

IN THIS NUMBER

- Director Gonzalo Pereira, arrives to Magallanes Region **1**
- Dissemination Workshop on abalone populations and brown algae **2**
- Abate Molina Scientific ship set sail to investigate common anchovy and sardine between Valparaíso and Los Lagos Regions **3**
- IFOP Director meets with Science's Minister **4**
- To celebrate the sea's month IFOP carries out dissemination activities in schools in Talcahuano and Valparaíso **4**
- "Endemic Seed" Data viewer incorporates a new product associated to " Mussel sector Surveys" **5**
- IFOP launches new biodiversity guide associated with small-scale aquaculture carried out by repopulation and culture **7**
- Seed identification and early stages of mytilids workshop **7**
- Management areas Mussel seeds collection Challenges's Workshop **8**



Director Gonzalo Pereira, arrives to Magallanes Region

Gonzalo Pereira Puchy traveled to the area to meet with local authorities and IFOP workers, on the occasion he spoke with them about changes that are being made in IFOP in different areas associated with human resources, administration and finance (for example, gender equity, remuneration, salary bands, among others).

The Director was accompanied by a team of IFOP professionals, Dr. Daniela Diaz, in charge of cooperation and international affairs, Dr. Renzo Tascheri, a researcher from IFOP Resource Evaluation Department, and Erik Daza, head of the IFOP Magallanes headquarters.

Regarding their work schedule, IFOP Director expressed "it gave us the possibility of verifying that IFOP is a recognized, positioned and highly valued institution in Magallanes, which in turn opens up real possibilities for us to substantially increase collaboration with similar institutes".

In the meeting with the Governor, Dr. Jorge Flies



Añon, the authority indicated that IFOP will have his support, in the efforts to be able to have its own facilities in the region, he indicated that it would be good to make a joint effort with Sernapesca and CEQUA so that the three institutions have their own physical space. IFOP Director explained to the Governor the interest of the Fisheries Development Institute (IFOP) in being able to access regional public funds earmarked for research.

IFOP highest authority, held a working meeting with Dr. Marcelo Leppe, Chilean Antarctic Institute Director (INACH) and other professionals from the same institution, Andrés López Technical



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Dissemination Workshop on abalone populations and brown algae

What is abalone and brown algae populations status in management areas? Where do the “seeds” of these resources in my management area go and from where do they arrive? Connecting knowledge for sustainable fisheries management

Within 2022 Fisheries Management Area Monitoring Program framework, a Dissemination Workshop was successfully held on Thursday, April 27th, in which results corresponding to 3 the program work lines were presented: Abalone resource exploitation status evaluation in different geographical areas of the country, benthic resources larval dispersal research and brown macroalgae evaluation of AMERB’s population status. The conference was held in Caja Los Andes Conference Room in Coquimbo city and was organized by IFOP Management Areas Section, coordinated by researcher, Álvaro Wilson, with researchers Eliana Velasco and Bryan Bularz collaboration plus Alejandro Dal Santo IFOP’s Coquimbo headquarters head valuable support.

The activity brought together around 25 artisanal fishermen organizations representatives who are AMERB holders, belonging to the geographical area between the south of the Atacama Region and the north-central area of the Coquimbo Region, with the purpose of directly sharing the information generated by the program and discuss its knowledge integration in resources exploited under AMERB regime management .



In addition to IFOP professionals presentations, there were the intervention the Zonal Fisheries Directors from Fisheries and Aquaculture Undersecretary III and IV Regions Javier Chávez, who spoke about the State’s role in AMERB Regime operation and faced challenges, providing valuable background to the audience. The event also included the participation of the Regional Fisheries and Aquaculture Director from Coquimbo Region (s), Mr. Cristian López and other SERNAPESCA professionals, with whom the attendees had the opportunity to exchange opinions regarding the different topics. raised in the exhibitions.



