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Outstanding participation of IFOP in the 36th Meeting of the FAO Fisheries Committee in Rome

Between July 8 and 12 in Rome, Italy, the 36th Meeting of the Fisheries Committee of the Food and Agriculture Organization of the United Nations (FAO) was held.

COFI is the only global intergovernmental forum where FAO member states meet to examine and consider issues and challenges related to fisheries and aquaculture. It periodically provides recommendations and advice to governments, regional fisheries bodies, civil society organizations, private sector agents and the international community.

The delegation was headed by the Chilean ambassador to Italy, Ennio Vivaldi, and was attended by Ambassador Julio Cordano, Director of Environment and Climate Change of the Ministry of Foreign Affairs; Soledad Tapia, National



Director of Fisheries; and Gonzalo Pereira Puchy, Executive Director of the Fisheries Development Institute. Also part of the delegation were the division heads of the Undersecretary of Fisheries, Juan Francisco Santibáñez and Rocío Parra, as well as representatives of artisanal fishing and industrial fishing.

Chile, recognized for its important fishing activi-



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ty, played a prominent role in the debates on the main topics on the agenda, which included illegal, unreported and unregulated (IUU) fishing, climate change, aquaculture, biodiversity, trade fishing and fisheries management, among others. The active participation of the Chilean delegation reflected the country's commitment to sustainability and responsible management of marine resources.

During the meeting, Chilean representatives also held several bilateral meetings with delegates from other countries, international organizations and cooperation agencies. These meetings made it possible to strengthen international cooperation and explore new opportunities for the sustainable development of the fishing sector.

IFOP organizes the 7th International Symposium of Stock Enhancement and Sea Ranching “Aquaculture-based enhancement science to unify the conservation and the restoration of fisheries”

The 7th International Symposium of Stock Enhancement and Sea Ranching SSES7 entitled “Aquaculture-based enhancement science to unify the conservation and the restoration of fisheries” shall take place from November 5-8

in Puerto Varas, a scientific-public event within the framework of the activities commemorating IFOP's 60th anniversary.

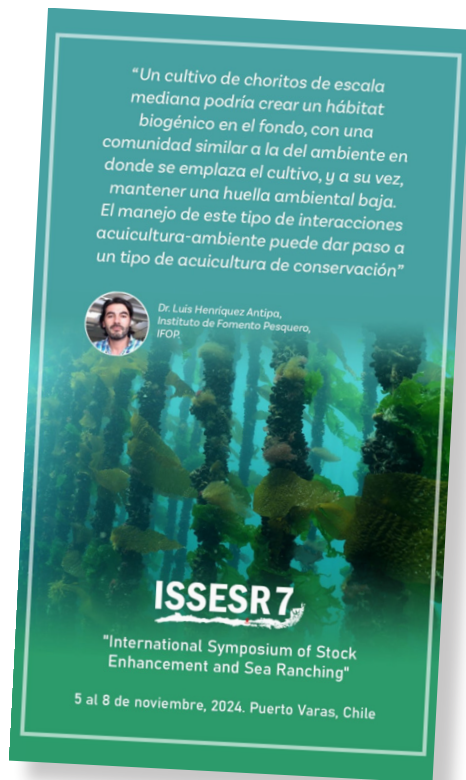
For the first time, this International Symposium organized by IFOP'S Repopulation and Cultivation Department under the Aquaculture Research Division shall take place in a Latin-American country and seeks to prompt discussions on aquaculture-assisted stock enhancement and related disciplines to realistically address the challenges of sustainability and conservation of the marine ecosystem. Chile's initiative, as an exporter of natural resources and host of the seventh ISSES7, stems from the interest in exploring the scientific and applied bases linked to the development of aquaculture and its role in the restoration of fisheries and the ecosystem. Today both Chile and Latin-America have a critical role to play in devising the ecosystemic effect of the growing demand for seafood from developed countries and domestic consumption in a sustainable manner.

