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## Minister of Economy Nicolás Grau and Julio Salas Fisheries Undersecretariat, visited Abate Molina Scientific Vessel

Valparaíso, On Tuesday, July 12th, Nicolás Grau Economy Minister and Julio Salas Fisheries and Aquaculture Undersecretariat visited Abate Molina Scientific Vessel and were received by Gonzalo Pereira IFOP's Director.

At the scientific platform in Chile, the authorities toured the facilities to see on ground Fisheries Development Institute (IFOP) researchers, crew and technicians carried out work

Nicolás Grau commented "it has been a very interesting visit to find out on board of the ship what IFOP does, we have toured the fa-



cilities, also seeing remodeling that was carried out a short time ago, we talked about all scientific research that is carried out at Abate Molina, which is a key investigation for all our fisheries regulation"

Julio Salas shared strategic guidelines that guide Undersecretariat's work and highlighted public institutions coordinated work in the sector as a key factor. " IFOP's knowledge generation must provide information so that SUBPESCA can define consistent policies and regulatory standards; then SERNAPESCA must duly monitor compliance with these regulations and INDES-



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PA must implement promotion programs in accordance with priority public policies. These institutions must operate as a duly articulated system and we are working on that," the undersecretary specified.

Gonzalo Pereira, IFOP's Executive Director referred to the Economy Minister and Fisheries Undersecretariat's visit : "it is a concrete manifestation of the importance that Fisheries Development Institute has for new authorities, it is also an expression of the policies metioned by the Undersecretariat consisting o a coordinated work of the institutions that make up the public fishing apparatus, in order to achieve a more efficient work. Showing IFOP appreciation for our authorities also has concrete expression in measures support aimed at improving our institution and the work of those who develop their work at IFOP.

The vessel was donated by Japan's Government to Chilean Government , jointly designed by experienced Japanese and Chilean technicians, and built in Japan's legendary MIHO shipyards. It arrived to the country on March 3rd, 1991 it was received at the Molo de Valparaíso by President Patricio Aylwin Azócar, it belongs to Fisheries and Aquaculture Undersecretariat and is operated by Fisheries Development Institute (IFOP).

The vessel is 31 years old, is fully operational, makes 7 cruises a year with 265 opera-

tions. It underwent repairs in order to improve workers habitability. It carries out marine resources research which is essential for the work of Subpesca's scientific committees and decisions that the service adopts in the exercise of its powers.

Abate Molina is 43 meters long and is equipped with modern scientific equipment, echo sounders, rosettes, laboratories, nets and other elements that allow it to collect samples of different types and at different depths.

## A national workshop to review and improve ("benchmark") jack mackerel stock evaluation considering the new individual growth model impact was organized by IFOP

IFOP held a national workshop to review and improve horse mackerel stock's evaluation considering new information generated by our Institution, which shows that horse mackerel has: faster individual growth; higher natural mortality; and earlier maturity.

The workshop was planned by IFOP and Fisheries and Aquaculture Undersecretariat (SSPA) in preparation for a similar workshop to be held by South Pacific Regional Fisheries Management Organization (OROP-PS) scientific committee in Seattle. The workshop was organized by Ignacio Payá, and was attended

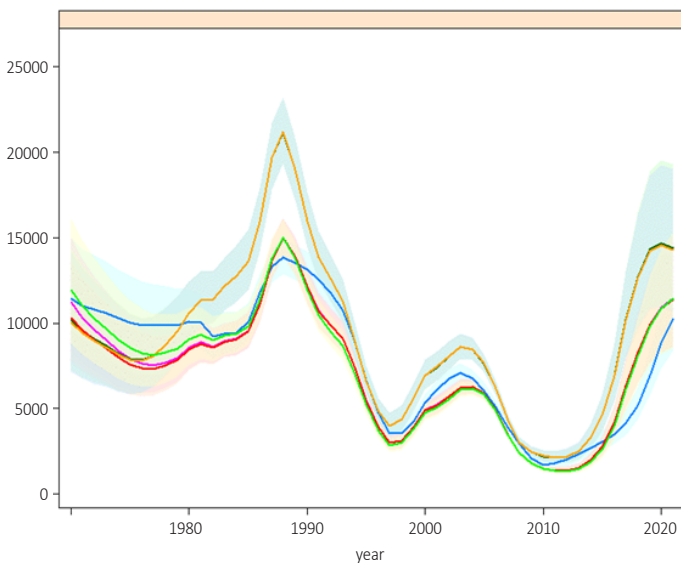


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Spawning Biomass

h1\_1.01 Stock\_1  
h1\_1.02 Stock\_1  
h1\_1.03 Stock\_1  
h1\_1.06 Stock\_1  
h1\_1.07 Stock\_1  
h1\_1.08 Stock\_1



The figure shows the sensitivity of the estimates of spawning biomass against different combinations of data and parameters of the estimation model. The series with the highest level corresponds to the scenario with the highest natural mortality.

by SSPA administrators, Technical Scientific Committee members, researchers from IFOP, INPESCA, Universidad de Concepción and P. Universidad Católica de Valparaíso.