Deputy Director, Francisco Santa Cruz and Dr. Cesar Cárdenas , both researchers from the Scientific Department and the latter Chilean representative of Antarctic Marine Living Resources Conservation Commission Scientific Committee – CCAMLR, and talked about strengthening the collaboration between both institutions on Antarctic issues, as well as resources stock assessment and the possibility that INACH can organize a course for IFOP scientific observers, both institutions will begin to work on a collaboration agreement, they also discussed INACH and IFOP participation in CCAMLR scientific committees. Another topic of interest to IFOP and INACH, is the joint study on climatic change and its consequences.

He also held conversations with Dr. Paola Acuña, Quaternary Studies Center Director (Cequa), she made a presentation to IFOP’s delegation in which she showed the history of the foundation, highlighting that IFOP was one of the founding members of Cequa and it is currently one of the three institutions that participate in Foundation’s Board of Directors.

Paola stated that IFOP work complements that of Cequa, for which she called for the development of a more active research collaboration between both institutes.

In the meeting with Ximena Gallardo, Zonal Fisheries Director of Subpesca, he discussed the efforts being made with the Governor for new research projects for the Magallanes region.

Abate Molina Scientific ship set sail to investigate common anchovy and sardine between Valparaíso and Los Lagos Regions

THE CRUISE WILL LAST 33 DAYS, AND IS LED BY THE FISHING ENGINEER ÁLVARO SAAVEDRA, THE SHIP'S CAPTAIN IS TAKASHI ABBE

On Saturday, May 6th, Abate Molina scientific vessel set sail from Valparaíso's Port to characterize and evaluate common sardine and anchovy resources stock present between Valparaíso and Los Lagos Regions, using hydroacoustic methods, during the peak recruitment period and in the immediate fall.

The cruise's specific objectives are:

- To estimate common anchovy and sardine resources stock size and their spatial distribution in the maximum recruitment period to fishery present in research area.
- To characterize and analyze in a spatio-temporal context, evaluated stocks demographic composition and its interannual variation by biological indicators means.
- To characterize and analyze the bio-oceanographic conditions present in research area and their relationship with resources spatial distribution.
- To characterize research area anchovy and common sardine resources aggregations.
- Incremental objective: To prepare an Improvement Plan for direct evaluation studies of pelagic resources; anchoveta, common sardine and southern sardine, made with hydroacoustic methods.



Álvaro Wilson, pointed out that: "...the workshop's success was reflected in the attendees active participation, who showed special interest in the presentations made and in the importance of considering this background when making decisions for their management areas, not losing the opportunity for sectoral authorities to expose different problems they face, all in a collaboration and respect.environment".

For his part, Alejandro Dal Santo, highlighted that: "reflecting together (sectoral authorities, users and IFOP) on these new AMERBs development perspectives, is undoubtedly a success in itself. Being able to understand that local affectations affect a more regional scope, manifests-necessarily- a view of cooperation and sustainability in resources administration that urgently needs to be implemented in a more comprehensive manner. The foregoing without ceasing to take into account in the equation, factors such as climatic change, global warming and the oceans temperature increase".

The interest shown by the attendees shows the importance of continuing to promote this type of meeting, strengthening links between resources applied science, administrators and direct users, as a way of strengthening the co-management experience, which constitutes one of the characteristics of the AMERB Regime.

IFOP Director meets with Science's Minister

On May 15th, in Santiago, Gonzalo Pereira Puchy IFOP's Director, met with Science's Minister Aisén Etcheverry Escudero. This activity was attended by Fisheries and Aquaculture Undersecretariat Julio Salas, staff chief Javier Rivera, Dr. Leonardo Guzmán, IFOP's aquaculture division head, Dr. Carlos Montenegro, Dr. Daniela Díaz fisheries division head and in charge of international affairs cooperation.

The meeting aim was to talk about IFOP's work, the work it does, vision, mission, budgetary needs, to develop the research work.

IFOP's Director informed the Minister of meetings held with other Science Ministers, in which it was determined that IFOP is an institution that receives resources to strengthen science, technology and innovation systems.

