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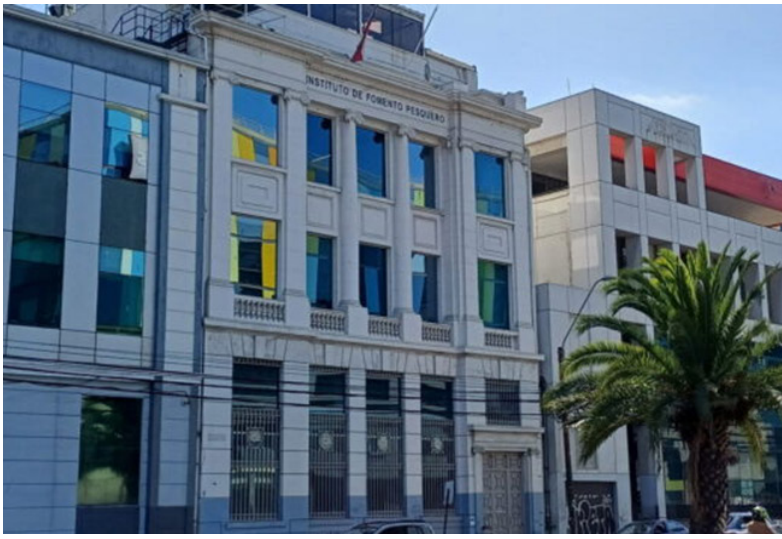
IFOP Appointed as CITES Scientific Authority

The Convention on International Trade in Endangered Species of Wild Fauna and Flora is an international agreement that aims to ensure that international trade in specimens of wild animals and plants does not constitute a threat to the survival of species. Chile acceded to CITES in 1975, and its implementation is regulated by Law 20.962 of 2016.

CITES controls international trade in specimens of certain species, which means that all imports, exports, re-exports, or introductions from the sea of species covered by the Convention must be authorized through a licensing system. Each Party to the Convention must designate one or more Administrative Authorities responsible for administering the licensing system. In Chile's case, for aquatic species, the Administrative Authority is the National Fisheries and Aquaculture Service.

In addition, each Party must designate one or more Scientific Authorities to advise the Management Authority on the effects of trade on the status of species. Among other duties, Scientific Authorities must:



Collaborate in the identification of intercepted, detained, seized, or confiscated specimens.

Advise on scientific and technical aspects necessary for the issuance of CITES permits or certificates, when appropriate.

Advise the Management Authority on the adoption of appropriate measures to limit

Comité editorial
Gonzalo Pereira P. / Director Ejecutivo
Gabriela Gutiérrez V. / Periodista
Diseño gráfico
Mario Recabal M. / Diseñador Gráfico Senior

the issuance of export permits when the population status of a species so requires.

Issue reports on the preparation and review of proposals to amend the Convention and the inclusion of species in its Appendices.

Participate in meetings of the Conference of the Parties, the Animals and Plants Committees, the Standing Committee, and other bodies of the Convention.

In November 2024, the Ministry of Economy, Development, and Tourism (MINECON) launched a competition for the selection of Scientific Authorities in the field of hydrobiological species. IFOP submitted a proposal with a team consisting of Dr. Patricia Zárate, Head of the Fisheries Evaluation Department (DEP), who leads the Biodiversity Group and is executing the project "Monitoring Program for the Main National Fisheries: Highly Migratory Fisheries Resources"; Dr. Rodrigo Vega, senior researcher in the same department, who leads the project "Research and Monitoring Program for Discards and Incidental Capture in Pelagic Fisheries"; and Dr. Naití Morales, semi-senior researcher at the DEP.

The IFOP team, as a whole, meets the requirements regarding academic qualifications, work experience, project development, and scientific output in the areas of interest for the Scientific Authority role. It has experience in the study of aquatic fauna populations, species recognition, identification, and taxonomic classification, as well as the ownership of aquatic species, animal welfare, and environmental enrichment.

The IFOP's appointment as a CITES Scientific Authority was recently formalized through DTO.EX. 03 of the Ministry of National Institutes of Agriculture (MINECON). Through this process, and in fulfillment of its strategic role, the IFOP seeks to contribute to the generation and transfer of information and knowledge of high public value, with the aim of achieving the objectives of the Convention. In particular, it seeks to ensure that the decisions made by Chile as a Party to the Convention are supported by the best scientific knowledge and information available.

Framework Agreement for Collaboration between the Fisheries Development Institute and the Municipality of Cochamó

The Fisheries Development Institute (IFOP) and the Municipality of Cochamó signed a Framework Agreement for Collaboration with the aim of establishing general bases for collaboration in the areas of sustainable development of fisheries, aquaculture, and ties with various educational institutions.

