every year, the Fisheries Development Institute (IFOP) must carry out the procedures to accredit the competences and suitability of its Scientific Observers, in different dimensions, such as: health, permits to carry out work on board and specific knowledge. This last dimension, the knowledge they must have on the subjects inherent to their work, to carry out sampling of Chile's fishing resources, both in coves or

RETURN

ports, as well as on board artisanal vessels or industrial ships, even for long periods of time. Regardless of the conditions and context in which they carry out their work, the Institute must certify before the fisheries authority that its staff has a set of sufficient and up-to-date knowledge in four dimensions: Identification of marine species, Sampling techniques, Fishing gear and tackle and Fishing regulations. These are the so-called Scientific Observer Training Courses (FOC courses).

In our country, scientific observation has been regulated through various regulations, such as Law 20,265 of 2012 (Discard Law), Decree 193 of 2013 (Regulation of Scientific Observers) and Exempt Resolution 1463 of 2015 (Establishes requirements for the OC of the LGPA). All these regulations have been promulgated by the Ministry of Economy, Development and Tourism (MINECON) and are complementary to the General Law of Fisheries and Aquaculture – LGPA (Decree 430 of 1991).

According to our legislation, the Scientific Observer is defined as the natural person designated by the Undersecretariat of Fisheries and Aquaculture, in charge of observing and collecting data on board fishing vessels, landing points or in processing plants, exclusively for research for the purposes of conservation and management of hydrobiological resources (LGPA, Art. 2°, numeral 26 bis).

On this occasion, the entity in charge of teaching the training courses in these four dimensions is the Pontifical Catholic University of Valparaíso (PUCV), a leading institution that has vast experience and national and international prestige in research in Fisheries and Marine Sciences, develops high-level study and training programs and has a highly qualified teaching staff. The evaluation and validation of this knowledge by an entity external to the IFOP generates greater value in terms of content, seriousness and transparency.

In terms of continuous improvement and how to optimize the quality of the learning experience of our Scientific Observers, a FOC Course Program was structured this year that better addresses the complexity of students revi-

siting the vast majority of the content every year, despite having already passed previous programs. For the year 2024, after the induction and delivery of the study material, a distinction is made between new and old Observers (those who have already taken and passed the courses the previous year). The former must take the entire program: four theoretical courses (one week), 2 days of practical training at the Regional Headquarters or Sampling Centers (Talcahuano, Calbuco and Punta Arenas), hours for personal study (with time officially given within the working day), content pre-evaluations and a final evaluation. For their part, former Observers do not have to retake the four FOC courses, but must complete a Revalidation of Knowledge and update it: study the material provided during their working day, take online pre-assessments and a final exam (2 hours). In this way, this last group, which has the complete study material, can resolve doubts, ask questions and be assisted online by the teaching team, without having to go through the theoretical training again.

Thus, the training program that will be taught between October and December of this year, is divided into 2 categories:

**Group 1.** Complete training for people who are taking the program for the first time, who must take the four FOC courses, through: a) initial induction, b)

RETURN

synchronous classes on the four topics mentioned, c) assisted personal study; d) participate in a practical workshop on Species Identification and Application of Sampling Techniques, at the assigned regional headquarters, and e) final synchronous online evaluation.