The series of ISSES7 symposiums focus on the sustained degradation of supporting ecosystem services, climate impacts and overfishing as major constraints to the productivity of many fisheries around the world. The development of aquaculture-assisted enhancements, where appropriate, are critical to mitigate the impacts of these pressures and ensure the social and economic benefits that these fisheries support. As this paradigm continues to prevail, aquaculture-assisted enhancement shall be increasingly important to manage a wide range of threatened aquatic species.

ISSES7 will feature a variety of topics of interest in the field, including restocking techniques, the use of monitoring technology, the use of artificial reefs, advances in techniques for improving fish stocks, conservation aquaculture, socio-economic analysis, models, citizen participation initiatives, policies and regulations, as well as a workshop to share international/national experiences with fishers, fish farmers and sectoral authorities.

The event will include the participation of leading professionals who will give key-note speeches, such





as the associate researcher from IDEAL Center, Dr. Luís Oteiro and Dr. Clara Obregón (Austrian National Centre for Ocean Resources and Security), and international experts in aquaculture sciences assisted improvements such as Dr. Mathew Taylor (Australia); Dr. Neil Loneragan (Australia), Dr. Kai Lorenzen (Chairman ISSES International, USA), and experts from China, South Africa and Europe. Experts from Chile and members of the National Scientific Committee shall also attend the ISSES7, such as Dr. Juan Manuel Estrada (CIMARQ, UNAB), Dr. Cristián Bulboa (UNAB), Dr. Rodrigo Estévez (SECOS), Dr. Alejandra González (U. de Chile), Dr. (s) Ana María Mora (UNAB), Dr. Carlos Molinet (UACH) and Dr. Carlos Montenegro (IFOP).

The deadline to submit English abstracts to the ISSES7 has been extended to July 31st, 2024 through the issers7.ifop.cl platform, therefore the ISSES7/IFOP Steering Committee comprised by Dr. Luis Henríquez-Antipa (Convenor), Dr. Pablo Leal, Dr. Daniela Díaz-Guisado and Dr. Francisco Cárcamo especially invite researchers from Chile and Latin-America to include their developments on this matter. Finally, we would like to thank Oceana, GEF Humboldt, INCAR and INDESPA as official sponsors of ISSES7 in Chile, as well as the Under-Secretariat for Fisheries and CORFO, for their support in carrying out this event.

Johana Ojeda from IFOP, makes a technical visit to the Norce research center based in Bergen Norway

The M.Sc. Johana Ojeda P., Senior Researcher of the Department of Environment of the Aquaculture Division, who is currently head of the project: "Monitoring study of the environmental performance of aquaculture in Chile and its effect on the site ecosystems", made a visit technical to the NORCE Research Center in Bergen (<https://www.norceresearch.no/en/>), is one of the largest research organizations in Norway, related to the environment and aquaculture, contributes to research and development of the use and sustainable management of the environment and natural resources on topics such as: sustainable aquaculture, responsible use of biotechnology, freshwater ecology and management of wild salmon, extensive experience in environmental monitoring, etc.

The activity corresponds to one of the objectives of the FIPA 2023-11 PROJECT called "Analysis of the state of national and international knowledge on models implemented for the evaluation of the environmental state of the centers in which salmon farming is developed and the measures adopted to reduce or eliminate sedimentation and accumulation of organic matter in the bottoms." The objective of the technical visit was to carry out a series of interviews with professionals and researchers related to aquaculture activity, regarding environmental evaluation mechanisms, prevention and mitigation technologies of organic enrichment in the seabed where salmon aquaculture is developed, in addition to visiting laboratories related to the use of sludge from the aquaculture industry.

Johana explained "the experience and information collected about aquaculture activity in Norway is relevant since it allows us to make a comparison with our local aquaculture activity and identify mechanisms or technologies that can be applied in our country. The contact at NORCE was Dr. Lars

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Ebbesson, director of the Center for Sustainable Aquaculture Innovations, NORCE and Adjunct Professor of the Department of Biology at the University of Bergen, Norway, who coordinated the interviews and visits.”

