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IFOP Executive Director participates in a dissemination workshop and meets with authorities in Arica and Parinacota region

On Tuesday, August 8th, Gonzalo Pereira Puchy Fisheries Development Institute (IFOP)'s Executive Director accompanied by his advisor Daniela Diaz Guisado, made a trip to Arica and Parinacota's region, aiming to strengthen ties with IFOP's Regional Headquarters workers, in addition, carry out a series of meetings with the regional authorities, to address various issues related to the fishing sector.

The day was inaugurated with a dissemination workshop by researcher Carola Hernández, who together with other IFOP researchers who work in the Regional Offices of Iquique and Arica, presented "Monitoring



Program for the Main Fisheries Pelagic in the Northern Zone of Chile, covering the regions of Arica and Parinacota and Coquimbo, year 2022" project results. This event was attended by representatives of various institutions, the industry and fishing related groups. Among the participants were Zonal Fisheries Directorate, Sernapesca, Corpesca S.A., Arica's Small Ship Fisheries Owners Union (ASOARPES) and Arica Artisanal Crews Union representatives, as well as other fishery users and IFOP's scientific observers. All attendees expressed their appreciation for holding this workshop, and also expressed the importance



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Fishing Development Institute (IFOP) premieres TVN “From Atom to Cosmos Explorers” new season

IFOP, FISHING DEVELOPMENT INSTITUTE, IS ABOUT TO CELEBRATE ITS 60 YEARS OF CONTRIBUTING SCIENTIFIC KNOWLEDGE ABOUT WHAT HAPPENS IN OUR OCEAN

To talk about the work they have done in these almost 6 decades, on Wednesday, August 2nd at 3:00 p.m., its director, Gonzalo Pereira, will participate in the episode that will open the season of Explorers, from atom to cosmos, on Canal 24 Horas, TVN.

Some of the topics that will be addressed in the interview, which will be conducted by the space journalist, Nicolás Vial, are:

IFOP AND ITS CONTRIBUTION TO FISHERIES RESEARCH

Fisheries Development Institute, IFOP, has a Fisheries Research Division, whose aim is to generate and integrate information to create fisheries administration public value knowledge.



This division has 5 departments which are: Sampling Management Department (DGM) which is dedicated to taking data in the fisheries. For its part, Fishery Evaluation Department (DEP) takes this data and generates different

that it continue to be held in the city of Arica.

After this activity, IFOP Director and his adviser, accompanied by Hernán Padilla Regional Headquarters Head, met with José Zúñiga Economics Seremi, and with Karen Guissen Fisheries Zonal Director. In this meeting, challenges posed by El Niño climatic phenomenon in the north of the country were addressed, including its environmental, economic and social implications, which have had a special impact on the region. Likewise, it was discussed how IFOP is contributing to information collection so that the authorities, both at the sectoral level and regional authorities, can make informed decisions.

To conclude, IFOP representatives held a significant meeting with Ricardo Sanzana Presidential Delegate, with the purpose of discussing fishing sector sustainable development in the region. During the conversation, it was stressed that Fisheries Development Institute must continue to play an increasingly crucial role in the fisheries investigations carried out in the region, an opinion shared by present authorities.



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indicators, for example, fishing yield. All this information then reaches Resource Evaluation Department (DER) which, by integrating this data, analyzes resource's status (biomass levels, abundance, etc.) and thereby prepares reports on catch recommendations that are used in each resource scientific committees to define annual fishing quotas.

The other two departments are Direct Evaluations Department (DED) and Oceanography and Environment Department (DOMA) which, using Abate Molina scientific vessel, travels Chilean coasts doing different types of sampling and research to find out fishery resources biomass state and ocean's environmental conditions.

In order to carry out these investigations, IFOP has Marine Operations Department, under an Executive Directorate, which is in charge of Abate Molina Scientific Vessel to carry out yearly scheduled cruises (generally there are 7, but it depends on species). , considering that there are between 220 and 240 days spent in navigation between Arica and the Los Lagos Region.

RED TIDE: HOW TO DEAL WITH THIS INCREASING PHENOMENON

Red tide is a phenomenon that occurs with harmful algal bloom (HAB) and that can have an important repercussions for people's health and marine ecosystems. It has been seen that in recent years these phenomena are increasingly recurrent, extensive and intense.

Understanding this phenomenon is a job that IFOP has been developing in recent decades and has addressed it through different areas: moni-

toring and research through FAN Study Center. Regarding monitoring, since 2006 cruises have been carried out through the fjords between Los Lagos Region and Magallanes Region to take periodic waters samples of this entire area. In addition, since 2018, sampling began in the Pacific between Biobío and Aysén Region.

At the same time, these data also feed the research carried out at the Institute, which is the other area of work. These research aims to understand these phenomena, what they are due to, what conditions cause them to proliferate, etc. In this line, IFOP recently participated in a 5 years research and was carried out in collaboration with state and academic institutions from Chile and Japan.