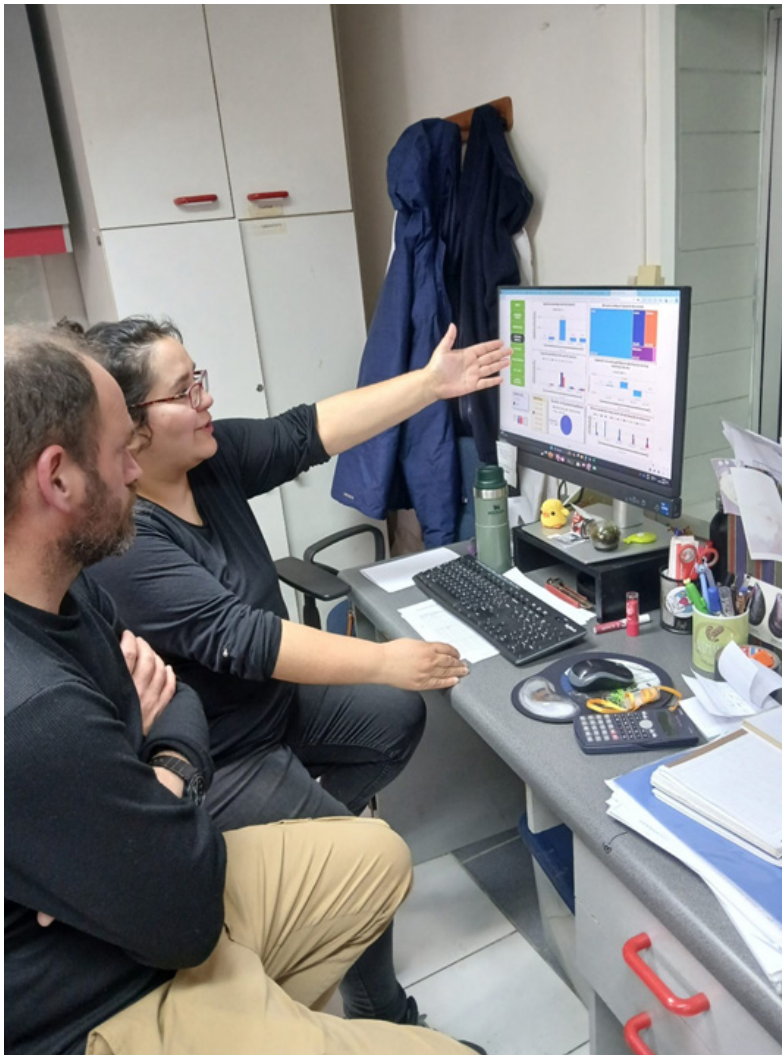
**Group 2.** Revalidation of knowledge for people who already completed the program the previous year. The workshop for revalidating knowledge of the FOC Courses considers: a) initial induction, b) an official period of review of the study material and assisted guidance, and c) final synchronous online evaluation.

Currently, IFOP has a total of 200 Scientific Observers participating in the Program, in one way or another. These participants belong to 15 projects of the Fisheries and Aquaculture Research Advisory Board (ASIPA) 2024, of the Fisheries Research Division (DIP), and are distributed between Arica and Puerto Williams.

## IFOP collaborates with Argentine researcher to implement mussel aquaculture in Patagonia

In order to promote the development of aquaculture, the Fisheries Development Institute (IFOP) has established a collaboration with Dr. Tomás Isola, researcher at the Coastal Development Institute of the National University of Patagonia San Juan Bosco, in Argentina. This alliance is part of the cooperation agreement with the Aquaculture Faculty of the Austral University of Chile.

During the visit made from October 14 to 16, to the Puerto Montt Base, Dr. Isola and the IFOP team carried out a practical training focused on the identification of mussel larvae. Together, they worked on the identification of the three species of commercial mussels present in Chile in their different ontogenic stages, essential knowledge for the development of mussel aquaculture in the region.



The methodologies of the Mussel Larval Monitoring Program were also reviewed and the challenges and opportunities of the mussel farming industry in Chile, whose production depends on the capture of larvae in the wild, were addressed. One of the key objectives of this collaboration is to establish the bases for implementing a mussel aquaculture program in the Argentine Atlantic.

The training was led by the IFOP team, composed of researchers M.Sc. Cristina Stuardo and Macarena Herrera Abaroa, who were in charge of the instruction, including the use of the "Endemic Seed" Interactive Platform. Thanks to their guidance, the necessary technological transfer for the development of this activity in Argentina was facilitated, covering in detail the identification and analysis of larval stages.

This collaboration reinforces the exchange of knowledge between Chile

RETURN

and Argentina and represents a significant advance towards the sustainable development of aquaculture in Patagonia. By working together, both countries can share experiences and methodologies that facilitate the implementation of responsible aquaculture practices, benefiting both local communities and the environment. This synergy not only strengthens mussel production, but also creates a.

## Workshop on identification and taxonomic differentiation of benthic resources, for Scientific Observers

In the framework of the Scientific Observer Training Courses for the year 2024, which on this occasion included the holding of practical workshops aimed at providing knowledge to the new IFOP scientific observers. These technical and practical skills are necessary for their performance in the field in the collection of biological-fishery data in various fisheries and resources; additionally, a workshop on identification and taxonomic differentiation of benthic resources was held.

The activity, which was attended by 15 participants, was held on Tuesday, October 22 at the IFOP base in Calbuco, and was organized by Field Coordinator Leslie Figueroa.