The signing ceremony took place at the Juan Soler Manfredini Border School in Cochamó and was attended by prominent authorities and representatives of the institutions involved. The Municipality was represented by Mayor Francisco Donoso, councilors, and professionals from the productive development and aquaculture sectors. The Border School was represented by its Director, Javier Bahamonde, the head of the UTP (Teacher Training Unit), teachers, and students specializing in aquaculture. The IFOP Executive Director, Gonzalo Pereira, the Head of the Aquaculture Research Division, Gastón Vidal, and the Head of the Restocking and Farming Department, Francisco Cárcamo, participated.

The IFOP Executive Director emphasized that this agreement will allow the institution's research to be linked to the municipality's educational initiatives, through the development of collaborative projects, workshops, courses, exchanges, and internships for students in areas of mutual interest, such as sustainable aquaculture and mussel farming. He also highlighted the importance for IFOP of its links in the educational field and with the public schools where research is conducted.

Francisco Cárcamo, from IFOP, presented to the authorities and students an overview of the various programs and projects being implemented in the municipality, totaling seven initiatives. These include studies on harmful algal blooms, the impact of aquaculture, mussel farming, and small-scale aquaculture in marine and coastal

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environments, and the feral release of salmonids and the pest species Didymo in freshwater environments. He also highlighted the school's support for training in aquaculture, which has been ongoing since 2024.

In the short term, plans are to strengthen this work with the school, as well as promote new projects and studies that foster the sustainability of fishing and aquaculture in the community.

IFOP Participates in Environmental Fair in Puerto Montt

On Wednesday, March 19th, the Environmental Education Seminar: School Coexistence and Citizenship Training Outreach Fair was held in the Angelmó Hall of the Puerto Montt Arena. This fair was organized by the Llanquihue Municipal Association and represented an opportunity to mainstream environmental issues into school education. Researchers Macarena Herrera and Alejandra Oyanedel, and Rodrigo Jaramillo and Mario Ortiz participated from the Puerto Montt headquarters of the Aquaculture Research Division of the Fisheries Development Institute, to disseminate the work of the Didymo and Mussel Monitoring Programs. The objective of participating in this activity was to highlight opportunities for collaboration to implement outreach and promotion activities in school communities, establishing links that facilitate effective scheduling and coordination with the province's educational communities.

Two stands related to freshwater and saltwater aquariums were presented. The first booth offered visual information on the species Didymosphenia geminata, or Didymo, an exotic, invasive freshwater microalgae declared a pest species in Chile and highly dispersible. Attendees were also able to observe the cell shape of this pest species in situ through a microscope, as well as its appearance during flowering in one of the aquariums. Information was also provided on measures to help curb its spread in Chilean rivers and lakes, with greater emphasis on the biosecurity measures that must be taken when carrying out any activity in a contaminated river or lake.

The second booth focused on waste management through the Mussel Monitoring Program. Regarding the materials used in the aquaculture of these bi-

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valve mollusks, which are now recycled nets from fish farming and fishing activities, the teaching community was primarily shown microfibers from ropes and nets present in the water column, which can be seen from the analysis of zooplankton samples. The key is to reflect on how degradable these materials are and how to prioritize the least polluting when making collectors, thus contributing to the care of our environment.

The aquarium for the activity gave visitors the opportunity to observe different benthic resources as well as others from the inter- and subtidal waters. Those attending this initiative enjoyed the talk and the beauty of the organisms on display.

Workshop "Preparation and Reading of Cuttlefish (*Dosidicus gigas*) Statoliths"

Statoliths are calcareous structures located in the cranial region of cephalopods and are composed of calcium carbonate (aragonite and calcite). These structures allow the age of individuals to be determined through the formation of daily microincrements present in their microstructure.

Between March 24th and 28th, the workshop "Preparation and Reading of Cuttlefish (*Dosidicus gigas*) Statoliths" was successfully held. This activity is part of the Biological Study Program for Cuttlefish in Chile in Non-Fishing Sectors, with an emphasis on renewal and growth rates, complementary to the studies carried out in the monitoring project. The project is funded by UNDP and implemented by IFOP.

The workshop was led by Dr. Zhanna Shcherbich, Scientific Officer of the Falkland Islands Fisheries Department, and was attended by five researchers from the Age and Growth Section.

During the week, presentations were made on the progress of sampling and the work achieved in the aforementioned project. Dr. Shcherbich gave a theoretical lecture, although the focus was strongly on the practical processes of preparing and polishing adult cuttlefish statoliths.

