



IN THIS NUMBER

- IFOP signs an agreement with Universidad Adolfo Ibáñez **1**
- Research interaction between fishing activities and marine mammals agreement was signed by IFOP and San Francisco State University **2**
- Participatory Environmental Monitoring System in Coastal Communities Manual is published **3**
- Sea Seeding website launching **5**
- The first advisory project on spider crab between INIDEP and the IFOP of Chile concluded **5**
- Abate Molina Scientific vessel set sail for Common hake research **6**

IFOP signs an agreement with Universidad Adolfo Ibáñez

THE AGREEMENT WILL FAVOR RESEARCH COLLABORATION, DEVELOPMENT OF INNOVATIVE SOLUTIONS AND DATA ANALYSIS FOR DECISION-MAKING IN FISHERIES AND AQUACULTURE ECOSYSTEM.

On Monday, July 19th, an agreement signed between IFOP and Universidad Adolfo Ibáñez (UAI), through its Engineering and Sciences Faculty (FIC).

In the launching ceremony, carried out via zoom, Luis Parot IFOP Executive Director and on Dean Harald Beyer; on Universidad Adolfo Ibáñez behalf, Claudio Osorio Vice-Rector of Viña del Mar Campus; Engineering and Sciences Faculty Dean Carlos Jerez, and Renato Cabrera Vice-Dean of the same faculty at Viña del Mar Campus; as well as researchers from the university as well as IFOP researchers.

The agreement is part of IFOP's objectives of safeguarding its historical, scientific and documentary heritage, bringing it into a digital format and making it available to the State of Chile and the entire scientific community.



Likewise, within the framework of this agreement, the UAI -through the Faculty of Engineering and Sciences- will collaborate to achieve efficient data management and achieve levels of analysis that allow to improve research and impact on marine resource management systems.

Harald Beyer, UAI dean, highlighted the scope that this collaboration agreement will allow, based on IFOP data, around intelligent solutions development that improve fishery resources management, allows an integrated management of fisheries and ensure fisheries and aquaculture sustainability. "For the University, the Engineering and



Editorial committee
Luis Parot D. / Executive Director
Gabriela Gutiérrez V. / Journalist

Graphic design
Mario Recabal M. / Senior graphic designer

Sciences Faculty will actively participate in this effort, whose strategic plan is precisely motivated by the “Smart + Sustainable” idea, a concept in which this agreement is inspired. The UAI has developed knowledge, capacity and infrastructure in data science that allows it to achieve leadership in Chile in these matters and to support projects of this nature. In this case, specifically, contributing through the implementation of data management, analysis and storage systems in the cloud that add a lot of value to IFOP data”.

For Claudio Osorio, UAI, Viña del Mar Campus Vice Dean signing this agreement “will allow us to generate a positive impact on the environment, as well as to contribute to integral and sustainable development of society in our region and in the country, through applied research development, innovation and technological entrepreneurship”.

In this context, the agreement purpose is to create and maintain a long-term relationship between parties, which encourages and promotes knowledge exchange, related topics excellence research and joint projects development, which enhance and complement both institutions capacities and competencies.

Carlos Jerez, UAI Engineering and Sciences Faculty Dean, added that “from FIC we have a commitment to tools development, knowledge and information for data management in decision-making both in public policies and in private sector and in academy. This agreement motivates us tremendously and it is a mission that we have as a Faculty and that we will support through digitization strategies development, data processing and artificial intelligence so that they can do better management”.

The parties consider it necessary to provide means to create necessary conditions to design, develop and implement a system that makes IFOP data available, allowing development of research, analysis and the extraction of relevant information for decision-making.

Luis Parot Donoso, IFOP Executive Director, explained IFOP motivation for being part of this agreement. “We have a fisheries and oceanographic biological data base for almost 50 years and it constitutes a unique heritage; therefore it is necessary to recover, protect and dispose for public use”.

To this end, IFOP, through this agreement, undertakes to make the necessary data available, according to subsequently signed agreements, which

will also set the privacy, management and use requirements thereof.