The presentations and reports were given by professionals from the Environment Department of the Aquaculture Division, Sandra Silva Klenner, an expert in macrofauna from our institution who works in the Environmental Monitoring Program in Aquaculture, and Macarena Herrera Abaroa, a researcher from the Larval Monitoring Program for Mussels. These professionals came to reinforce taxonomic content for 2 specific groups of mollusks from the Bivalvia class: Veneridae and Mytilidae.

The objective was to transfer the skills to efficiently segregate species of commercial interest from both groups in data collection campaigns by IFOP scientific observers, recognizing their scientific names and incorporating both characters and identification criteria to be applied when collecting data on landings of benthic products.

This activity was carried out jointly by the Aquaculture and Fisheries Divisions of IFOP, demonstrating reciprocal collaboration. Promoting among researchers and professionals from both divisions, the dissemination of scientific knowledge and its application in the improvement and precision of data collection.

## Scientific Dissemination Workshops on the Coast of the Los Ríos Region

The scientific dissemination workshops carried out by the IFOP Benthic Monitoring Program on the coast of the Los Ríos Region, where students from preschool to technical-professional secondary education from the towns of Corral and Niebla participated, were successfully concluded.

In the workshops, carried out by researchers and scientific observers, the importance of caring for the ocean was addressed, avoiding the consumption of marine products under commercial size or during closed seasons, as well as other threats such as marine litter, vehicle traffic in beach areas and industrial

RETURN


pollution that threaten life on the coasts and in the ocean.

Along with working with the educational material, the students, of various ages, were able to share their reflections with their peers. The Science teacher Juan Manuel commented "I saw the students fascinated, interacting, seeing the entire underwater world. In addition to the experience, we took away a lot of learnings, such as the diversity of organisms and the impact of human beings on the sea, because along with the algae, there was also a lot of trash." The language teacher at La Aguada School, Paola Latorre, commented "I loved it, I had never observed marine life, seeing the division between the cells of filamentous algae under a magnifying glass was very exciting. Thank you for the experience."

At the Carlos Haverbeck Richter Bicentennial High School in Corral, the workshop was aimed at third and fourth year technical-professional students. Mireya Muñoz, in charge of the library, said "the talk was fantastic, with a great content about what the sea means, as a source of work and a source of life, and the kids really liked it, I saw that they were interested." For his part, Luis Cárdenas, Director of the Bicentennial High School, added "I found the talk extremely interesting, especially for the technical-professional students. Many of them come from fishing families from Chaihuín, Huiro, Huape and other coastal towns, so the topic was very relevant and they told me that they had a lot of fun."

## IFOP researchers present at the Tenth Annual NENRE EFD-Chile Meeting

On October 24 and 25, the Tenth Annual NENRE EFD-Chile Meeting was held at the Colchagua Campus of the University of Talca, Santa Cruz, a conference focused on Environmental and Natural Resources Economics. Researchers from the Fisheries Development Institute (IFOP), Andrea Araya and Pedro Romero, participated in this event.

Researcher Andrea Araya presented progress on her master's thesis entitled "Searching for a relationship between biomass and the capture of black snail in the Atacama Region," which analyzes the causal relationship between the rate of biomass renewal and the capture of this resource.

For his part, researcher Pedro Romero acted as a speaker and panelist in the Public Policy session, entitled "Linking science with the environment in environmental problems." In addition, she presented her research, "Does the management area regime achieve the sustainability of its fisheries? Evaluation of the performance of the AMEB regime in the administrative, bio-fishery and socioeconomic areas", which examines the progress and challenges in meeting the objectives of the Management Area regime.

The meeting served as a platform to strengthen ties and share knowledge generated in IFOP with resear-

RETURN

chers and academics at the national level in the field of environmental and natural resource economics.

## IFOP Participates in the Science Festival with an Interactive and Multidisciplinary Exhibition

### HIGHLIGHTING ITS COMMITMENT TO INNOVATION AND COLLABORATION IN RESEARCH AND CULTURE

On October 24, between 8:30 and 13:00, IFOP participated with a stand at the FECI Science Festival, within the framework of the XX Regional Congress of School Research and Innovation Explora Los Lagos. FECI is a massive scientific dissemination event, with significant participation from school communities.

