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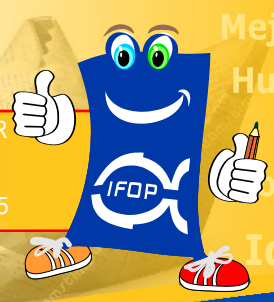

IFOP INFORMATION BULLETIN

El Ifopino

IN THIS NUMBER

Gonzalo Pereira, Director of IFOP, Attends Launch of New Fisheries Fractionation Law

Today, July 10, 2025, at the Palacio de la Moneda, the President of the Republic, Gabriel Boric, signed into law the new Fisheries Fractionation Law.

The ceremony was attended by the President of the Republic, the Minister of Economy, Nicolás Grau, the Undersecretary of Fisheries, Julio Salas, members of the Senate and Chamber of Deputies Fisheries Committees, heads of services, leaders, and artisanal fishers.

Law 21,752, published in the Official Gazette on June 25, 2025, contemplates a new distribution scheme for global catch quotas for 23 commercially important national fisheries, projecting a net redistribution from the industrial to the artisanal sector of approximately 150 billion pesos annually.

The new regulations also strengthen oversight, as they toughen penalties for illegal fishing and establish that industrial companies that commit serious violations of the General Law on Fisheries and Aquaculture will not be eligible for quota increases through dynamic fractionation.

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Argentina's INIDEP and Chile's IFOP strengthen scientific cooperation with the signing of two new agreements

The event took place at INIDEP facilities, with the participation of authorities and scientific teams from both countries.

On Thursday, August 7 and Friday, August 8, the National Institute for Fisheries Research and Development (INIDEP) hosted an important international cooperation meeting in marine science. In the presence of INIDEP Director Gonzalo Eduardo Bacigalupo and Chile's Executive Director of the Chilean Institute for Fisheries Development (IFOP), Dr. Gonzalo Pereira Puchy, the signing of two new technical collaboration agreements was formalized between the two institutions, which have been working together since 2014.

The agreements aim to consolidate joint actions in fisheries research, sustainable management of marine resources, and scientific training. Specifically, one of the agreements focuses on the study of the Patagonian toothfish (Dissostichus eleginoides) through stable isotope analysis, with the goal of characterizing the stocks present in the waters of the Southern Cone. This initiative seeks to lay the foundation for future regional research in the biology and conservation of commercially important species.

The second agreement focuses on the exchange of scientific observers and researchers between the two institutes, with the goal of internationalizing expertise, sharing technical experiences, and consolidating common standards for collecting fishery data aboard research vessels.

During the two-day workshop in Mar del Plata, researchers from both countries shared their lines of research and the status of the main fisheries operating in the region. INIDEP researchers presented progress on fisheries for southern demersal fish, pollock, chondrichthyans, pelagic resources, and spider crab.

For their part, IFOP scientists presented on the assessment of chondrichthyans, southern demersal fisheries, and the status of the spider crab and king crab fishery.

These agreements reaffirm the commitment of both institutions to joint work and regional scientific cooperation in the Southwest Atlantic and Southeast Pacific, key to the sustainable management of shared fishery resources.

IFOP delegation strengthens scientific cooperation in China during international conference

In Fuzhou, China, a delegation from the Institute for Fisheries Development (IFOP) participated in the "Conference on Innovation and Science in Fisheries" (ICFIS 2025), held in Fuzhou, Fujian Province, China. The conference was organized by the Chinese Academy of Fisheries Sciences; the Yellow Sea Fisheries Research Institute; the East China Sea Fisheries Research Institute; the Fujian Institute of Fisheries Research; and the FAO.

The Chilean presence followed the official visit to China in March of this year by Undersecretary of Fisheries Julio Salas, during which Chinese authorities invited the Executive Director of IFOP and

RETURN

two executives from the Fisheries and Aquaculture department. The delegation included Gonzalo Pereira, Executive Director of IFOP; Gastón Vidal, Head of the Aquaculture Research Division; and Patricia Zarate, Head of the Fisheries Assessment Department.