Balmaceda Arte Joven and IFOP seek to promote the conservation of the marine ecosystem with an unprecedented artistic exhibition for the community in Los Lagos

The opening of the Exhibition “Immersion: Underwater Photography” will be next July 12 at 6:00 p.m. at the BAJ Gallery and admission is free.

As an unprecedented milestone, the strategic alliance between science and culture is framed, starring the Fisheries Development Institute (IFOP) and Balmaceda Arte Joven (BAJ), who together will launch the Exhibition “Immersion: Photography of Marine Diversity”, an instance of scientific dissemination to promote the conservation of regional marine ecosystems.

This initiative, which is carried out within the framework of the 60 years of the Fisheries Development Institute, is scheduled to open its doors on July 12 at the BAJ Los Lagos Art Gallery. “The exhibition seeks to expose the underwater beauty of our region through the photographs that our scientists take in their exploratory work. In this way, and with the sensitive view of an institution like Balmaceda, we also

want to educate about the crucial importance of preserving our oceans for future generations,” explained Gonzalo Pereira Puchy, Executive Director of IFOP.

For the Regional Director of BAJ Los Lagos, Francisca Paris, this exhibition wants to highlight how underwater photography can act as a bridge between scientific knowledge and the public, inspiring a deeper and more conscious care of our marine ecosystems, “art, in addition to expand horizons and enrich the quality of life, it has the power to be an effective tool for scientific dissemination.”

Unpublished exhibition

The “Immersion” exhibition not only offers an intimate look at the unique geomorphological diversity of our territories, including the Chiloé archipelagos and the infinite channels that make up our coast, but also highlights the urgency of protecting these landscapes that are fundamental to communities local.

This great work of capturing fragments of reality under the sea and an augmented view of the microorganisms of marine ecosystems was carried out by IFOP researchers Karla Álvarez, Pablo Leal, Sebastián Cook, Jorge Mardones and Luis Henríquez, who in this edition develop a line of research within the framework of underwater photography.

Loreto Bravo, National Director of Balmaceda Arte Joven, added: “We are excited to join forces with the IFOP for this project, because we firmly believe in the transformative power of art to foster positive impact. “This exhibition not only celebrates the beauty of our oceans, but also underlines the shared responsibility that cultural and scientific institutions have to protect them and preserve their biodiversity.”

The strategic alliance between Balmaceda Arte Joven and the Fisheries Development Institute (IFOP) reflects a common commitment to addressing environmental challenges from a collaborative and multidisciplinary perspective, joining efforts to inspire awareness and action in communities. With this objective, during the coming months





the “Immersion” Exhibition will tour the various Balmaceda headquarters throughout the country.

“We invite all lovers of art, science and nature to join in this celebration of marine life and human creativity,” concluded Francisca Paris.

For more information about the exhibition “Immersion: Photography of Marine Diversity”, visit our website at www.baj.cl

IFOP Modernizes Its Server Platform

¿Did you know? IFOP has modernized its server platform where the systems used by the research areas, dependent on the Fisheries and Aquaculture Divisions, mainly reside. As well as, the systems that are part of the administrative, financial, accounting, management and human resources support, among others.

Within the strategic objectives of this Administration regarding modernization, the Department of Information Technologies, during the first quarter of 2024, has implemented the new virtual server

platform, composed of a cluster of physical servers and storage. This platform is configured in high availability (fault tolerance) and has high industry standards for its operation. It is based on an HP infrastructure solution and a virtualization project. In practice, this has allowed IFOP to:

- Reduce server obsolescence.
- Introduce new technologies for server management based on virtualization.
- Introduce new automated backup systems while you are working (hot).
- It increased its memory, processing and storage capacities three times, for servers and new solutions.
- Lay the technological foundations for the modernization of other systems and platforms. Example: implementation of
- Business Intelligence solutions, on which work is already being done.
- Allow progress with standards associated with the ISO 27001 Information Security standard.