"The Science Festival is a national, public and free event, organized since 2019 by the Ministry of Science, Technology, Knowledge and Innovation in alliance with different actors in the science, technology, knowledge and innovation ecosystem (CTCI) in order to open spaces so that all people, of all ages and throughout the country, can discover the science that surrounds them and the knowledge they possess." About the festival – Science Festival

The general theme is Science in the water, and from the Aquaculture Research Division of IFOP, Puerto Montt and Putemún Campuses, the colleagues who attended the activity presented:

- Didactic module on cell recognition and blooms of Didymosphenia geminata, presented by researcher Mario Ortiz.
- Ecosystemic aquaculture by researcher José Alberto Videla of the Larval Monitoring Program of Mussels, who brought the Endemic Seed platform along with samples of what this study constantly monitors.
- Parasites of marine organisms, was presented by the expert technologist María Paz Navarrete
- CHONOS, IFOP's oceanographic portal at the service of society, run from the IFOP Castro base by oceanographers Luis Avello and Oliver Venegas.

The Science Festival is a wonderful initiative that not only fosters interest and curiosity in science among students, but also through them, in the entire community. Being a national, public and free event, it allows people of all ages and from different backgrounds to participate and get involved in interactive and educational activities. The collaboration between the Ministry of Science, Technology, Knowledge and Innovation and various actors in the CTCI ecosystem enriches the event, promoting a multidisciplinary and dynamic approach that highlights the importance of science in everyday life.

The participation of the Fisheries Development Institute (IFOP) in the Science Festival (FECI), through an interactive and multidisciplinary exhibition, reflects the commitment of the institution and its Aquaculture Research Division (DIA) to innovation and collaboration in research and culture. Being part of this type of event is essential for IFOP and the DIA, since it not only strengthens the dissemination of knowledge derived from our institutional work, but also contributes to demystifying science, making it more accessible and closer to society. Activities such as workshops, talks, exhibitions and recreational experiences allow attendees to approach different scientific areas in a practical and entertaining way, from biology to technology and innovation. In addition, the FECI acts as a meeting space between researchers, students and the general public, encouraging the exchange of ideas and the creation of collaboration networks. This initiative promotes scientific literacy and fosters a greater appreciation for knowledge, while consolidating itself as a place of reflection and learning for society. The active participation of various institutions and experts also contributed to enriching the event, broadening

RETURN


the thematic variety and offering a more comprehensive perspective on current challenges.

## Participation of Dr. Carlos Montenegro Silva, Head of the Fisheries Research Division of IFOP in the 43rd Meetings of the Scientific Committee and the Commission of the CCAMLR

Between October 14 and 18, 2024, the 43rd meeting of the Scientific Committee of the CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources) was held in Hobart, Australia. Dr. Carlos Montenegro Silva, Head of the Fisheries Research Division of IFOP, attended this meeting as a representative of IFOP.

The Commission for the Conservation of Antarctic Marine Living Resources is an intergovernmental organization established by an international convention within the framework of the Antarctic Treaty System. The Commission, assisted by the Scientific Committee, is responsible for the development and implementation of the necessary measures for the management and conservation of fishery resources and associated ecosystems in the Southern Ocean.

Currently, fisheries targeting Patagonian toothfish (*Dissostichus eleginoides*), Antarctic toothfish (*Dissostichus mawsoni*), icefish (*Champsocephalus gunnari*) and Antarctic krill (**Euphausia superba**) are being conducted in the Convention Area. These fisheries are managed using a precautionary approach, and management objectives seek to find a balance between conservation and rational use of resources and to preserve pre-existing ecological relationships.

The 43rd meeting of the Scientific Committee was attended by the following Chilean delegation:

**Juan Enrique Loyer.** Director (s) Division of Antarctic Affairs of the Ministry of Foreign Affairs (Head of Delegation)

**Fernando Berguño.** Ambassador. Ministry of Foreign Affairs

**Francisco Santa Cruz.** Representative of the Chilean Antarctic Institute (INACH)

**Lucas Kruger.** Representative of the Chilean Antarctic Institute (INACH)

**Carlos Montenegro.** Head of IFOP Fisheries Research Division

**Luis Cocas.** Undersecretariat of Fisheries and Aquaculture

During the 43rd meeting of the Scientific Committee, chaired by César Cárdenas of INACH, the results of the research activities of the national scientific programs of the CCAMLR Members were analyzed. In addition, the programs to collect the necessary data for the effective management of the Southern Ocean were reported, which include elements such as fisheries monitoring, scientific observers on board fishing vessels and programs to monitor the ecosystem and marine debris.