The Minister valued IFOP's work, as a leading institution in marine scientific research in the country, also referred to the strengthening of public technological institutes and the creation of a committee that will coordinate them.



To celebrate the sea's month IFOP carries out dissemination activities in schools in Talcahuano and Valparaíso

Fisheries Development Institute (IFOP) Talcahuano headquarters, through the management of the Pelagic Discard project, carried out an important dissemination initiative in collaboration with Pencopolitano High School professional technical area, in the month of the sea context.

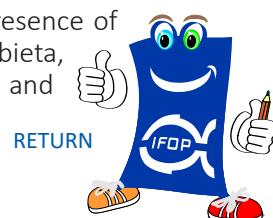
The activity's aim was to promote knowledge and the importance of IFOP's carried out work in fishing and aquaculture research in the country. Through this initiative, IFOP seeks to bring its work closer to the educational community and to promote student interest in the fishing area, with special emphasis on the work of biological-fishery data collection.

During the day, a practical laboratory sampling experience was carried out, in which fourth-year students of the specialty of aquaculture participated. The students had the opportunity to learn from the IFOP experts the sampling techniques used to collect fishing data, as well as learn about some of the work carried out by scientific observers, both in the laboratory and on board the boats.

An educational exhibition divided into three stations was also developed: the first, presented jars with marine fauna, using the conservation in liquids method ; then there was a purse seiner model ; and finally otoliths observation through magnifying glasses, for third-year students and other invited courses. During this activity, the students were able to learn more about the Chilean marine fauna and some internal structures of the fish, such as the otoliths, as well as about the parts that make up the purse seine fishing gear.

The event had the participation of Juan Olivares, of Talcahuano's headquarters IFOP head, IFOP workers Danilo Oro, Héctor Pastor, Héctor Torres, Verónica Valdevenito, Miguel Vegas, Bastián Muñoz. From the Pencopolitano High School, Alex Diaz its director along with Gabriel Guzmán and Haroldo Tapia.

It is important to highlight the presence of two high school alumni, Adrián Ibieta, IFOP direct evaluation technician and



In Valparaíso

An informative talk was held on the scientific work of the IFOP Oceanography and Environment Department (DOMA), an event that took place at Crew School premises an activity framed in the month of the sea celebration.

The presentation was given by the researcher Milena Pizarro, with the assistance of Ximena Pezo from IFOP Valparaíso's Marine Operations department.

Students from 3rd and 4th grade participated, who were explained the different activities that take place on board the institutional Abate Molina ship and the importance of the work of the crew members in carrying out the research cruises.

IFOP has an agreement signed with the crew school through which the students of this school can carry out their professional internships as crew members on the Abate Molina ship.

The relevance of these dissemination activities in schools is to show the institutional work in a practical, playful and pedagogical way to the students and thus encourage respect and care for the ocean and interest in studying careers related to the sea.

“Endemic Seed” Data viewer incorporates a new product associated to “Mussel sector Surveys”

Supporting public and private administration management, for Mussel seed collection activity sustainability, “Mussel larval and environmental monitoring program” led by IFOP, built a digital platform called “Endemic Seed”, whose attributes allow users to make self-queries, in a simple and intuitive way, about:

- 1) Mussel larvae. Where the user can observe abundance of pre-competent (Post spawning) annual cycle and competent (Pre-settlement) larvae.
- 2) Seeds capture. where the user can know accumulated uptake of mus-



Activities in Talcahuano



Activities in Valparaíso

Emilio Acuña, IFOP scientific observer, current workers at the Fisheries Development Institute, who are a reflection of this collaborative work.