It should be noted that IFOP has a significant number of physical and virtual servers. The modernization project contemplates the virtualization of most of these. It should be noted that to date over 90% of IFOP servers have been migrated. This technological activity represents a qualitative leap in the administration of our platforms, introducing market standards and top-level tools such as VmWare and Veeam Backup, among others.

The new IFOP platform was financed through a CORFO project with an investment of over 120 million pesos, awarded through public bidding.

La nueva plataforma de IFOP, fue financiada a través de un proyecto CORFO con una inversión sobre los 120 millones de pesos, adjudicado mediante licitación pública.



IFOP researcher attends international meeting of the Scientific Advisory Committee of the Inter-American Tropical Tuna Commission (IATTC)

The XV Annual Meeting of the Scientific Advisory Committee of the Inter-American Tropical Tuna Commission was held in La Jolla California, from June 10 to 14, 2024. At this meeting, researcher Patricio Barría Martínez from the Department of Fish Evaluation attended on behalf of the country. IFOP fisheries.

This meeting had an extensive agenda in which fisheries in the Eastern Pacific Ocean (EPO) were analyzed, as well as the development of the tuna fishery during the year 2023. In addition, the trend of population condition indicators and evaluations were shown. of tropical tunas, particularly baseline assessments of bigeye tuna (*Thunnus obesus*), yellowfin tuna (*Thunnus albacares*) and skipjack tuna (*Katsuwonus pelamis*).

In general, it was indicated that the three populations in the EPO are in good population status. On the other hand, progress was seen in the development of extraction strategies for tropical tunas. Assessments of current conservation and management measures were carried out and a management strategy evaluation (MEO) for bigeye tuna was carried out. Additionally, the staff's recommendations were made known in relation to the conservation and management of tropical tunas. A special topic was the working group's report on FADs, which are floating objects, natural or artificial, that fishermen use to attract fish and facilitate their capture in the purse seine fleet. The study mentions a positive trend in fishing hauls over those planted in the EPO.

Regarding temperate tunas and other species, stock assessments of Pacific bluefin tuna (*Thunnus thynnus*), a fishery that is not overfished, were announced, in addition to management strategies for North Pacific albacore tuna (*Thunnus alalunga*).) and South Pacific albacore tuna (*Thunnus alalunga*). These investigations have been conducted with other



regional fisheries organizations such as the Western and Central Pacific Fisheries Commission (WCPFC).

The staff's recommendations for conservation and management were also made known: temperate tunas and other related species, among which special mention was made of swordfish (*Xiphias gladius*). In relation to the swordfish fishery in the EPO, it was recommended to carry out a new stock assessment in 2026, with updated information for which the coastal countries and the European Union longline fleet committed to improving catch statistics and collecting data in ports and increasing sampling coverage on board vessels, and reducing knowledge gaps in EPO fisheries.

Other topics discussed were the ecosystem approach and bycatch, the 20 species of sharks under the jurisdiction of the IATTC were determined, including species captured in Chile such as the mako shark (*Isurus oxyrinchus*) and bluegill shark (*Prionace glauca*). The IATTC shark sampling program and the proposal for best practices for handling sharks were also reviewed, where special mention was made of the work carried out in our country.

Regarding climate change, a work plan on climate change for IATTC fisheries was presented. Finally, the staff's recommendations for conservation and management were announced: ecosystem and bycatch.

At the CIAT there are several initiatives and opportunities for collaboration with our country, from the scientific point of view, there is a relationship, communication in direct interaction with the researchers of this organization, and work links were established which facilitates access to new knowledge. and technologies, for the sustainability of our fisheries in the EPO.



Researcher Sebastián Cook collaborated in a scientific dissemination day at the Quempillén Experimental Station of the Austral University

In May in Ancud, the Quempillén Sea Day was held: bringing the Ancuditan community closer to the development of science. Instance in which the researcher from the Department of Repopulation and Cultivation of IFOP, Sebastián Cook Alvarado, participated with the presentation: “Cultivation experiences in the Pudeto estuary and perspectives for the sustainability of aquaculture.”