Mg. Guillermo Moyano, senior researcher and project participant, commented that the experience was very enriching for the section, as they learned and performed specific statolith preparation techniques, which will allow them to expand the section's studies to other species. Regarding the progress made in the practical workshop, she indicated that 100 statoliths were correctly mounted, a key stage in the preparation process. In addition, 40 statoliths were polished, achieving a high level of resolution of the daily microincrements, allowing for precise age estimates of the individuals. Each of the analyzed samples was reviewed and validated by the international expert.

To conclude the workshop, a keynote address entitled "Approaches and challenges to studying age and growth of *Dosidicus gigas* (Ommastrephidae)" was given on March 28th in the Auditorium of the Faculty of Sciences at PUCV. The presentation was attended by professionals from IFOP, the UNDP, and researchers in the area of age and growth at the Pontifical Catholic University of Valparaíso.

Mg. Karen Belmar, a semi-senior researcher and project leader, stated the following: "Dr. Shcherbich's presence and experience were key to improving the work

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that had been carried out since the beginning of the project. The researchers trained in the workshop have an excellent foundation to ensure the work carried out was as successful as possible. We are very pleased with the progress made."

IFOP Team Prepares Winning Proposal in 2024 Pacific Alliance Cooperation Fund Call

The proposal was submitted to the 2024 Pacific Alliance Cooperation Fund call by the Network of Fisheries and Aquaculture Research Institutions of the Pacific Alliance (IIPA-AP Network), comprised of the Fisheries Development Institute (IFOP) (Chile); the José Benito Vives de Andréis Marine Research Institute (INVEMAR) (Colombia); the Peruvian Marine Institute (IMARPE); the Mexican Research Institute for Sustainable Fisheries and Aquaculture (IMIPAS); and where the Fisheries Research and Development Institute (INIDEP) (Argentina) also participates as an observer.

The proposal was conceived and developed by professionals from the IFOP Economics Section, Senior Researcher Luis Carroza L., and Head of Economic Monitoring, Camilo Torres A. This application is one of the activities committed to in the IIPA-AP Network's 2024-2025 Work Plan.

Mag. Luis Carroza L.
Senior Researcher

Mag. Camilo Torres A.
Head of the Department of Economics and Statistics

The project, entitled "Contributing to a comprehensive view of the fishing reality by incorporating the socioeconomic dimension into the diagnostic, management, and decision-making processes in the fisheries and aquaculture sector in the Pacific Alliance countries," aims to "identify mechanisms that incentivize and/or enhance the incorporation of the socioeconomic dimension as a key input into the decision-making process in fisheries and aquaculture in the Pacific Alliance countries." The Pacific Alliance Cooperation Fund has allocated US$85,567 for this research project, which is projected to last 12 months.

Professional Experience Exchange Workshop on Modeling Systems

IFOP researchers presented the experiences and developments in numerical modeling achieved by the Department of the Environment of the Aquaculture Division and the Department of Oceanography and Environment of the Fisheries Research Division at the Professional Experience Exchange

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Workshop on Modeling Systems held at DIRECTEMAR facilities on April 2 in Valparaíso.

This workshop provided an exchange of experiences with other institutions, such as the Hydrographic and Oceanographic Service of the Navy (SHOA), the Metrological Service of the Navy (SERVIMET), the Meteorological Directorate of Chile, and the University of Valparaíso.

Geophysicist Oliver Venegas Mella, a researcher at the Department of the Environment, demonstrated the years of progress achieved in implementing the Chonos Platform, with its operational complexity to achieve short-term forecasts in the inland regions south of Puerto Montt.

On the other hand, Dr. Jaime Letelier, head of the Department of Oceanography and Environment, presented the impact of knowing and predicting through medium and long-term numerical models, in the conservation of fishery resources and the sustainable development of fishing activities in the eastern South Pacific, with emphasis on the advances in the modeling of the anchovy habitat (southern Peru and northern Chile) addressed in the GEF Humboldt 2 project and in the Climate Change Observation System (S.A.P.O).

IFOP Researcher Promotes Innovation in Environmental Assessment in Guatemala

Dr. Caroline Da Silva, a semi-senior researcher at the Fisheries Development Institute (IFOP), participated in the Sustainable Industries Congress held in Guatemala from March 20 to 23. This event brought together experts and industry leaders to promote innovative solutions that improve industrial efficiency and competitiveness, driving economic development responsibly and in harmony with the environment.

During her speech at the congress, Dr. Da Silva presented advanced tools for environmental risk assessment with a life-cycle approach. These methodologies allow companies to adopt more sustainable strategies, minimizing their environmental impact without compromising their profitability and market competitiveness.

Furthermore, during her visit, the researcher held a discussion session at the Universidad del Valle de Guatemala (UVG), where she presented on the use of cell lines as an innovative tool for environmental water analysis. This technology, currently used at IFOP, allows for more accurate and rapid assessment of the toxicity of contaminants in aquatic ecosystems, offering an efficient alternative to traditional methods. The Sustainable Industries Congress is consolidating its position as a key space for dialogue and collaboration between researchers, entrepreneurs, and authorities in the search for technological and sustainable solutions that enable economic growth aligned with environmental protection.