The meeting's agenda addressed advances and applications in science, technology, and innovation for fisheries and aquaculture, with an emphasis on sustainability and the incorporation of artificial intelligence into production and research processes. IFOP presented two presentations on institutional work in both areas, and Dr. Patricia Zarate moderated one of the debates.

In addition, bilateral meetings were held with officials from the Chinese Academy of Fisheries Sciences in Fuzhou and with authorities from the East China Sea Fisheries Research Institute in Shanghai. At both meetings, it was agreed to initiate scientific cooperation with IFOP and advance the definition of a memorandum of understanding that could be finalized this year.

IFOP Presents Results of the National Program for Surveillance of Sea Lice Susceptibility to Antiparasitics

On Wednesday, June 25, the Fisheries Development Institute (IFOP) held a virtual workshop to disseminate the results of the program "Determination and Surveillance of Caligus rogercresseyi Resistance to Antiparasitics Used in National Salmon Farming. Stage VIII (2024–2025)," an initiative that seeks to strengthen technical knowledge and support health decision-making in the salmon farming industry.

The event, organized by IFOP's Department of Hydrobiological Health, brought together representatives from the public sector, industry, and the scientific community to share the main progress of the program, which has been running continuously for eight years.

Dr. Jaiber Solano Iguarán, senior researcher at IFOP, highlighted that to date, 254 valid bioassays have been conducted in 95 sampling areas, covering 28 Salmon Farming Concession Areas (ACS) in the Los

RETURN

Lagos and Aysén regions. During this period, the parasite's susceptibility has been evaluated primarily against azamethiphos, deltamethrin, and cypermethrin.

The results show variations in susceptibility profiles between compounds and geographic areas. In the case of azamethiphos, an increasing trend was observed in the EC50 value (median effective concentration, i.e., the dose that affects 50% of the exposed parasites), reinforcing the importance of diversifying available control tools and monitoring their effectiveness over time. In contrast, the EC50 values for deltamethrin and cypermethrin showed a decreasing trend, which could indicate an improved parasite response to these compounds in some areas.

In addition, methodological advances in the program were highlighted, such as the analysis of parasite morphometry and its association with environmental and treatment variables, as well as the start of bioassay validation for non-pharmacological compounds. At this stage, evaluations with hydrogen peroxide and plant extracts were included, opening new lines of work around products currently in use in the industry.

The joint work between the Undersecretariat of Fisheries and Aquaculture (Subpesca), the National Fisheries and Aquaculture Service (Sernapesca), and the IFOP has been key to the development of this program, which will continue with new activities during the second half of 2025. According to Dr. Solano, future challenges include studying genetic connectivity between Caligus populations, expanding the program's geographic coverage, and strengthening the temporal analysis of susceptibility profiles.

Successful training for members of the Benthic Fisheries Management Committee on small-scale fisheries management in Chile and Mexico

The project, financed by the Chile-Mexico Fund and implemented by the public institutes IFOP and IMIPAS, incorporates the principles of gender equality, inclusion, aquaculture and fisheries technology training, and climate change.

Santiago, July 2025. A total of 33 people, including members of the Benthic Fisheries Management Committees, technicians, and researchers, successfully completed the first training session within the framework of a cooperation project that seeks 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 and fisheries technology training, and climate change.

The workshop also included technicians from the Undersecretariat of Fisheries and Aquaculture, the Chinquihue Foundation, the National Institute for the Sustainable Development of Artisanal Fisheries and Small-Scale Aquaculture (INDESPA), researchers from the Fisheries Development Institute (IFOP) and the Austral University of Chile, along with professionals from the non-governmental

RETURN

organizations Conectar para Conservar (CPC) and Comunidad y Biodiversidad, A.C. (COBI).

The project includes two co-management training sessions for members of Management Committees in Chile. The first was recently held in the city of Puerto Montt. Four modules were delivered over two days of continuous work, focusing on achieving the proposed specific objectives: understanding what a learning network is and how it can help us achieve our goals; sharing lessons learned about fisheries co-management and how it applies to Management Committees (MCs) and Fisheries Management Plans; reaching a consensus on the importance of fisheries monitoring co-led by fishers; and reflecting on why gender equality is important for fisheries governance.