For its part, UAI offers its skills and knowledge in management development and implementation, analysis and data storage systems in the cloud, in order to develop systems that add value to IFOP data. The university will have its best academic and research capacities to respond to the projects that arise within the framework of this agreement.

Research interaction between fishing activities and marine mammals agreement was signed by IFOP and San Francisco State University

IT INCLUDES A PROJECT DEVELOPMENT IN WHICH IFOP PARTICIPATES WITH A MULTIDISCIPLINARY TEAM OF 10 RESEARCHERS, TOGETHER WITH PROFESSIONALS FROM THE UNIVERSIDAD DE VALPARAÍSO AND FISHERIES AND AQUACULTURE UNDERSECRETARY.

In Chile, have been reported 52 species of marine mammals (1). To this group several correspond to species of whales, killer whales, dolphins and the best known, sea lions. In the last decade, the State of Chile has taken measures to take care of the populations of marine mammals that inhabit or transit through our sea.

One of the threats to which they are exposed corresponds to their interaction with fisheries, since, on occasions, they end up damaged or captured by the fishing systems used to extract fish or other species. Therefore, since 2015 the IFOP began a research process aimed at knowing causes, affected species and of incidental capture levels at main fisheries.

On the other hand, as of 2016, the United States began a regulation establishment which obliges countries that export fishery products to that country to



Participatory Environmental Monitoring System in Coastal Communities Manual is published

The institutions in charge of the initiative highlighted that a participatory environmental monitoring system is key in order to strengthen artisanal fishermen and small-scale aquaculturists capacity to adapt to climatic change.

Fisheries and Aquaculture Undersecretariat (SUBPESCA), Environment Ministry (MMA) and United Nations Food and Agriculture Organization (FAO) published the Manual for a participatory environmental monitoring system to improve adaptive capacity to climatic change in fishing and aquaculture communities in Chile.

The document was prepared within the framework of "Strengthening adaptation capacity in Chilean fisheries and aquaculture sector to climatic change", project with financing from Global Environment Facility (GEF) and implemented in four pilot coves in the country: Riquelme, Tongoy, Coliumo and El Manzano-Hualaihué.

Both the design and the execution of the project recognized that, to face the consequences of climate change, the participation of local communities, governments and the scientific world is required.

In this context, Universidad de Concepción through its Environmental Sciences Center (EULA) and Multiple Forces on Marine Socio-ecological Systems Research Center (MUSELS), together with researchers from Universidad Arturo Prat and Arid Zones Advanced Study Center (CEAZA), designed and executed a participatory environmental monitoring system to improve adaptation of fishing and aquaculture communities capacity to climatic change.

This system design and implementation was carried out through a "community monitoring" approach in which people were trained in order to obtain environmental data that were later analyzed by the scientific team. As a result, people who participated showed a greater interest in environmental monitoring and recognized its importance for productive activities, facing climatic change effects.

This system provided learning and basic requirements to implement future participatory monitoring programs in fishing coves, being a key factor, communities interest and commitment and having financial and human resources for local monitors training and Program sustainability over time. To achieve this, project experts identified as essential to generate initiatives local governance, made up of public and private institutions, scientists and above all, local organizations.

As part of monitoring system applied to pilot coves, a Manual was produced for



RETURN

comply with bycatch standards equivalent to those of that nation.

Given the problem relevance and the need to consider researchers with international experience, IFOP was invited by the renowned researcher Ellen Hines, from San Francisco State University, United States, together with researchers from Universidad de Valparaíso, to develop "Marine Mammal Bycatch Risk Assessment in Chile" project which within its objectives has definition of areas in which interactions between marine mammals and fishing activities are more likely. In this way, it is expected to provide information to fisheries administrative authority in Chile, in order to reduce this interaction. Together with the results of the research, it is expected to generate new technical capacities at the national level that will advance the knowledge of these species and their relationship with fisheries.