CLIMATIC CHANGE AND ITS IMPACT ON THE OCEAN

The year 2023 IFOP celebrates 59 years since its foundation and since the beginning, with the instruments of the time, fishing surveys, oceanographic sampling and planktonic samples collection have been carried out along the Chilean coast, in Biofishing and Oceanographic cruises.



Today, thanks to technological advances, 30,000 samples that have been collected in this time are in the process of becoming a public digital library, a job that will take at least 8 years.

Also in the oceanographic study, in IFOP they use technological tools such as hydrodynamic and biogeochemical models to predict, alert and manage the southern coast of our country and thus generate support in decision-making and the elaboration State's Marine field policies.



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IFOP, participates in aquaculture, fisheries and marine biology international conference (ICAF 2023) held in London

THE SCIENTIFIC COMMITTEE ORGANIZING THE EVENT IS MADE UP OF A SCIENTIST FROM: FRANCE, USA, MALAYSIA AND ARGENTINA

Between August 14 -15, the first aquaculture, fisheries and marine biology international conference (ICAF 2023) will be held in London, United Kingdom, an opportunity in which a contribution from IFOP's CREAN (Center for Harmful Algae Studies) has been accepted. (below attached summary translated into Spanish). This contribution has been prepared by six CREAN researchers, Oscar Espinoza, Pablo Salgado, Pamela Carbonell, Gemita Pizarro, Javier Paredes, and Leonardo Guzmán.

The presentation is on Monday between 14:20 – 14:40 (London time) which corresponds between 09:20 – 09:40 Chilean time. This conference is held through zoom platform, and shows how it is feasible to generate experiences exchanges using these technologies. The presentation is sent recorded, and presenter (in this case Dr. Guzmán) must be present electronically to answer questions.

On the occasion, a 15-minute presentation (5 minutes for questions) has been prepared, showing the progress that has been made in the last 10 years, with the incorporation of high-level training researchers, new technologies and tools to achieve a better understanding of the different noxious blooms that affect our country, particularly the national fjords.

Conference links aqua-conference.com.

<https://aqua-conference.com/>

Summary

SOUTH-CENTRAL CHILE HARMFUL ALGAE BLOOMS MONITORING OVER TIME: NEW KNOWLEDGE, TECHNOLOGIES AND MANAGEMENT IMPLEMENTATION

Guzmán, Leonardo¹, Oscar Espinoza-González¹, Pablo Salgado², Pamela Carbonell¹, Gemita Pizarro² & Javier Paredes-Mella¹

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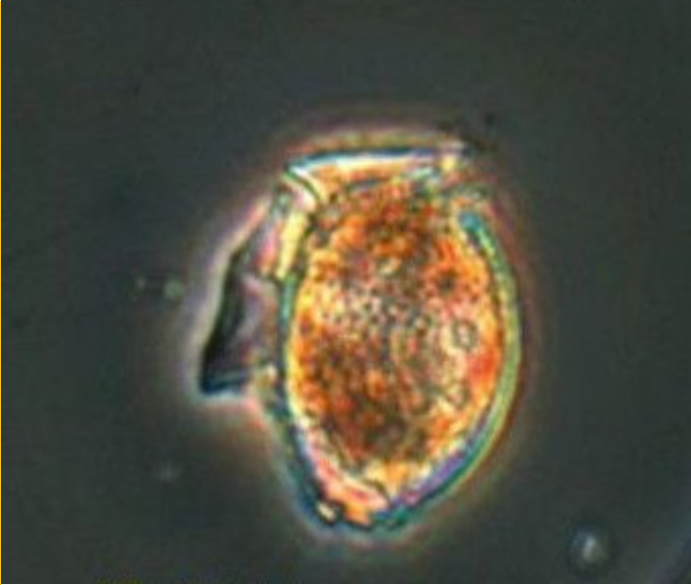
A Worldwide, marine proteins production has become more relevant for food security and nutrition. Chile is the world leader in fishing and aquaculture, ranking seventh for its production levels, with export returns during 2021 of US\$ 7,038 million.

Fisheries and aquaculture present challenges linked to sustainable planning and adaptation to climatic change. Both also face challenges such as environment changes from pollution, habitat loss, El Niño and La Niña, and Harmful Algal Blooms (HABs). FAN events have been increasingly observed over the last 50 years, which is challenging given the limited abilities to predict and control them, to remove toxins from shellfish, and the lack of antidotes to counteract toxins effects. All this requires strengthening prevention measures, among which monitoring programs (PM) are a key tool to mitigate its effects.

A PM is a space-time systematic activity, which provides information on certain variables natural trends that are used as environmental change indicators and eventually, risk indicators, which can be used to protect public health and to minimize risks social, economic and environmental problems. For a PM, there are tools ranging from satellite images to molecular biology techniques, but all of them aim to detect, identify and quantify microalgae responsible for HAB and, of course, in the case of toxic microalgae, detect and quantify the toxins.