In the opening session of the workshop, IFOP project leader and senior researcher Nancy Barahona Toledo presented the rationale and progress of the Chile-Mexico binational project, which aims to strengthen capacities for fisheries and aquaculture co-management in small-scale fisheries, as a concrete contribution to the design and implementation of more inclusive and sustainable public policies. He emphasized that the overall objective of the project is to develop effective co-management processes through coordination between fishers, academia, and local and regional governments, incorporating principles of gender equality and inclusion. To this end, he indicated that the project aims to consolidate a comprehensive capacity-building system, where technical knowledge and local expertise are intertwined to improve the management of marine resources exploited by coastal communities in both countries.

Meanwhile, the head of the SSPA's Benthic Resources Unit, Mario Acevedo Gyllén, presented an updated overview of the artisanal fishing sector and underscored the importance of Management Committees as key institutional spaces for advancing the sustainability of small-scale fisheries, especially in the face of the challenges of climate change, resource overexploitation, and socio-environmental conflicts in coastal territories.

The fishermen and women presented various topics, such as prioritizing oversight and implementing effective monitoring at landing centers so that the Management Committees can be decisive and support the problem of illegal fishing and unregulated migration. The testimonies, diagnoses, and shared reflections confirm that co-management is not merely a technical instrument, but a living path of participatory governance that connects territorial experience with decision-making and ecosystem resilience. The learning network technique proved to be a powerful tool for building trust, exchanging solutions, and highlighting common challenges, from the lack of oversight and the binding power of the Committees to the urgent need to incorporate gender and youth perspectives into fisheries governance.

This activity was led by Layla Osman, director of Conectar para Conservar and leader of Co-management2030, who presented the foundations of a Learning Network for Fisheries Co-Management, conceived as a strategic tool to strengthen capacities, articulate territories, and influence public policies through Management Committees.

Professionals such as Neyra Solano, from COBI, participated in the various modules, addressing "Gender Equality in Marine Governance" for the Learning

RETURN

Network in Chile. A reflection was presented on the importance of integrating gender equality into marine governance, highlighting that it is not possible to advance toward sustainability without addressing the social inequalities that plague coastal and fishing territories. Basic concepts such as "governance," "equality," and "equity" were also addressed in order to understand each of them individually and identify how they interconnect. The presentation was based on the premise that "governance implies that all people can participate in the decisions that ensure a dignified life. In this context, gender equality is not just an ethical goal or a cross-cutting principle, but an enabling condition for sustainability, resilience, and environmental justice."

With questions such as "Can gender inequality affect marine governance?" and "How could gender equality improve the management of fisheries resources?", the presentation sought to engage participants in reflection about their daily activities in the fishing sector, providing clear examples, as well as scientific evidence, of how equal participation of women and men in fisheries and marine conservation can lead to more sustainable and lasting results.

The workshop concluded with an invitation to build this network based on trust, co-responsibility, and joint action, understanding co-management not as a technical tool, but as a collaborative and transformative way of life. Caring for the oceans begins with caring for the people who inhabit and work them. The future of co-management in Chile will depend on our collective capacity to build trust, learn from networks, and sustain governance processes that place communities and territories at the center of the activity.

This project is funded by the Chile-Mexico Joint Cooperation Fund, the result of the Strategic Partnership Agreement signed between the Republic of Chile and the United Mexican States in 2006. It is led by the Chilean Agency for International Development Cooperation (AGCID) and the Mexican Agency for International Development Cooperation (AMEXCID). Since its creation, this Fund has financed the implementation of more than 230 initiatives.

IFOP Begins Monitoring the King Crab Fishery in the Magallanes Region

Artisanal king crab (*Lithodes santolla*) fishing takes place between July 1 and November 30 of each year. It is an activity of great economic and social importance for the region and the country, as it is a crustacean highly prized in global gastronomy for its high meat yield, delicate flavor, and texture. Since 2007, IFOP has been implementing a research and monitoring program aimed at developing biological and fishery indicators for the species.