The project is funded by The Pew Charitable Trusts (PEW) with the Lenfest Ocean Program (LOP) support and will run until the end of 2022.

Source: (1) Acevedo, Jorge & Lobo, Anelio & Vargas, Romeo. (2006). Marine mammals Diversity in Chonos archipelago waters (43 ° 39' – 45 ° 50' s), XI region of Chile. Science and Technology of the Sea.

More information about the project at

<https://www.lenfestocean.org/es/news-and-publications/fact-sheet/new-research-to-assess-marine-mammal-bycatch-risk-in-chile>

a participatory environmental monitoring system that improves the capacity to adapt to climatic change of fishing and aquaculture communities in Chile, which includes Chilean coast general characteristics and climatic change effects, as well as a facilitators guide to accompany monitoring fishing coves implementation.

“Women high participation and interest in coves both in theoretical activities and in practical activities, such as, for example, field trips, was a fundamental pillar to carry out this type of monitoring by the communities in the coves. In addition, the manual is very valuable since it allows replicability, both at the national level and in other countries in Latin America, the Caribbean and other regions”, said José Aguilar-Manjarrez, Fisheries and Aquaculture Officer of the FAO Regional Office for Latin America and the Caribbean.

For his part, Environment Undersecretariat, Javier Naranjo Solano, indicated that “one of the best ways to promote adaptation and develop adequate strategies for managing climatic change associated risks, is scientific and local ancestral knowledge combination and, increasing coastal ecosystem understanding and providing concrete and scientific information that supports observations made daily by people associated with the fishing sector”.

Fisheries and Aquaculture Undersecretariat, Alicia Gallardo Lagno affirmed that “men and women who are dedicated to fishing and aquaculture have extensive knowledge of the areas where they carry out their activities. In this sense, it is necessary to provide tools that allow them to record and systematize information to support decision-making in their productive activities, and through collaboration with researchers and public institutions, develop adaptation measures in a participatory manner”.



Participatory environmental monitoring: an adaptation strategy

Fishing coves Community environmental monitoring implementation could be a key tool to support decision-making of small-scale fishermen and / or aquaculturists, facing coast climatic change effects, since it allows people who live and work in this area on a daily basis to observe and record environmental variability, identifying anomalous events and / or effects on resources and their productive activities. These monitoring have the advantage of directly linking communities and scientists, making people learn in practice and can contribute to institutional monitoring.

According to this project team, this type of monitoring implementation requires having enough professionals and technicians trained to work with coastal communities. In Chile there are 467 coves and 92 thousand artisanal fishermen, to which must be added small-scale aquaculturists, the main challenge of the institutional framework being to achieve coverage that allows reaching the entire sector.

The Manual is available for download at:

FAO and Centro-EULA. 2021. Manual for a participatory environmental monitoring system that improves the capacity to adapt to climatic change of fishing and aquaculture communities in Chile. Santiago de Chile. <http://www.fao.org/3/cb3579es/cb3579es.pdf>

Photos and news Fao

RETURN



Sea Seeding website launching

IFOP launches a new website www.sembrandoelmar.cl aimed at disseminating our institution and other research centers carried out research, in its multiple dimensions involved for Small-Scale Aquaculture (APE) sustainable development. In this site you will find technical, economic and regulatory information to support current and future APE aquaculturists in Chile.

Contained information is easily accessible, free and can be viewed, downloaded and shared via email or social networks. both from your PC as well as from mobile devices.

The first advisory project on spider crab between INIDEP and the IFOP of Chile concluded

During the month of July, National Institute for Fisheries Research and Development (INIDEP) Benthic Crustacean Fisheries Program members completed advisory tasks on crab resource (*Lithodes santolla*) to IFOP scientists from Punta Arenas, Chile. This project is part of an inter-institutional agreement, whose mission is to contribute to fishing and aquaculturesustainable development.