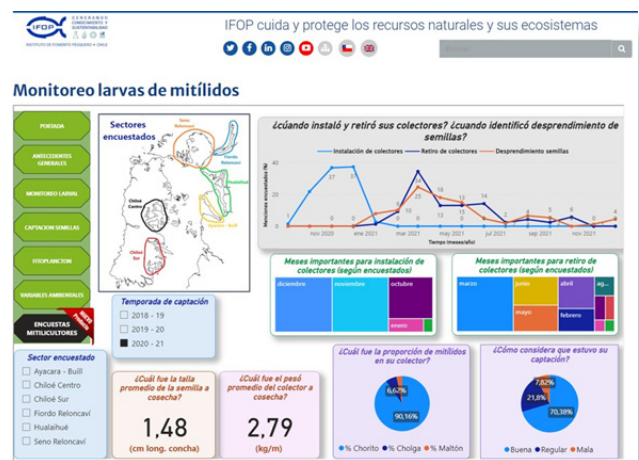
These initiatives strengthen ties and motivate future generations of the Pencopolitano High School to learn about the work that is carried out at the IFOP Talcahuano headquarters. In addition, it promotes the importance of fishing and aquaculture through an ecosystemic approach with activities that bring this work closer to the educational community.



In this new tool of "Mussel Farming SectorSurveys", users will be able to consult territorially and temporarily seed collectors perceptions in the field :

- 1) Months of installation and collectors removal
- 2) Months where landslides occur
- 3) Average seed sizes at the time of collector removal
- 4) Biomass per collector meter
- 5) Mussels Proportion in collector (mussels, cholga and maltón) at harvest
- 6) Capture status indicator (good, fair, poor)

This tool development required a large amount of

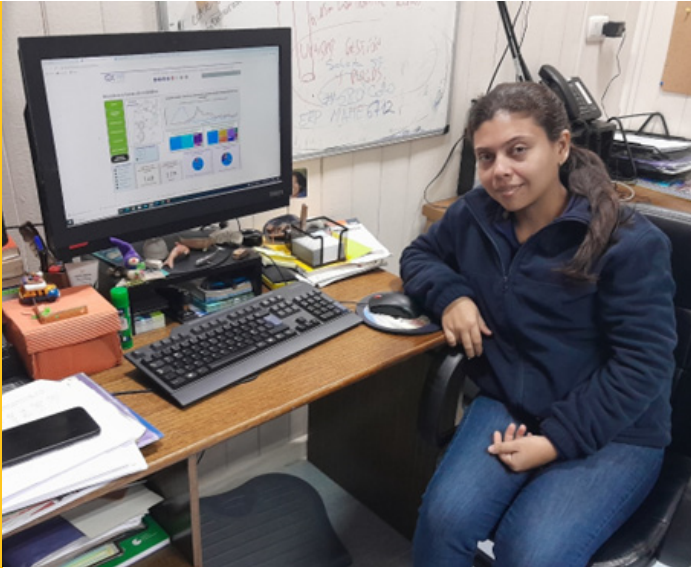


information systematization, collected territorially since 2018, which was carried out by Colombian intern Andrea Jiménez Carrillo, a Aquaculture Program of the Universidad del Atlántico graduate who has been collaborating with IFOP work team since the beginning of March 2023, through the Program "+Mujer +Ciencia +Equidad" of Science, Technology and Innovation Colombia's Ministry.

According to Andrea Jiménez, "I am very happy to present this interactive space for all those who want to use this informa-



RETURN



sel seeds temporal behavior in Yates (Reloncavi) and Castro sector.

- 3) Phytoplankton. Where users can make interannual comparisons regarding abundance and phytoplankton biomass of southern Chile.
- 4) Environmental variables. Which allows users to consult variables of chlorophyll, historical behavior such as temperature and salinity in the water column.

According to Dr. Cristian Segura IFOP researcher, "the platform's content is designed so that users can segregate and compare consulted information, in historical temporal terms (from 2019 up to date) and territorial in different sampling stations. that this program has. The information update is automatic and is linked to data incorporation in Excel spreadsheets, therefore, at the same time that we generate information, it becomes available to users, significantly shortening response times".