RETURN

Additionally, the intersectional work of the five working groups of the Scientific Committee was reported, which are:

Working Group on Ecosystem Monitoring and Management (WG-EMM), Working Group on Fish Stock Assessment (WG-FSA), Working Group on Statistics, Assessments and Modeling (WG-SAM), Working Group on Fisheries-Related Incidental Mortality (WG-IMAF) and Working Group on Acoustic Surveys and Analysis Methods (WG-ASAM)

Part of the work agenda of the Scientific Committee included discussions on the implementation of a harmonization process to make compatible the development of a new fishery management strategy for krill with the adoption of a Marine Protected Area as a spatial and temporal protection tool. In this regard, Argentina and Chile presented a series of documents related to the scale of applicability of the harmonization process, a possible phased approach between subareas, the inclusion of temporary protection zones, new precautionary catch limits, an integrated data collection plan KFMA-D1MPA (Krill Fishery Management Approach- Domain 1 Management Protected Area) and some requirements for a review after a trial period for implementation.

In parallel with the Scientific Committee meeting, the SCIC (Standing Committee on Implementation and Compliance) meeting was held.

The following attended the SCIC meeting as part of the Chilean delegation:

**Juan Enrique Loyer.** Director (s) Division of Antarctic Affairs of the Ministry of Foreign Affairs (Head of Delegation)

**Fernando Berguño.** Ambassador. Ministry of Foreign Affairs

**Francisco Lértora.** Representative of the Director of Borders and Boundaries of the State (DIFROL)

**Francisco Fernández.** Fisheries Subdirectorate of SERNAPESCA.

**Luis Cocas.** Undersecretariat of Fisheries and Aquaculture.

The purpose of this committee is to evaluate compliance with current Conservation Measures (CM) by the Contracting and adhering Parties, when appropriate, as well as to approve, through consensus of the Contracting Parties, proposals for modification and implementation of new CM. In specific terms, the main functions of the SCIC are:

Review and assess the status of compliance by Contracting Parties and Adherent Parties, where appropriate, with conservation and management measures adopted by the Commission;

Provide technical advice and recommendations on possible measures to promote the effective implementation and enforcement of conservation and management measures;

Review and analyse information on activities by Contracting Parties and Adherent Parties, where appropriate, that undermine the objectives of the Convention, in particular illegal, unreported and unregulated (IUU) fishing, and recommend measures to be taken by the Commission to prevent, deter and eliminate these activities;

Review and recommend priorities for improving the functioning of the System of Inspection and, jointly with the Scientific Committee, as appropriate, for the System of International Scientific Observation (SIO);

Exchange information with the Scientific Committee and its subsidiary bodies, as well as with the Standing Committee on Administration and Finance (SCAF), as appropriate, on matters of relevance to the exercise of their respective functions;

Make recommendations to the Commission regarding appropriate cooperation with Regional Fisheries Management Organizations (RFMOs), NGOs or other international organizations of a technical (e.g. INTERPOL) or scientific nature, aimed at achieving the objectives of the Convention, as well as on the implementation and enforcement of conservation and management measures;

Perform any other functions that the Commission may assign to it in accordance with its mandate;

Finally, prepare a report on its activities and recommendations, and an

RETURN

agenda for its next meeting, for the Commission's consideration.

The SCIC examined a report submitted by Chile (CCAMLR-43/BG/33), which described the implementation of Electronic Monitoring Systems (EMS) used in our country, with the purpose of controlling discards and bycatch, as well as other fishe ries regulations. SCIC thanked Chile for its paper and supported the recommendation that an intersessional electronic group be established on the CCAMLR discussion platform, in order to facilitate the participation of Members and Observers in the development of a work schedule, guidelines and standards for an EMS to be adopted, through an ad hoc Conservation Measure, by CCAMLR. Document CCAMLR-43/BG/33 Rev. 1 contains a draft of the terms of reference for the establishment of the CCAMLR discussion platform. This proposal was presented to both SCIC and the Scientific Committee, receiving widespread support and congratulations from their members.

In parallel to the meetings of the Scientific Committee and SCIC, the SCAF (Standing Committee on Administration and Finance) meeting was held, which provides the opportunity to address administrative and financial aspects of the issues to be considered by the Commission.

