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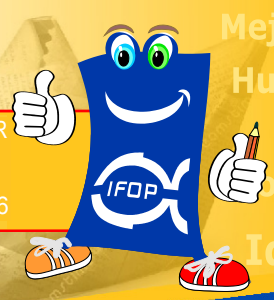

IFOP INFORMATION BULLETIN
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IFOP installs new weather station in Punta Angamos, Antofagasta Region

The working group of IFOP's Department of Oceanography and Environment, led by oceanographer Andrés Varas, with the objective of expanding IFOP's national meteorological monitoring networks, installed a new weather station in Punta Angamos. Located in the northern sector of the Mejillones Peninsula (Antofagasta Region), this installation strengthens the institute's environmental monitoring network in northern Chile.

The installation of this station was carried out with the support of Sergeant Daniel de la Fuente, under the instruction of Captain Gonzalo Espinoza from the Chilean Navy Meteorological Service. This initiative contributes to collaborative climate monitoring and maritime safety in the region under an effective cooperation agreement between the Navy and IFOP.

The station features an ultrasonic wind sensor, a rain gauge, temperature and humidity sensors, as

well as atmospheric pressure sensors, allowing for continuous recording and real-time transmission of local meteorological conditions. The generated data is integrated into the institutional network and is available through the Alert, Prediction, and Observation System (SAPO).

This station joins existing ones, such as Punta Tetas, located in the southern sector of the Mejillones Peninsula. This allows for monitoring

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meteorological conditions at both ends of the peninsula and provides a better understanding of the environmental variability across the entire northern macro-zone.

The continuous recording of wind—the primary atmospheric forcing of the water column—enables the understanding of key oceanographic processes that favor the high marine productivity of the area.

In parallel, DOMA, in conjunction with IFOP's CREAN (Center for the Study of Harmful Algae), conducted monthly bio-oceanographic sampling in Mejillones Bay. These samplings are carried out using plankton nets and oceanographic probe measurements; samples are also extracted to test for marine biotoxins to detect possible agents associated with local red tide events.

IFOP and the Flanders Sea Institute, Belgium, strengthen international scientific cooperation

Valparaíso, Chile. With the aim of strengthening cooperation ties and advancing ocean governance challenges, a high-level meeting was held at the facilities of the Fisheries Development Institute (IFOP). The session was presided over by the Executive Director of IFOP, Gonzalo Pereira Puchy, and the Director of the Flanders Marine Institute (VLIZ), Jan Mees, with the distinguished participation of the Ambassador of Belgium to Chile, Christian de Lannoy.

During the day, IFOP's International Affairs and Cooperation department presented the central guidelines of the 2025-2030 Strategic Plan. The presentation highlighted climate change as a relevant area in institutional planning, underlining the commitment to management based on the Best Available Science (BAS) and a preventive ecosystem approach.

The VLIZ delegation will carry out an extensive technical agenda including visits to IFOP facilities in Puerto

RETURN

Montt and surrounding areas. This collaboration seeks to enhance strategic synergies and raise scientific research standards, reaffirming the leadership of both institutions in promoting a sustainable ocean in line with the "UN Decade of Ocean Science."

Inter-institutional Committee for Environmental Contingencies Activated to Coordinate Actions in Response to Climate and Oceanographic Monitoring

The National Inter-institutional Committee for Environmental Contingencies (CIICA), coordinated by the National Fisheries and Aquaculture Service (Sernapesca), held its first session of 2026. The purpose of the session was to continue the coordinated and integrated work among the agencies that comprise the committee and to coordinate with the Inter-institutional Committees in the Los Lagos, Aysén, and Magallanes regions in response to abnormal fishing and aquaculture events, strengthening communication between public agencies in the event of emergencies.

During the session, researchers from the Fisheries Development Institute (IFOP) gave a presentation on the Alert, Prediction, and Observation System (S.A.P.O.) for fisheries resilience in a climate change scenario. and the forecasts for the coming months regarding climatic and oceanographic conditions, in addition to monitoring the microalgae situation in the southern zone.

In the South Pacific, positive anomalies or increases in sea surface temperature (SST) persist, intensifying even with greater spatial coverage, an abnormal situation for this time of year. This situation has triggered alerts from the authorities of the countries in the South Pacific basin.

Therefore, according to updated observations from the beginning of March, the abnormally warm ocean condition has taken hold and intensified from the Gulf of California to the northern part of the Los Lagos Region. However, from the Puerto Montt area southward, including the inland sea of the Aysén and Magallanes Regions, temperatures remain within normal ranges.

This is consistent with a condition similar to that observed at the beginning of the 2023/2024 Coastal El Niño. In fact, in Peru, the Multisectoral Committee in Charge of the National Study of the El Niño Phenomenon (ENFEN), in its February 27 bulletin, declared a "Coastal El Niño Alert" due to abnormally warm temperatures along the Equatorial Pacific, the coasts of Peru, and northern Chile.