During the workshop, IFOP's team (Ignacio Payá, Renzo Tascheri and Mauricio Mar-dones) previously obtained results were analyzed and complementary sensitivity analyzes were carried out. The workshop was carried out with a standard of full transparency, that is, all the data and programs

were available to allow the participants to replicate analyzes and to contribute with new analyses.

In all analyzed cases, jack mackerel stock current condition was healthy, with biomass values greater than maximum sustained yield biomass. The most important parameter was natural mortality followed by stock-recruit escapement parameter relationship and maturity at age.

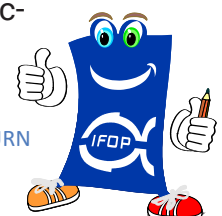
The figure shows spawning biomass estimates sensitivity against different data and parameters combinations of estimation model. The series with the highest level corresponds to highest natural mortality scenario.

## IFOP Arica participates in World Turtle Day Commemoration

The initiative is part of environmental events calendar and a necessary alert call for protection of threatened turtles, due to pollution, climatic change and incidental capture with fishing nets and lines factors.

The activity organized by Fisheries and Aquaculture Regional Directorate and Escuela D-7 General Pedro Lagos Marchant. It was carried out jointly with Environment SEREMI Tortuarica NGO and Fisheries Development Institute.

In this school dependencies the opening was in charge of the school director and present authorities, who reinforced turtles's care



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importance considering them as emblematic species for Arica and Parinacota region. Then there was an artistic dance presentation from Escuela D-7's dance's academy



and later students, teachers and parents were able to enjoy a tour by different stands, each of them in charge of officials belonging to each institution.

The activity organized by the Regional Directorate of Fisheries and Aquaculture and the D-7 General Pedro Lagos Marchant School, was carried out jointly with Environment SEREMI Tortuarica NGO and Fisheries Development Institute.

Sergio Barraza, SERNAPESCA professional in charge of this event coordination highlighted Fisheries Development Institute's enthusiasm and professionalism during the activity. In addition, he pointed out the event's importance for the school community, which also contributes to our institutional objective of protecting marine fauna, in this case teaching students about our environment basic care.



Hernán Padilla IFOP's regional head valued this initiative and interest shown by attendees in each exhibition. In addition, he stated that it is important for us to participate in this type of activity, which brings our institutional work closer to Arica's community. Especially in environmental education, protection and protected fauna conservation matters. This time we take advantage of the opportunity to publicize part of the activities carried out by our scientific observers within the framework of "Hook change evaluation to reduce the incidental capture of sea turtles in the deep-sea dorado fishery (*Coryphaena Hippurus*). in the northern zone of Chile's research . This project is executed through a bina-



tional agreement signed between MarViva Costa Rican NGO and Fishing Development Institute.

Finally, both professionals agreed that it is gratifying to see how children quickly learn marine fauna care and respect.

## Chilean study on marine cetaceans causes worldwide impact

MARINE CETACEANS ABUNDANCE AND DISTRIBUTION PATTERNS IN CHILE AND THEIR OVERLAP WITH SHIP TRAFFIC IN THE HUMBOLDT CURRENT ECOSYSTEM ARE PUBLISHED AT SCIENTIFIC REPORT. PRESTIGIOUS SCIENTIFIC JOURNAL.

Aiming in improving knowledge gaps on Chilean waters cetaceans, in 2016, Monitoring of Highly Migratory Resources – Ecosystemic Approach (SRAM ECO) project directed by Dr. Patricia Zárate, began to carry out cetaceans sighting activity in Chilean exclusive economic zone. Aboard some oceanographic and hydroacoustic cruises regularly carried out by IFOP's Direct Assessments Department of (DED) and Oceanography and Environment Department (DOMA) on board the R/C Abate Molina.