The following representatives joined the National Delegation at the 43rd meeting of the CCAMLR Commission, which took place between October 21 and 25, 2024 and in which Dr. Carlos Montenegro Silva of IFOP also participated:

**CA Nelson Saavedra.** Director of Maritime Interests and Aquatic Environment of the General Directorate of Maritime Territory and Merchant Marine.

**Juan Francisco Santibáñez.** Head of the Fisheries Development Division, Undersecretariat of Fisheries and Aquaculture.

**Gonzalo Rojas.** International Affairs Unit of SERNAPESCA.

**Héctor Bacigalupo.** President SONAPESCA.

**Valeria Carvajal.** President FIPES.

**Enrique Gutiérrez.** General Manager Pescachile.

Among the activities carried out by the members of the Chilean delegation in the various scientific and technical Committees, the following were highlighted:

The presentation of the eGroup for Electronic Monitoring

Presentation of Marine Protected Area Domain 1

The active participation in the evaluation of compliance with the various Conservation Measures by the

Contracting and adhering Parties, as well as the discussion generated regarding the new Conservation Measures and improvements to the current ones.

Conversations to prepare a proposal for research fishing in areas 48.2 and 48.3A.

Despite a year of tentative negotiations, CCAMLR members have failed to reach consensus on: (i) the creation of new marine protected areas, (ii) the renewal of the spatial fractionation of the quota established in the Antarctic krill fishery, and (iii) the establishment of a Patagonian toothfish quota in area 48.3. Growing commercial interest in krill fishing has prevented concerns about the impact of climate change on regional ecosystems from being met and prevented the 27 CCAMLR members from reaching an agreement on the issue. On the above, during the meeting in Hobart, some countries vetoed the Chilean-Argentine proposal for the creation of a new marine protected area (MPA) in the Western Antarctic Peninsula (Domain 1) and blocked the renewal of Conservation Measure 51-07, which distributed krill fishing activities within desig-

RETURN

nated subareas of the extensive krill fishing zone, as well as the Conservation Measure that established a quota for deep-sea cod in area 48.3.

Finally, one of the most notable aspects of the participation of the Chilean delegation at the 43rd meeting of CCAMLR was the representation of all sectors involved in the topics of the meetings, with a strong participation of the institutions of the State of Chile, the industries that have fishing interests in the waters of the Southern Ocean, as well as the interaction with international organizations such as FAO, UNDOALOS, IUCN, IWC, ASOC, ACAP, Mission Blue, COLTO, SCAR, among others.

## Chile-Mexico Fund supports capacity building for small-scale fisheries management in both countries

The project is executed by IFOP and IMIPAS institutes, and incorporates the principles of gender equality, inclusion, aquaculture-fisheries technology training, and climate change.

Santiago, October 30, 2024.- The Fisheries Development Institute (IFOP) together with the Mexican Institute for Sustainable Fisheries and Aquaculture Research (IMIPAS) began, this second semester, the execution of a cooperation project that aims to develop co-management processes for small-scale fisheries, with an emphasis on benthic resources on Chiloé Island, Ancud Bay, in southern Chile; and in the towns of Celestún, Sisal, Progreso and Río Lagartos in Yucatán, Mexico, which incorporate the principles of gender equality, inclusion, aquaculture-fisheries technology training, and climate change.

This initiative, called "Capacity building for co-management of fisheries and aquaculture in small-scale fisheries as a contribution to public policies in Mexico and Chile," will be implemented over 24 months and is funded by the Chile-Mexico Joint Cooperation Fund. In Chile, representatives of benthic management committees, fishermen, pulp collectors, and crab fishermen from Ancud, in Chiloé, will benefit; while in Mexico, fishermen from Celestún, Sisal, Río Lagartos, and Progreso, all in the State of Yucatán, will benefit.

The project director, on the Chilean side, is the IFOP senior researcher, Nancy Barahona Toledo, who stated that she is "very motivated with the development of this study, which will allow progress in the work of the benthic resource management committees with a gender focus and, in addition, will allow two technological tours to be carried out, one to each country, which include the participation of the members of the work teams and fishermen and women, in order to exchange knowledge and experiences of co-management in small-scale fisheries."