Regarding indicators, in south-central Chile, the inland and coastal seas of the Los Lagos and Aysén regions, temperatures remain within normal ranges for this time of year, but with chlorophyll-a concentrations below normal for this time of year (<2 mg/m3), affecting a large area.

However, the situation is dynamic and is under continuous monitoring through the SAPO system, which considers the possibility that south-central Chile could experience warmer-than-normal

RETURN

conditions due to the Coastal El Niño event that is beginning to develop along most of the Pacific coast of the Americas.

For this reason, Sernapesca, in conjunction with various institutions, is activating the relevant mechanisms, such as the CIICA, to assess the situation and adopt appropriate measures.

“The public services involved are monitoring the rising ocean temperatures to adjust all the preventative action plans we have developed in conjunction with the stakeholders and to be prepared for any contingencies that could affect fishing and aquaculture activities, minimizing the impacts. Access to updated scientific information provided by the monitoring systems of IFOP and the Navy has been key to this,” commented Soledad Tapia Almonacid, National Director of Sernapesca, adding that this information has been made available to aquaculture companies, who are already prepared to implement their contingency plans if necessary.

It is worth remembering that the presence of El Niño on the coasts of Chile has brought with it, in other seasons, changes in meteorological and oceanographic conditions, with varying effects on hydrobiological resources and marine ecosystems, such as, for example, the increase in sea temperature above normal values, with positive anomalies that can vary between 2° to 4°C or more; the weakening of the coastal upwelling that normally brings cold and nutrient-rich waters to the coastal zone and eventually; the increase in Harmful Algal Bloom (HAB) events, among others.

These conditions could have potential effects on economic activities such as extractive fishing and aquaculture, including mortalities in fish farms; a decrease in catches of species such as anchovy and sardine; and changes in the distribution and abundance of resources, altering the food web.

Sernapesca, in coordination with various institutions, such as CIICA, will maintain the relevant mechanisms to assess the evolving situation, provide timely information, and adopt appropriate measures in response to risk conditions, in conjunction with the relevant sectoral stakeholders.

IFOP finalizes the training of Scientific Observers for the year 2025 as part of the 2026-2027 Accreditation process before the Undersecretariat of Fisheries and Aquaculture

CURRENTLY, IFOP HAS A TOTAL STAFF OF 200 SCIENTIFIC OBSERVERS, DISTRIBUTED BETWEEN ARICA AND PUERTO WILLIAMS, WHO PARTICIPATE IN THESE TRAINING PROGRAMS IN ONE MODALITY OR ANOTHER. THEY BELONG TO 13 PROJECTS FOR THE 2026 ADVISORY SERVICES FOR FISHERIES AND AQUACULTURE RESEARCH (ASIPA) OF THE FISHERIES RESEARCH DIVISION (DIP).

With the aim of strengthening the technical and scientific capabilities of its Scientific Observers (SO), the Fisheries Development Institute (IFOP) developed the Scientific Observer Training (FOC) courses and Knowledge Revalidation Workshops during November and December 2025. These are key instances to comply with Decree No. 193 dated December 20, 2013, Exempt Resolution No. 1463 of June 2, 2015, and Law 20.625 of September 24, 2012 (Discard Law), which regulate the accreditation of competencies for scientific observation before the Fisheries Authority. These training sessions, which were provided by the Pontificia Universidad Católica de Valparaíso (PUCV), seek to ensure that Scientific Observers have the knowledge and skills necessary to adequately carry out the sampling of fishery resources and the collection of biological, fishery, ecosystem, and environmental data and information.

In particular, for newly joined Scientific Observers with less than a year of tenure at IFOP who, consequently, had not taken previous versions of the program, the 2025 Scientific Observer Training Courses were held. This activity involved the participation of 20 people through theoretical classes, held synchronously in an online format, followed by a

RETURN

period of personal study and a final theoretical exam.

Subsequently, the participants also had to take and pass the face-to-face practical workshops, held between December 10 and 12, 2025, at IFOP's Hueihue Experimental Center in Ancud. Through these workshops, the Scientific Observers were able to acquire the necessary skills in the use of measuring instruments and standard equipment, as part of the IFOP ISO 9001-2015 Quality Management System, verification and registration in control forms, identification and completion of forms for species sampling, and data entry into the institution's computer platforms.

Meanwhile, for Scientific Observers with greater seniority who had therefore already completed the FOC courses previously and held valid certification, Knowledge Revalidation Workshops were carried out. This activity, in which 170 Scientific Observers participated, was held in an asynchronous online format, culminating in a theoretical evaluation that covered the fundamental contents of the four thematic units of the FOC courses: Identification of marine species, Fishing gear and tackle, Sampling techniques, and Fisheries regulations. This ensures a homogeneous update of scientific knowledge aligned with institutional and regulatory standards, reaffirming IFOP's commitment to the technical excellence of its Scientific Observers, the strengthening of capabilities and competencies for scientific observation, and the quality of data and information as fundamental bases for the sustainable management of the country's fishery resources.