The king crab fishery has been operating since 1928 in areas near Punta Arenas and Porvenir, and today it is carried out throughout almost the entire region, excluding the Skyring Sound and the eastern part of the Strait of Magellan. At that time, and until 1974, catches did not exceed 300 tons, increasing progressively to reach an average of 3,240 tons over the last 5 years.

The current regulatory and administrative measures in place for the king crab fishery are as follows:

- The use of traps as the sole fishing gear, a ban on landing and marketing females.
- A minimum legal catch size for males of 12 cm carapace length.
- Entry of male specimens into processing plants in their entire state (alive).
- Suspension of registration in the Artisanal Fishing Registry of the National Fisheries and Aquaculture Service (SERNAPESCA).

Magallanes has a complex geography, characterized by an extensive network of fjords and channels with an adverse climate and a highly heterogeneous variety of hydrographic and geological conditions. This is where the monitoring carried out by the IFOP generates the information necessary to understand the dynamics of the fishery, determine the areas of operation, determine catch volumes, determine the population structure of the species,

RETURN

and assess the reproductive status of exploited specimens. Furthermore, in recent years, aspects related to the impact of fishing activity on the ecosystem have been incorporated, including records of interactions with birds and mammals, as well as the identification of accompanying fauna.

Technical Workshop for the Preparation of Research and Monitoring Activities

The research and monitoring activities carried out by IFOP in the Magallanes region are an ongoing challenge. Every year, prior to the start of the king crab fishing season, the annual workshop on Monitoring the Benthic Crustacean Fishery is held. This workshop allows for the exchange of experiences between scientific observers and researchers and the development of the best strategies for recording information.

The event took place at IFOP Punta Arenas in late June and included scientific observers Gabriela Arteaga, Karla Jaque, Joseline Barría, Jaime Vargas, Juan Miranda, Marcos Oyarzo, and Juan Ancapán from Puerto Natales, Punta Arenas, Porvenir, and Puerto Williams. The event also included advisory services from program researchers Vivian Pezo, Hernán Pacheco, and Eduardo Almonacid, as well as field coordinator Álex Oyarzo and data manager José Fuentes.

Erik Daza, Project Manager, stated: "This year, 100% of the professionals involved in this study were in attendance in person. We have optimistically prepared a two-day work program, during which we will consolidate the technical knowledge associated with the program's objectives and activities, share methodological aspects, and plan field work associated with landing points and fishing areas for the second half of 2025. During these 18 years of monitoring, we have acquired time series of various biological and fishing indicators for king crab, and the challenge is to provide scientific evidence for the sustainable exploitation of this species in the Magallanes region."

The workshop began with the active participation of scientific observers who shared their experiences both aboard artisanal fishing vessels and at the region's docks. Through their presentations, they were able to demonstrate and compare their work methods, as well as share the knowledge acquired during years of fieldwork.

Subsequently, Field Coordinator Alex Oyarzo gave a talk focused on form review, dockside operating procedures, and proper information recording.

Researcher Vivian Pezo presented progress on vessel registration, the use of forms, and their contribution to the IFOP database.

The day concluded with a presentation by Hernán Pacheco, focusing on the origin, type, and price of bait, a key component in this fishery.

On the second day of the workshop, Alex Oyarzo presented a comprehensive account of data collection in biological sampling, including trap selection, reproductive condition assessment, parasite presence, shell consistency, and accompanying fauna, among other aspects. He also addressed the use of tools such as acrylic boards, GPS, and photographic records, in addition to a detailed review of the completion of forms with biological and fishery indicators.

Next, Eduardo Almonacid presented on accompanying fauna and presented the project results for 2024, providing valuable historical context.

Hernán Pacheco, for his part, presented a presentation focused on downtime in the fishing zone, data delivery deadlines, the current status of the project, and the relevance of photographic records.