Using 2016-2021 collected data through linear transects between 18°S and 41°S and up to about 200 km offshore, the team of researchers led by Dr. Luis Bedriñana from Marine Sciences and Limnológicas Institute from Universidad Austral de Chile published on June 24th the first abundance and distribution estimates for fin whale (*Balaenoptera physalus*), southeast Pacific blue whale



(*Balaenoptera musculus*), sperm whale (*Physeter macrocephalus*), dolphin dusky (*Lagenorhynchus obscurus*) and common dolphin (*Delphinus spp.*) throughout the Chilean portion of the Humboldt Current.

Dr. Patricia Zarate explained "In 2016, we started the whale watching activity with only 1 scientific observer, but later, through training and education, we were able to count on trained and experienced personnel to continue this activity. The results of these 7 consecutive years of data have borne fruit and today we can count on valuable information on the distribution and abundance of species that play relevant ecological roles in the ecosystem, but are also threatened by anthropogenic activities in the Pacific Ocean. and in our Exclusive Economic Zone".

Dr. Luis Bedriñana added "The work presents for the first time in Chile distribution and abundance estimates on 5 cetaceans species in the entire Chilean portion of the Humboldt Current. It synthesizes two great efforts in Chile. On one hand, the effort of Fisheries Development Institute to build a program of these characteristics from scratch and that finds in this publication one of its first achievements. On the other hand, it is very important to



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highlight SERNAPESCA effort , which since 2020 has provided daily updated information on navigation routes of 4 fleets in Chile publicly and free of charge. This is something very valuable and where we must continue advancing in terms of transparency and accessibility to information that helps research for conservation”.

Robert Bello, who has served as Principal Scientific Observer of the cetacean sighting activity since 2016 and to date, added: “Perhaps the most challenging thing in the activities as an observer at the Institute has been transforming sighting data, what at first seemed like a splash or shadows in the distance in the immensity of the sea, in events that often only lasted a few seconds. Being part of the team that makes one of the first contributions to studies of population abundance of cetaceans in the region is a great joy personally and, I believe, a great achievement as an observer. Adapting the linear transect methodology to the cruises carried out annually by the IFOP was a challenging but demanding task and if it was quickly

achieved it was thanks to the contribution of the scientific observers who were part of this activity. I only hope that this continues and more people continue to be trained to develop this activity”

Ilia Cari, SRAM ECO project researcher pointed out “One aspect that has been a key issue to continue with this program is thanks to cruise chiefs’s different fishery resource assessment projects within the Institute good disposition in which has managed to carry out sighting activity. Having their support is essential to give continuity to the program in the future and to be able to assess population trends, as well as associate these cetaceans presence with the environmental variables measured in situ through the same cruises, which will help to have a best idea of the environmental preferences of these species”.

Dr. Bedriñana expressed “Something very valuable to highlight from this work is that very few countries, and much less in Latin America, have the capacity to systematically monitor cetacean populations in such a large area and for 7 consecutive years. If the program continues and is strengthened, we will soon be able to know if the populations are increasing or not and how fast, this being one of the most important questions to answer for any species conservation. In addition, this work also evaluated the degree of overlap between cetaceans and boats distribution, finding that artisanal and industrial fishing fleets have a high overlap with fin whale and the dusky dolphin distribution in particular”.

Ljubitza Clavijo investigated added “Seeing results reflected in a scientific article fills me with satisfaction, since the interaction with my colleagues



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allowed me to improve my skills and grow as a professional. A job of this magnitude requires continuous effort and a great deal of time, since it involves, among other things, training different observers to achieve the detail that we appreciate, the active participation of the coordinators of the Management and Sampling Department, and the validation of the data before the analysis can be carried out.

"To assess cetacean populations potential risk, it is key to identify and understand effects caused by cumulative human impacts and thus establish effective protection and management measures. Many species of cetaceans are vulnerable to incidental fishing, and this study continuation will also allow indicators development to estimate sustainable levels of mortality of those species that are captured incidentally in Chilean fisheries, which may serve as a basis for the development of conservation measures for these species in our country" concluded Dr. Patricia Zárate.

Links to view the publication

<https://www.nature.com/articles/s41598-022-14465-7>

## IFOP invites to "Development of a proposal for an epidemiological surveillance program based on risk for ornamental fish in Chile, based on their characterization and current health condition" workshop

On Wednesday, July 20th at 10:00 a.m., the Hydrobiological Health Department will hold a workshop to disseminate FIPA 2020-14 project entitled "Development of a proposal for a risk-based epidemiological surveillance program for ornamental fish in Chile, depending on their characterization and current health condition" results .