The training team was composed of Field Coordinators from the Talcahuano Regional Office: Alicia Gallardo, Verónica Valdebenito, Christian Villouta, and Nelson Salas; and technical support was provided by Senior Scientific Observers Jaime Rivera, Miguel Vegas, Luis Olavarría, Judith Díaz, and Raúl Rojas, who contributed their extensive knowledge and experience in field sampling.

Investment in science strengthens knowledge for the sustainable management of squid

The generation of solid scientific knowledge is a fundamental pillar for the sustainable management of marine resources. In the case of the jumbo squid, strengthening research on its biology and population dynamics is key to supporting evidence-based decisions and reducing uncertainty in management models. Investing in technical capacities, specialized equipment, and researcher training not only improves the quality of available information but also contributes to consolidating a scientific institutional framework better prepared to face the environmental and production challenges of the fishing sector.

In this context, on Monday, February 2nd, the delivery and installation of a phase-contrast microscope took place. It was acquired within the framework of the "Biological Study Program of Jumbo Squid in Chile in non-fishery sectors," an initiative that emphasizes the estimation of renewal and growth rates of the species, complementing studies developed by the monitoring project under the actions of the GEF Humboldt II Project and executed by the Fisheries Development Institute (IFOP).

The equipment was installed in the Age and Growth Section laboratory, strengthening technical capacities for the development of research aimed at determining growth parameters in cephalopods, such as jumbo squid and octopus, thus contributing to a better biological understanding of these species of ecosystemic and fisheries relevance.

The acquisition of the phase-contrast microscope strengthens the age and growth analysis capabilities at the level of daily micro-increments within IFOP's Age and Growth Section. This technology allows for high-resolution visualization of daily micro-increments in calcified structures of key species such as jumbo squid, octopus, southern rays bream, and various hakes. By optimizing the contrast of

RETURN

growth bands, which are often difficult to define using conventional methods, this tool becomes essential for accurately determining the age, parameters, and growth rates of individuals, significantly reducing uncertainty in biological models.

During the installation process, the researchers participating in the project, MSc. Guillermo Moyano and MSc. Jorge Contreras, received specialized training in the use, maintenance, and operation of the microscope and its associated camera, as well as in image processing and analysis using the built-in software, ensuring an adequate transfer of capabilities for use in future scientific studies.

https://proyectohumboldt2.org/elementor-12284/

IFOP reinforces the plan to repopulate the slipper mussel in the Huellelhue River

70 broodstock traveled in a cold chain from the Huellelhue River estuary to Ancud. With them, a community attempts to restore a key species for its economy and its ecosystem.

The Fisheries Development Institute (IFOP) has joined the giant mussel (*Choromytilus chorus*) repopulation plan that the Huellelhue community is carrying out together with the NGO Sustainable Fishing Center and the Mehuín Fisheries Polytechnic High School. Through its Mariculture Experimental Center in Hueihue, Ancud, the institute received 70 broodstock transported via cold chain from the estuary, which are currently being conditioned for fattening and spawning.

“We were all pleasantly surprised that we were chosen to support the repopulation. The broodstock have already arrived, they are being conditioned, and everything is going full steam ahead,” says Carla Álvarez, assistant technician at the IFOP center. For her, working with this species is a new challenge: “We hadn’t done giant mussels before. It’s the first time, but we understand it’s not that complicated compared to other species and we will have seeds soon.”

In Mehuín, the process also started from scratch. The high school has a hatchery where seeds are developed, and although the first spawning attempt in September was unsuccessful, it worked in December. “We didn’t see anything, and in the first half of January, the seeds started to appear. Now we have them in the laboratory, in two 2,600-liter tanks, controlling temperature, pH, and salinity. This had never been worked on here, so we are very happy,” says Fabiola Chomalí, production manager of the educational establishment.

RETURN

For the high school, the project goes beyond the species itself. Four interns are leading the process under Chomalí's supervision, making decisions and developing skills they didn't have before. "We are very far from where the big decisions are made, embedded in a coastal town. This gives us visibility and proves that the establishment is doing things, applying for projects, and is attractive to other students," she explains. In March, two of them will travel to Hueihue to see the work of the experimental center in the field.

The inclusion of IFOP not only adds technical capacity; José Valencia, Marine Coordinator of the GEF ICB project, explains that the institute participates both in the Los Lagos Regional Technical Committee—where public services are represented—and in the public-private roundtable created for the management of the giant mussel. The next step is to involve the Regional Government of Los Lagos so that these types of initiatives are also considered an opportunity for employment and income for local communities.

The GEF Project is executed by the Ministry of the Environment and implemented by the United Nations Development Programme (UNDP), with funding from the Global Environment Facility (GEF). Its objective is to improve national financing for the conservation of biodiversity and ecosystem services through the design, implementation, and optimization of economic instruments that strengthen public finances and incentivize the private sector's economic contribution to the maintenance and recovery of ecosystems.

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