The event took place at the Quempillén Experimental Station of the Austral University of Chile (UACH), located in Ancud, with an audience made up of fourth grade students, along with teachers from different establishments in the commune of Ancud (Liceo Bicentenario de Ancud, Charles Darwin School of Ancud, Conciliar Seminary School of Ancud), who were enthusiastic about the possibility of learning about the research carried out in sectors close to their city.

Sebastián presented various aspects of the work carried out by professionals from the Fisheries Development Institute (IFOP) directly with the Union of Independent Workers (STI) growers and exploiters of algae and benthic resources Pupelde. A study that has been going on for more than 4 years, which is part of the Permanent Program in Fisheries and Aquaculture (LGPA 20,657), which is carried out under the agreement that is signed annually with the Undersecretariat of Economy and Smaller Companies and the Institute, with the scientific-technical counterpart being the Undersecretariat of Fisheries and Aquaculture.

The event also included the participation of Paulo Mora and Andrés Olguín, researchers from IFOP Valparaíso, who work on

the monitoring programs for benthic fisheries and benthic crustaceans. They presented “Benthic resources and fishing activity in the Los Lagos region” and “Jellyfish: myth or reality”, respectively.

On the other hand, the representatives of the Quempillén experimental station were Juan Pablo Riquelme and MSc. Alejandro Ortiz, who presented: “Cultivation cycle of the Chilean oyster (*Ostrea chilensis*) and how the experimental station works” and “Effect of marine toxins on different stages of development of the Chilean oyster from the Quempillén Estuary.” Finally, Valeria Araya, marine biologist and doctoral student in marine biology at UACH, participated with her presentation: “From Chiloé to Alaska: investigating the epic journey of the straight-billed curlew.”



The Quempillén Sea Day featured a photographic exhibition “Fish Eye”, organized by the Institute of Marine and Limnological Sciences, in conjunction with the Ideal Center. The exhibition allowed attendees to visually delight themselves with an extract from the compendium of finalist photos of the well-known contest that takes place each year.

Regarding this type of conference, researcher Sebastián Cook pointed out “it is important to make the community aware of the work that has been carried out in the vicinity of the city of Ancud, since it shows that it is a hub of opportunities for research, and with emphasis





on high school students who are looking for future perspectives associated with science. This shows them that it is possible that in the future they can lead research associated with their environment and in this way learn more and be able to protect it.”

Researchers from Peru, Colombia and Argentina participate in a course organized by the IFOP on the topic of oceanographic data processing

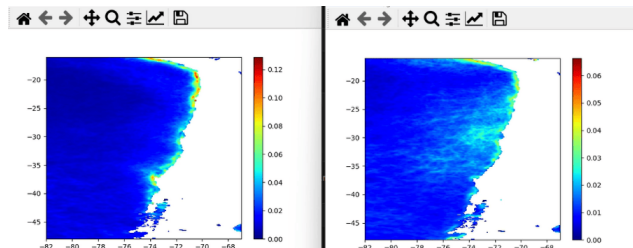
During April and May 2024, the course “Phyton: Pre-processing of geophysical data for Hydrodynamic Models” was developed virtually, which was taught by professor Dr. Frank Oyala from the Baja Marine Science Project, Mexico.

The course is one of the activities included in the IFOP Annual High Level Specialization Training Program (PACAN) and its objective was to “Train professionals in the domain of Python programming, providing them with the necessary skills to acquire, analyze and visualize oceanographic data efficiently.”

On this occasion, mainly researchers from the Department of Oceanography and Environment of the IFOP participated, but also professionals from other departments of both the Fisheries Research Division and the Aquaculture Research Division. In addition, in an unprecedented way, a researcher from the Peruvian Sea Institute (IMARPE), a researcher from the José Benito Vives de Andrés Marine and Coastal Research Institute (INVEMAR) of Colombia, and two researchers from the National Research Institute

participated in this instance. and Fisheries Development (INIDEP) of Argentina.