Information that can be reviewed through this link:

<https://www.ifop.cl/monitoreo-larvas-de-mitilidos/>

New tool integrates" Mussel sectorSurveys "

Among "Mutilid larval and environmental monitoring program" specific objectives is the Surveys of the mutilid sector objective whose purpose is to determine mutilid seed collection activity performance during the ended season. This activity has been carried out since the beginning of the program and is currently carried out by IFOP researchers, Marina Oyarzún, Macarena Herrera and technologist José Videla.

To these consultation tools on "Endemic Seed" platform, a new and important section called "Mussel sectorSurveys" has just been added, which graphically shows some indicators on seed collection perception , by those who directly carry out this activity.

tion, for this, I dedicated an effort to systematize a large amount of information obtained from the surveys implemented in the mussel sector from 2018 to 2021, for which , it was necessary to segregate the most important questions within a universe of 70 queries made to the seed collectors of the X region of Los Lagos and thus, link them with the main procedures that directly affect the first link in mussel industry. production chain in Chile. At the moment, the data is updated until the 2020-2021 collection season, but we are working on the 2021-2022 update corresponding to the latest results of stage X of the project.

IFOP launches new biodiversity guide associated with small-scale aquaculture carried out by repopulation and culture

Dr. Luis Henríquez-Antipa, developed this beautiful photographic guide of marine biodiversity associated with small-scale aquaculture (SPA) in the Los Lagos region.

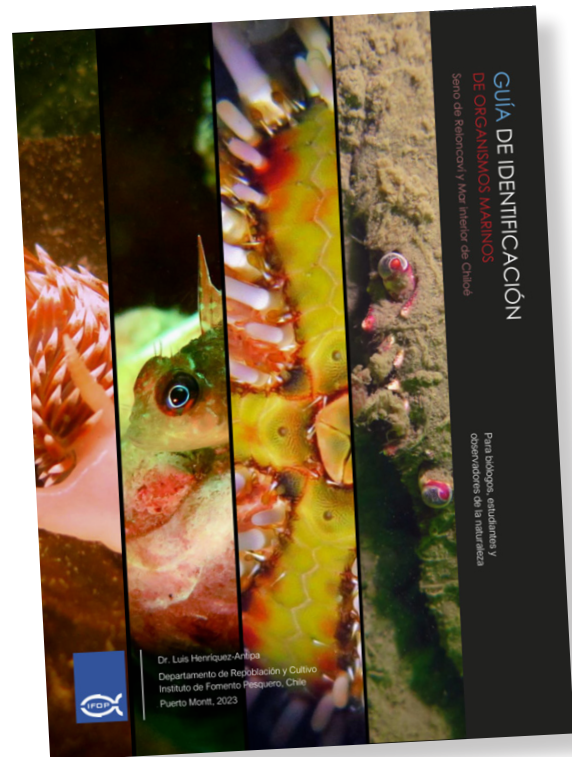
The photographic record is part of “Comprehensive Aquaculture Development Program for Artisanal Fishermen and Small-Scale Aquaculture Farmers” activities carried out by Fisheries Development Institute (IFOP) and in particular, emerging banks research (BEMs) associated with the operation of bivalve cultures.

During the monitoring campaigns to assess APE impact on the benthic ecosystem in Los Lagos region, IFOP RyC senior researcher and scientific diver, Dr. Luis Henríquez-Antipa, made numerous photographic records that allowed the elaboration of the “TO MARINE ORGANISMS IDENTIFICATION GUIDE: Seno de Reloncaví and Inland Sea of Chiloé”, aimed at researchers, students and fans of local diversity.

In this regard, Luis indicates: “A photograph is worth a thousand words. In this small gallery of marine biodiversity, species that inhabit under cultivation of mussels *Mytilus chilensis* and reference habitats throughout the Los Lagos region are shown. The organisms that appear here interact and coexist closely with anthropic activities, representing an important part of Chilean coast natural heritage. In an

effort to promote coastal ecosystem dissemination, understanding and care, this guide presents 100 marine species that can be observed in the coastal environments of our region.

It is a pleasure for us to share this guide with the community, which can be downloaded from the viewer. In case you require a direct download, we leave you the link in our publications gallery.