For the development of this initiative, we will work with the Chilean non-governmental organization Conectar para Conservar (CPC), with whom we will develop the learning networks associated with benthic resource management committees; the Mexican non-governmental organization Comunidad y

RETURN

Biodiversidad A.C. (COBI), who will address the issues associated with gender; and a university to advance in the issues of self-reporting and scientific monitoring of fishing activity.

Since its creation in 2006, the Chile-Mexico Fund has executed 220 projects for mutual benefit; and is part of the Strategic Partnership Agreement signed between the Republic of Chile and the United Mexican States. It is an international cooperation instrument intended to finance the execution of bilateral and trilateral programs, projects and/or actions that promote cooperation between Chile and Mexico or between both states towards a third developing country and is managed by the Chilean Agency for International Development Cooperation (AGCID) and the Mexican Agency for International Development Cooperation (AMEXCID).

https://www.agci.cl/noticias/2466-fondo-chile-mexico-apoya-el-fortalecimiento-de-capacidades-para-la-gestion-de-pesquerias-de-pequena-escala-en-ambos-paises

## IFOP Repopulation and Cultivation researchers carried out various outreach and community outreach activities

During the month of October, various activities were carried out aimed at promoting small-scale aquaculture (SSA) and the underlying scientific disciplines and technologies among students, fishermen and the general community.

On October 9, and at the request of the municipality of Quemchi, Dr. Francisco Cárcamo traveled to Tac Island to be part of the Artisanal Fishing Seminar – Voices of the Ocean, with the participation of artisanal fishermen and shore collectors from this island, presenting the presentation “SSA and artisanal fishing”, where the progress, challenges and opportunities for fishermen to transition to SSA were discussed.

RETURN

On October 17 and 18, the II Science, Technology and Arts Fair CIENTEART "Cochamó: Union of Waters" was held in Cochamó, organized by the Science Department of the Juan Soler Border School and the Science Club Foundation of Chile, with IFOP as a sponsor of the event. Dr. Cárcamo was part of the review committee of scientific works presented by various schools in Chile. In addition, a stand was set up so that the community could learn about part of the work carried out by the institution. Francisco Cárcamo indicated "that this experience was super enriching and gratifying, valuing the interest in developing science by students and its promotion by science teachers. Also, the community can learn about the main lines of work that IFOP develops, learning about opportunities for the community such as species diversification and environmental problems such as the invasive microalgae species dydimo (Didymosphenia geminata), which also affects rivers in the area."

Finally, on October 22, and as part of the collaborative work started this year with the Juan Soler Manfredini High School of Cochamó in the field of APE, and which has as its main objective to support the formative and practical development of the students of the aquaculture specialty of the High School, with emphasis on APE, the first sowing of Chilean oyster and Pacific oyster was carried out, in the CCAA belonging to the municipality of Cochamó in conjunction with the Juan Soler Manfredini High School. This activity is part of the component of Implementation of experimental initiatives APE (in aquaculture concession, which is administered by the Municipal Corporation of Cochamó).

In this regard, Sebastián Cook, researcher of the repopulation and cultivation department explained "that the sowing was a success, since approximately 1000 seeds of each resource were incorporated into the system. This experience is very important for the high school students as it shows them the future prospects for aquaculture and encourages the diversification of cultivable organisms in these places where the main focus of aquaculture is seed collection or salmon farming. The students learned about these resources and their cultivation methods, which in the future could be other species with the potential to diversify small-scale aquaculture in the south of our country."

# Scientific Vessel Abate Molina set sail to investigate the anchovy

On November 18, the scientific vessel Abate Molina set sail from the Port of Valparaíso, with professionals and technicians from the Institute for Fisheries Development, who will sail for 29 days investigating the anchovy. The captain of the ship is José Echeverría and the head of the cruise is the fisheries engineer Francisco Leiva.

The general objective of the cruise is to carry out a hydroacoustic survey between the regions of Arica and Parinacota and Antofagasta to evaluate the anchovy stock present in the study area.

**The specific objectives are**

- To carry out 41 acoustic transects between Arica (18°22'S) and the Paposo bay (25º00´S),
- To evaluate the shore bias (between 18° 30 and 21° 30' LS) with a small-scale boat.
- Carry out a sufficient number of reconnaissance fishing hauls (>15) to characterize the anchovy stock
- Conduct oceanographic stations in the study area (>80%)

The data obtained, its analysis and the results are key for the sectoral authority since it allows decisions related to the sustainable development of this fishery to be supported with scientific information.


RETURN