Importance of the workshop

This type of event is essential for evaluating and standardizing the technical knowledge of scientific observers, allowing them to improve the management of information collected within the framework of the project. Likewise, the exchange of experien-

ces between scientific observers and researchers constitutes a key tool for the continuous improvement of fisheries monitoring, directly contributing to the generation of robust scientific information, essential for providing reliable information for decision-making.

In this context, the work of the Fisheries Development Institute is crucial for establishing objective conditions that guarantee the sustainability of benthic resources in the Magallanes Region.

Specialists in acoustic evaluation of Chilean Width Biomass (IFOP) and Peru (Imarpe), met in Valparaíso

Between July 21 and 25, 2025, the Hydroacoustic Specialists of the Institute of Fishing Development of Chile (FOP) and of the Peruvian Sea Institute (IMARPE) met in Valparaíso, in order to estimate the biomass of the shared stock of Width (Empharulis Ringens) in southern Peru and Northern Chile (Spch). This activity is part of the work program designed within the framework of the Chile-Peru Gef-PNUD Subpesca/Vice Project Ministry of Fisheries "Humboldt II".

In this way, the historical series of the estimation of the biomass shared anchovtea spnch will begin to feed models that represent the size of the stock that supports the fishery of this important resource in the two countries.

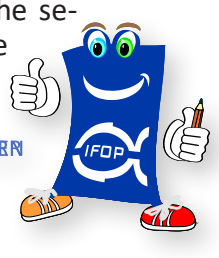
In this regard, Jorge Castillo, IFOP researcher said "of the long series of data that each country has, we worked on the cases in which there is a temporary coincidence between the cruises made in each country, being considered as a continuous sampling in space and time, for this occasion we have worked with the 2023, 2022, 2021 and 2020 years and in future instances it will advance with the remaining years.

We have analyzed the different biological aspects, sampling design and the methodological approaches used to finally obtain results that are useful for stock modeling.

Taking advantage of the visit of Peruvian researchers and the coincidence that BC Abate Molina was in Valparaíso preparing the sail to investigate the common hake, a visit on board was made. Ramiro Castillo, General Director of Research in Hydroacoustic, Remote Sensoring and IMARP researchers to do their work.

Students from the University of Moquegua, Peru, Conduct Academic Visit to IFOP in Arica

On July 23, students and graduates from the Professional School of Fisheries Engineering at the National University of Moquegua, Ilo Campus (Peru), conducted an academic visit to the Regional Headquarters of the Fisheries Development Institute (IFOP) in Arica. The activity, coordinated with the support of ACUIPERÚ, is the second instance of liaison between the two institutions. The objective is to



foster knowledge exchange and strengthen cooperation in fisheries and aquaculture research, especially in the sustainable management of benthic species of commercial interest in northern Chile and southern Peru.

The day began with a presentation by Hernán Padilla, head of the IFOP Regional Headquarters, who outlined the work the Institute carries out at the national and regional levels, highlighting the main programs and projects implemented in the northern macro-region. The visitors then participated in a virtual talk led by Luis Ariz, head of the IFOP Management Areas Section, who discussed the regulatory evolution and management model for the Benthic Resource Management and Exploitation Areas (AMERB) in Chile. His presentation highlighted the follow-up and monitoring mechanisms implemented by the Institute, positioning Chile as a regional leader in this area.

The activity also included a tour of the Institute's laboratories, where students were able to learn firsthand about the work of scientific observers and the procedures for collecting biological and fisheries data. They were also presented with environmental education initiatives aimed at schoolchildren and the community, as part of an awareness and sustainability strategy.

The professors from the University of Moquegua in charge of the delegation, Sheyla Zeballos and Carmen Liza, described the visit as an enriching experience for the training of future professionals. "This technical immersion not only provided access to up-to-date information on fisheries management and resource conservation, but also strengthened cooperation between our countries. Initiatives like this open up new possibilities for bilateral collaboration and contribute to jointly addressing the challenges of the fisheries and aquaculture sectors with a sustainable and innovative approach," they noted.