During the workshop results will be announced in relation to ornamental fish industry current state in Chile, these organisms imports characterization and pathogens associated with high-risk diseases detection analysis results .







Additionally, developed risk analysis based on the project's results will be presented and a proposal for a high-risk diseases in ornamental fish surveillance program will be introduced.

If you wish to participate, send an email to Jaiber Solano: [jaiber.solano@ifop.cl](mailto:jaiber.solano@ifop.cl)

## UN Conference on the Oceans IFOP's Outstanding participation, held in Lisbon Portugal

**MORE THAN 6,000 PARTICIPANTS ATTENDED, INCLUDING 24 HEADS OF STATE AND GOVERNMENT, AND MORE THAN 2,000 CIVIL SOCIETY REPRESENTATIVES, ADVOCATING FOR URGENT AND CONCRETE ACTION TO ADDRESS THE OCEAN CRISIS.**

Lisbon final declaration states "We call for an ambitious, balanced, practical, effective, robust and transformative global biodiversity

framework after 2020". Resilient and healthy marine environments are climatic regulation and sustainable development foundation, with potential to produce food and energy for billions of people.

At the UN CONFERENCE ON THE OCEANS held in Lisbon, Portugal, from June 27th to July 1st, 2022, and within the cooperation agreement between Fisheries Development Institute and Environmental Defense Fund (EDF), Dr. Jaime Letelier, IFOP's oceanography and environment department's head and Sergio Palma EDF Chile Director participated at the international launching of Alert, Prediction and Observation System of Climatic Change Impacts for Resilience and fisheries in the Humboldt Current Great Marine Ecosystem (S.A.P.O) adaptive management of which Imarpe for Peru, Ecuador's Fisheries Institute and IFOP representing Chile are part. In this context, the Institute contributes a structural part to the multinational system through its Climatic Change Monitoring platform for fisheries and ecosystems conservation where small-scale aquaculture is developed.

The importance IFOP and EDF contribution to this multinational cooperative system made it possible to incorporate Dr. Letelier and Mr. Palma into the national delegation, as well as the fact that this tool will be launched at the Chilean Foreign Ministry Parallel event called "Chile , a Multisectoral Innovation Hub for the Ocean's effective conservation". In this Parallel Event, mention was made in two presentations of IFOP's active participation in two international projects.

This multinational technological tool will display, through IFOP's system, environmental data collected by 84 meteorological stations which





belong to a national citizen network ([www.redmeteo.cl](http://www.redmeteo.cl)), day to day satellite images that cover Ecuador and Antarctica, and environmental information from oceanographic buoys network from The Blue BOAT Initiative project (<https://theblueboatinitiative.org>). In this latest initiative IFOP has been actively collaborating.

Dr. Letelier participated as an assistant in plenary sessions, various interactive dialogues and parallel events, interacting with various countries delegations including Civil Society Organizations (CSOs) and companies linked to ocean monitoring representatives. The scientist from the Institute highlighted the importance that our researchers must perma-

nently participate in these instances to keep up to date with the international context, expand networks and also to take advantage of opportunities to use our solid experience and innovative spirit to face 21st century's challenges in order to achieve sustainable fisheries. and healthy ecosystems where aquaculture is developed.

Official UN communiqués noted (UN News) that the conference's conclusions recognized a "collective failure to achieve ocean-related goals" so far, leading leaders to renew their commitment to take urgent action and cooperate at all levels, to fully achieve goals as soon as possible. Among problems facing the Ocean are coasts erosion, sea level rise, waters warming and acidification, marine pollution, fish stocks overexploitation and marine biodiversity decrease. The declaration also recognizes that climatic change is "one of the greatest challenges of our time", and attests to the need to "act decisively and urgently to improve ocean's and their ecosystems health, productivity, sustainable use and resilience". The senior political figures meeting in Lisbon underlined that innovative and science-based measures, together with international cooperation, are essential in order to provide necessary solutions. The document reaffirms that the ocean is essential for life on our planet and for our future, signatories highlighted the special importance of applying the 2015 Paris Agreement, and last November Glasgow Climatic Pact to help guarantee health, productivity, sustainable use and resilience of the ocean. We are committed to halting and reversing the decline in marine ecosystems and ocean biodiversity's health and to protect and restore their resilience and ecological integrity.