The participation of researchers from the institutions of Peru, Colombia and Argentina is framed in the context of the Network of Fisheries and Aquaculture Research Institutions of the Pacific Alliance (IIPA-AP Network), where it has been agreed to promote and share training instances on topics of interest to institutions.



Regarding her experience, Katherine Vásquez from IMARPE said “The development of the course in terms of the subject matter and teaching methodology used by the professor was very satisfactory and largely met my expectations, since it not only addressed the topic of data processing and generation of figures, but also showed in detail how we could download our own files, even in bulk, to be able to carry out our own climatological calculations of different variables and show the spatial distribution of these variables and their anomalies. Given my experience in Matlab programming, I am aware of the complexity of the syllabus covered, which is why I recognize and congratulate the effort and organization for the development of the course. I am sure that what I have learned will help me improve my knowledge in satellite data processing and its implementation in the generation of new products for my work area at IMARPE.”

For her part, Kelis Romaña from INVEMAR indicated “Marine science researchers have an increasingly greater challenge to understand the variability of the oceans at different spatio-temporal scales in a changing scenario. Satellite and reanalysis products (due to their coverage and development) allow us to extract variables at different scales, the processing of which is facilitated using programming languages such as R, Matlab and Python. This course gave us the basic tools to



start, strengthen and/or facilitate the pre-processing of oceanographic databases in Python. It was an enjoyable course in which I felt inspired and challenged to delve deeper into this programming language, because as an Oceanographer and marine science researcher it is vitally important to have these skills, from the Institute of Marine and Coastal Research of Colombia INVEMAR, we appreciate the opportunity to have participated in this course.”

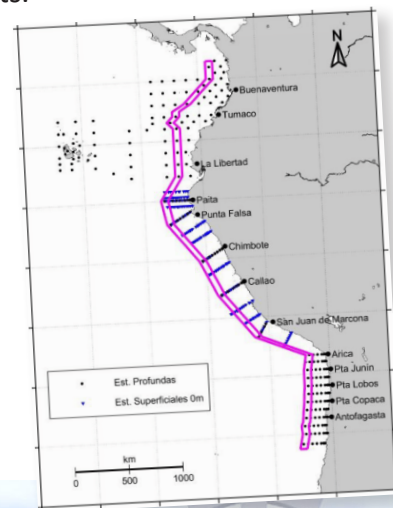
IFOP participates in the coordination meeting of the XXII Joint Regional Cruise (CPPS) in Salinas, Ecuador

In the coastal city of Salinas, Ecuador, the XX-VII Meeting of the Regional Cruise Coordinating Committee and the XVII Meeting of the Specialized Technical Database Group were held, within the framework of the Permanent Commission of the South Pacific (CPPS). Both meetings took place between May 28 and 31, 2024.

The annual meeting of the Regional Cruise Coordinating Committee (CC CR) has the participation of IFOP through the delegate of Chile, the oceanographer Hernán Reyes, Head of the Oceanography Section of the Department of Oceanography and Environment, a Department that has under I am in charge of carrying out the Chile cruise in September – October 2024, in which the ships B/I Abate Molina and B/I Dra. Barbieri will be used. The objective of the CC CR meeting is to

plan the joint cruise (see sampling coverage photo) that is done simultaneously between August and October of each year. On the other hand, delegate Carolina Calvete, from CENDHOC- SHOA, participates for Chile in the meeting of the specialized database group, together with IFOP as the country’s oceanographic data provider.

The XXVII regional cruise, which brings together specialized institutions from Chile, Colombia, Ecuador and Peru, aims to document the variability of the properties of the ocean and the adjacent atmosphere in the Southeast Pacific and carry out a diagnosis of the regional climate scenario within the framework of the El Niño/La Niña events.



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