Finally, the IFOP regional head highlighted the importance of these types of meetings, especially in border territories. "Chile and Peru share fisheries resources and face similar environmental challenges. It is essential to continue promoting spaces for scientific and technical cooperation like this one, which will allow us to advance toward sustainable management of marine ecosystems and strengthen our response capacity to phenomena associated with climate change," he concluded.

Scientific Vessel Abate Molina Set Sail to Research Common Hake

On July 29, the scientific vessel Abate Molina set sail from the Port of Valparaíso to conduct a hydroacoustic survey of the continental shelf, between the northern border of the Coquimbo Region and the Los Ríos Region, to determine the common hake stock.

The cruise is led by fisheries engineer Víctor Catasti Barraza, and the vessel's captain is José Echeverría. They, accompanied by an expert team of professionals, technicians, and the vessel's crew, will conduct the hake-related studies.

The specific objectives are:

- To conduct a tentative number of 66 hydroacoustic survey transects perpendicular to the coastline.
- To make approximately 100 fishing trips to identify common hake echotrails.
- Obtain biological samples of common hake to determine its demographic structure and reproductive status.

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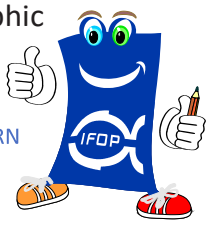

- Quantify and identify the species that comprise the common hake's by-product fauna.
- Establish bio-oceanographic stations to obtain zooplankton and ichthyoplankton samples and determine oceanographic conditions.

IFOP Holds Mussel Farming Class for Students in the Los Lagos Region

Cochamó, as part of a collaboration with the Technical Training Support Objective of the "Comprehensive Aquaculture Development Program for Artisanal Fishermen and Small-Scale Aquaculturists. Stage VIII," a specialized mussel farming class was held for third- and fourth-year students at Juan Soler Manfredini Fronter High School in the municipality of Cochamó. The activity was organized and supervised by Sebastián Cook, a researcher from the Repopulation and Cultivation Department (DRC) of IFOP's Aquaculture Research Division.

A specialized mussel farming class was also held at Piedra Azul School. The activity was aimed at third- and fourth-year students in the municipality, with the goal of introducing them to the technical and practical knowledge of mussel farming. This educational event is part of IFOP's institutional commitments to promote community outreach and early education in aquaculture-related topics.

The objective of this initiative was to introduce young people to the aquaculture of the Chilean mussel (Mytilus chilensis), a strategic resource at the local and global levels. The event focused on promoting understanding of the different stages of farming, its production chain, and IFOP's scientific role in generating technical information through tools such as the "Endemic Seed" platform. This was the main outcome of the Mussel Larval Monitoring Program, a study carried out by IFOP and led by the Environment Department of IFOP's Aquaculture Research Division in Puerto Montt.

Three modules, a comprehensive overview

The activity was divided into three modules, led by professionals and specialists from the Institute:

Cristina Stuardo, researcher with the Mussel Larval Monitoring Program, introduced the students to the objectives, history, and methodology of this program, which IFOP has been implementing for more than 13 years. His presentation included the use of specific instruments for monitoring the larval stages of mussels at the study stations and basic concepts for introducing them into mussel farming.

José Videla, a professional from the Department of Repopulation and Farming, addressed the different phases of the productive chain in Chilean mussel aquaculture, with an emphasis on the relationship between seed collection and stocking. Through audiovisual material, he detailed the industrial and human processes involved in mussel stocking in the country.

Macarena Herrera, a researcher at IFOP, led the third module, divided into two complementary stages. During the first stage, she instructed those present

RETURN

on the “Endemic Seed” platform, developed by IFOP to easily disseminate reports generated from larval monitoring. She explained how this digital tool emerged as a response to suggestions gathered through annual surveys, with the aim of improving access to information for users and the community. The students participated in a hands-on activity that allowed them to navigate the platform, explore its functions, and familiarize themselves with its content.