On this occasion, the advice led by the person in charge of the Program, Dr. Carla Firpo, was focused on discards reduction, accompanying fauna and interaction with marine mammals in South Atlantic crab fishery and its application in crab capture in Magallanes Region, Chile and IFOP counterpart were represented by Marine Biologist Erik Daza. In addition, members of both research groups participated in this work: from INIDEP, Eng. Cecilia Mauna, Lic. Pablo Lértora and Tec. Valeria Mango; Researchers from Benthic Crustacean Monitoring Program, Eduardo Almonacid, Ruth Hernández, Andrés Olguín, Paulo Mora and Cristian Vargas shared their knowledge representing IFOP.

INIDEP scientists have extensive experience in planning and implementing selectivity devices use, such as escape rings installed in traps that fish for spider crab. These rings are mandatory for use in crab fleets since 2014, in accordance with the fisheries management measures established by Federal Fisheries Council. The main use objective of 3 escape rings in each trap is to reduce the discard of juveniles and female crabs, thus the capture is mainly made up of commercial-size males, as has been verified in numerous studies. Another benefit of these rings implementation is spider crabs marked capture reduction, main companion species in this fishery.

Crab fishing in Chile

In May 2020, IFOP awarded the study "Evaluation of fishing gear and proposal for ecosystem exploitation improvements and sustainable use of crab fishing in Magallanes Region", financed by



RETURN

What is Sea Seeding?

It is part of "Comprehensive Aquaculture Development Program for Artisanal Fishermen and Small-Scale Aquaculturists" dissemination activities executed by IFOP. This study is part of Fisheries and Aquaculture Regulation Research Program. Which is carried out by virtue of the agreement signed between Economy Undersecretariat and Smaller Companies and IFOP, with its technical scientific counterpart being the Fishing and Aquaculture Undersecretariat .

We invite you to follow latest APE news through our social networks Instagram and Twitter, which you can also access through the website www.sembrandoelmar.cl



Abate Molina Scientific vessel set sail for Common hake research

On July 24th, Abate Molina scientific vessel, from IFOP, set sail from Valparaíso Port to evaluate common hake stock, using the hydroacoustic method, between the northern limit of Coquimbo Region and Regione de los Rios.

The scientific voyage will last 33 days, the captain of the ship is Enrique Quiero and as cruise chief Esteban Molina fishing engineer.

In this cruise, common hake biological samples are taken to determinate their demographic structure and reproductive condition; sexual maturity, number of females, males, sizes, ages.

The species that make up the accompanying fauna of the common hake are quantified and identified.

Bio-oceanographic stations are carried out to obtain samples of zooplankton, ichthyoplankton and determine the oceanographic conditions.



Wildlife Conservation Society Chile with the support of Walton Foundation. In the context of this initiative, Chilean organization considered it important to know how INIDEP researchers have worked on the development of regulations that regulate trap use for crab fishing in the Atlantic.

Between September 2020 and July 2021, virtual advisory meetings were held that included various talks on the crab fishery in Argentina and research experiences transfer related to escape rings design, operation and implementation. Procedures and progress made regarding monitoring of interactions with marine mammals in this fishery were also detailed. For their part, Chilean colleagues also trained their Argentine counterparts in Magellan fishing fleet dynamics, made up of a large artisanal fleet, whose operation has been monitored since 2007 by IFOP researchers and Scientific Observers with the aim of knowing this species condition state. All these activities were carried out virtually between September 2020 and July 2021.

The development of collaborations between scientists from both institutes is a fundamental part for the generation of new knowledge in pursuit of common fishing resource benefit. This advice was framed within an inter-institutional agreement whose mission is to contribute to fisheries and aquaculture sustainable development. Undoubtedly, this counseling success will serve as a trigger to achieve new experiences of working together.

IFOP researcher Erick Daza, explained this work is based on the advice that we hired as part of the project: "Evaluation of Fishing Art and Proposal for Ecosystemic Exploitation Improvements for Crab Fishing Sustainable Use in Magallanes Region" and that is coordinated with INIDEP researchers.

News source INIDEP