Seed identification and early stages of mytilids workshop

On Tuesday, April 18th, in response to the invitation of colleagues from Benthic Fisheries Monitoring Program in Amerb, researcher Macarena Herrera Abaroa from Mussel Larval Monitoring Program went to Liceo Hornopirén to give a practical workshop, focused on administrative figures introduction for the Chilean mussel seeds collecting activity and segregation and identification of mussel seeds.

Situation in which both researcher Gabriela Arenas and Alex González pertinent intervention took place, who asserti-



vely participated in this talk clarifying to the students about AMERB administrative figure peculiarities , its role and what resources its administration considers.

After mentioning the talk main aspects, a short introduction was made to go fully into the activity practical phase, where the students were able to appreciate differences between different mussels and their post-larval development stages.

For Mussel Larval Monitoring Program researchers , it is an opportunity to disseminate their results and the interactive platform use of this program in these latitudes.

It is a pleasure to share what we have learned with the fourth grade students of this establishment in the subject of seeds, where in addition to learning about the educational projects underway, we receive a lot of love and gratitude from them, encouraged by their teacher Rodrigo Castillo.



Management areas Mussel seeds collection Challenges's Workshop

On April 19th, this Management areas Mussel seeds collection Challenges's Workshop was successfully carried out, developed within 2022 Management Area Fisheries Monitoring Program framework. This activity is related to knowing mussels (*Mytilus chilensis*) banks status and larvae capture in AMERB, aiming to identify proposals for measures to promote mussels natural banks sustainability and seeds collection. This work session was organized and coordinated by IFOP's Management Areas Section's professionals Catherine González and Gabriela Arenas from IFOP Valparaíso, together with Alex González from IFOP Ancud. In addition, for this workshop's dissemination there was significant support from Hualaihué Artisanal Fishermen Unions Federation and Hualaihue Municipality.

The activity was carried out at Quincho Rucahue events center in Hornopirén, and convened artisanal fishermen organizations attached to Hornopirén commune management areas, which collect mussel seeds; in which the productive chain first link development corresponds to a priority socioeconomic activity. During the day, there was also Martina Delgado participation, who belongs to Fisheries and Aquaculture Zonal Directorate from Los Lagos Region, Eleazar Flores from Artisanal Fisheries Department, from National Fisheries and Aquaculture Service and Miguel Jiménez in charge of Municipality of Hualaihue Development and Fishing.

Among invited speakers were National Fisheries and Aquaculture Service officials, Marcela Gallegos and Carolina González, who spoke about preventive inspection, rights and obligations associated with collecting seeds in management areas and other collection areas. In addition, Macarena Herrera, from IFOP Puerto Montt, a researcher at the Mutilidae Larval Monitoring Program, referred to benthic resource *Mitylus chilensis* reproductive aspects giving an account of space-time coverage of the Monitoring Program and the IT platform that IFOP has for display public information of interest to the mussel farmer.

The workshop was an opportunity to disseminate useful information for artisanal fishermen's organizations that carry out mussel seed collection activities; On the other hand, the event made it possible to discuss and make visible difficulties, of which the existence of administrative differences in the regulation of the mussel seed collection activity stands out, referring to management areas, little importance



RETURN

permits or future special collection permits and concessions, which would be affecting the productive chain associated with this activity.

Researcher Gabriela Arenas pointed out that: "...the workshop success was shown in the attendees active participation, who, from the knowledge and experience of their daily activities, exposed the difficulties and threats both at the administrative and operational levels, which seem to be transversal among artisanal fishermen different organizations participating in this workshop..."

On the other hand, researcher Macarena Herrera highlighted that: "...any dissemination and dissemination activity generates more interaction with users associated with mussel farming, which allows obtaining a better perspective of our research scope and projections in the area. In turn, by sharing with colleagues from other IFOP programs and departments, who work in converging lines of research, highly interesting instances of dialogue are achieved that make visible, with greater focus, the challenges to be faced..."



RETURN