Dr. Da Silva's participation reinforces IFOP's commitment to in-

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novation and international cooperation in the field of sustainability and natural resource conservation. The initiative was made possible thanks to the invitation of Ciudad Cayalá, a sustainable urban development model that combines innovative architectural planning with a profound respect for the natural environment. This collaboration highlights the importance of generating synergies between scientific research and responsible urban development, contributing to the construction of more resilient and sustainable societies.

https://cig.industriaguate.com/congreso-industrias-sostenibles-2025/

Ocean Modeling Using CROCO and PISCES

As part of the Humboldt II project, implemented by SUBPESCA-Chile and the Vice Ministry of Fisheries and Aquaculture of Peru, a training workshop on "Ocean Modeling Using CROCO and PISCES" was held from March 17 to 21 in the IFOP Auditorium. The training was led by Dr. Rodrigo Mogollón of Peru, who is the consultant hired to implement the project "Modeling Climate Variability in Southern Peru and Northern Chile through the Application of CROCO (Coastal and Regional Ocean Community Model) and PISCES Models" (TDR1-GTB3), funded by the Global Environmental Facility (GEF) and implemented by the United Nations Development Programme (UNDP). This workshop, also supported by the SAPO program of the Department of Oceanography and Environment of the Fisheries Research Division, focused on modeling the oceanographic conditions of the habitat of the southern Peruvian and northern Chilean anchovy stock.

It also allowed for a beginning to determine the effect of environmental changes over the last 20 years on the connectivity of early stages of the anchovy between southern Peru and northern Chile.

Participants from the Department of Oceanography and Environment, the Department of Direct Assessments, and the Department of Resource Assessment were trained in setting up climatological and interannual ocean simulations, downloading and preprocessing environmental data to force the simulations, including rivers, biogeochemical simulations, diagnostics, and validation of results.

Links

CROCO – Coastal and Regional Ocean COmmunity model (croco-ocean.org)

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IFOP Researchers Recognized on the 97th Anniversary of the Naval Meteorological Service (SERVIMET)

In the framework of the 97th Anniversary of the Naval Meteorological Service (SERVIMET), Commander Gonzalo Concha, head of the service, gave a speech noting that it is a day to remember March 31, 1928, when the President of the Republic, General Carlos Ibáñez del Campo, signed Supreme Decree 682, which organized the operation of the Meteorological Service, under the Directorate of Maritime Territory.

In this ceremony, attended by naval authorities and representatives of public services as well as universities, IFOP was recognized through the work of researchers Andrés Varas and Hernán Reyes (DOMA) as representatives of an inter-institutional cooperative effort to expand the coverage of meteorological data collection, ensuring its scientific quality and availability for the Navy and IFOP.

This cooperation arose from the need to collect meteorological data to study the impacts of ENSO (La Niña/El Niño) events and climate change on national ecosystems and, consequently, on fishery resources, through observations and numerical models. The beginning of the collaboration was born through the GEF-FAO project "Interoperable Information System, which systematizes and integrates fisheries, aquaculture and climate change data", which allowed the signing in 2020 of a framework agreement between DIRECTEMAR and IFOP (https://www.ifop.cl/instituto-de-fomento-pesquero-y-directemar-firman-convenio-de-cooperacion/), later it began to materialize through the "Alert, Prediction and Observation System (S.A.P.O.) for fisheries resilient to climate change in the Large Marine Ecosystem of the Humboldt Current" and was consolidated in recent years with CORFO financing for Sustainable Productive Development (DPS) in a program to Strengthen the Environmental Observation System of the

effects of Climate Change on national fishery resources (https://sapo.ifop.cl/). To expand coverage, a station will be installed on Mocha Island in April 2025, a key location for describing the meteorological and oceanographic dynamics of the main spawning area of the common sardine and anchovy in south-central Chile.

IFOP's scientific vessel Abate Molina sailed to Arica to investigate the horse mackerel

On March 21, the scientific vessel Abate Molina sailed from the Port of Valparaíso to characterize and assess the horse mackerel, found between the Arica and Parinacota Regions and the Valparaíso Region, using hydroacoustic methods.

The cruise leader is 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 studies related to the horse mackerel for 45 days.

Specific Objectives

- Conduct adaptive sampling with acoustic transects parallel and perpendicular to the coast to characterize the population structure of the horse mackerel and its spatial distribution.
- Carry out a sufficient number of reconnaissance fishing trips to identify and describe the horse mackerel resource.
- Establish oceanographic stations to characterize the study area.