The second stage addressed larval and post-larval identification of mussels.

There, students were theoretically introduced to the main criteria for identifying mussel larvae and spawn. Using real samples, they were taught how to differentiate the three commercially important species by morphological characteristics and developmental stages, including the observation of the “eyespot” as a distinctive feature at the crucial developmental stage where they compete to attach to the substrate. In the case of aquaculture, the collectors act as an attractive artificial substrate for the target species of this activity, the genus Mytilus.

Commitment to Science Education

The workshops represented a valuable learning space for students from Cochamó and Piedra Azul, strengthening the link between science and the environment. Through these activities, IFOP reaffirms its commitment to education, the training of future generations in marine science, and the democratization of scientific knowledge in coastal communities in southern Chile.

New outreach tools launched to strengthen prevention and monitoring of Harmful Algal Blooms

Puerto Montt, with the goal of improving communication and facilitating access to timely information on Harmful Algal Blooms (HABs), which arise from the red tide monitoring and research programs carried out by the Center for Harmful Algal Studies (CREAN) of the Fisheries Development Institute (IFOP), officially launched a set of outreach tools aimed at preventing and mitigating the impact of this phenomenon on coastal communities.

Three initiatives were presented at the event:

- Manual of Phytoplankton of the Inland Sea of Chiloé, Guaitecas Archipelago, and Piti Palena Estuary, presented by Gissela Labra.
- i~HAB mobile application, presented by Pamela Carbonell, which enhances the use of digital tools for information distribution.
- WebGIS platform, presented by Christian Espinoza, for the dissemination of relative abundance estimators for harmful taxa within the framework of the Red Tide Programs.

The activity was organized by the IFOP CREAN and took place at Casa Pauly in Puerto Montt, a heritage site that brought together researchers, authorities, and community members interested in learning about these technological solutions and educational materials.

Approximately 40 people attended the event, including the Regional Secretary of Economy of the Los Lagos Region, the regional head of the Environmental Superintendency, the regional director of Sernapesca, Health Service officials, academics from the Austral, Los Lagos, and San Sebastián Universities, as well as IFOP professionals.

“The HAB dissemination tools presented at this event seek to strengthen the management, dissemination, and access to information by public institutions,

RETURN

the academic world, and society in general, as well as improve understanding, identification, and monitoring of red tides and their effects in the center and south of our country," said Oscar Espinoza.

In her presentation, Gissela Labra emphasized, "My main motivation was to raise awareness about the harmful or damaging phytoplankton species that pose a direct risk to human health, marine fauna, and the aquaculture industry, especially salmonids and mussels. This manual integrates the taxonomy, morphology, and geographic distribution of the main species present in the Chiloé inland sea, the Guaitecas archipelago, and the Piti Palena estuary, constituting a key tool for understanding phytoplankton in this area of the country."

Pamela Carbonell presented the new version of the i~FAN mobile app:

"It is aimed at artisanal fishermen, small-scale aquaculture farmers, the general public, and anyone who needs information on Harmful Algal Blooms, from the Biobío region to Magallanes. It is available for free download on Android and Huawei devices, and starting August 30th, also on iOS."

Finally, Christian Espinoza explained the features of the WebGIS Platform:

"It is an innovative tool for disseminating estimates of relative abundances of harmful taxa within the framework of the Red Tide Programs. Its design allows for monitoring and disseminating geospatial information to better understand the spatiotemporal variability of these abundances. It integrates advanced geospatial technologies that offer scientific data in near real time through WebMaps, Dashboards, GeoStories, and Geoservices, with visualizations accessible to authorities, researchers, and the general public. It also includes training modules to educate its users. More information at: http://sig-acuicultura.ifop.cl."

During the event, free copies of the Phytoplankton Manual were distributed, and a space for dialogue was created between the audience and exhibitors, culminating in the author signing copies.

The organization especially thanked Casa Pauly for providing its event hall, Luis Henríquez for the photographs, and all the CREAN-IFOP colleagues for their collaboration and commitment to the development of these tools.

RETURN