This contribution shows the programs executed by Fisheries Development Institute (IFOP) and techni-





cally supports Fisheries and Aquaculture Undersecretariat, which monitors an important part of the national coastline, including the fjords and channels of the south (36°–55°S), combining traditional and emerging techniques, which make it possible to have long-term time series, improve early warnings, estimate flowering areas, and even predict certain blooms, and consequently improve public health protection and minimize the effects on productive activities.

IFOP Region of Magallanes, enters the program of good labor practices with gender equality 2023

In April 2023, IFOP in the Magallanes Region was selected to participate in the Good Labor Practices with Gender Equality Program (BPLEG) organized by National Service for Women and Gender Equality at level 1, called awareness. During 2 years there will be an accompaniment in the installation of Good Labor Practices through technical assistance in the following topics:

- Institutional Diagnosis
- Gender Committee Formation

- Initial, intermediate and advanced action plan
- Inequities, gaps and barriers Measurement
- Tools transfer to implement Nch3262 Standard
- Training plans: Gender Awareness School and School Equality Agents Level I and II.
- Participation in gap management rounds.
- Regional and national collaboration instances.

On Wednesday, June 28th, Gender Committee was set up in the IFOP Punta Arenas meeting room, made up of Carolina Toro Laboratory Analyst, Alejandra Valdebenito Field Coordinator, Maira Cortes, Well-being and Life Quality Manager Cristian Vargas, Cristian Ruiz, Hernán Pacheco researchers, Carlos Rodríguez Risk Prevention Coordinator and Erik Daza IFOP Head in the Magallanes region. The formation of the committee is a relevant milestone since its objectives are:

- To promote cultural change within the organization
- Construction of an inclusive work culture free of biases and gender stereotypes.
- Promote the installation of good labor practices to address the organization inequities, gaps and gender barriers.
- To promote the entry, development and permanence of women in quality work spaces.
- Promote the implementation of the NCh3262:2021 Chilean Standard by publicizing benefits it provides both for the institution and for female workers.

This instance was attended by Fabiola García National Service for Women and Gender Equality Regional Director (SERNAMEG), who pointed out: “We hope that IFOP’s entry into BPLEG program will be the beginning of a collaborative work together with Sernameg, which will allow them to incorporate good labor practices that facilitate gender equality and work, family and personal life conciliation”. María José Madrid BPLEG regional manager, also participated in the conference, who stated: “IFOP belongs to a sector of the masculinized industry, which is why it is



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strategic to work on a people management system from a gender perspective, which encourages development, ensure and promote equity and with it, the diversity of talent within the organization. We see that in IFOP there is commitment and conviction with what promotes Regulation 3262:2021 for what we know will be a successful and inspiring experience”.

Erik Daza IFOP’s Head in Magallanes indicated: “This application has the support of our Executive Directorate and will allow us to lead from Magallanes a pilot and innovative experience in gender equality, which is a fundamental and essential human right in all areas of the society. Through the formation of the gender committee, we hope to start a systematic and dialoguing work that will allow us to advance in the long-awaited certification in Nch 3262 with the support of Sernameg”.

Results of Bi-National Project “Reduce incidental leatherback turtles capture in longline fisheries of northern Chile” are exposed in this Dissemination Workshop

LFisheries Development Institute Oceanography and Environment Department Monitoring Highly Migratory Resources Ecosystemic Approach project researchers (SRAM ECO), presented binational project results “Reduce leatherback turtles incidental capture in northern longline fisheries From Chile”.

The workshop took place in Ana Ávalos Valenzuela Auditorium of Valparaíso Natural History Museum and the audience was made up of Fisheries and Aquaculture Undersecretariat, Foreign Affairs Ministry, Maritime Interests and Environment Directorate (DIRINMAR), Universidad de Valparaíso and San Francisco State University.

Dr. Patricia Zárate, SRAM ECO project leader indicated that “this project was executed by IFOP in Chile, jointly with MarViva Foundation (Costa Rica) and financed by United States National Fish and Wildlife Foundation. The main activities carried out were related to mitigation measures experimentation in 6 fishing trips in northern Chile and 114 fishermen and 37 officials correct handling and release of sea turtles training from public-private sector.



Dr. Zárate added, sea turtles get hooked on hooks, sometimes superficially, causing little damage and easy release, but they also tend to get hooked in more delicate places, such as eyes, and sometimes, turtles also swallow them. when taking the bait, which can cause internal damage that could be fatal. In this project, we focused on evaluating a circle hook use, as distinct from the jack-type hook used in the artisanal longline fishery for offshore dorado in northern Chile. This circle hook had proven to be successful in other countries in the region reducing sea turtles bycatch since, due to its circular shape, hooks are shallower and more difficult to swallow. Our results showed that sea turtles hooked less on this hook, but the same effect was observed in deep-sea dorados, which is not a good result for fishermen who extract this resource. An appropriate mitigation measure for its implementation must be designed to reduce incidental catch of non-tar-

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“Collected information quality improvement actions in management areas” workshop

Within the “Program for Monitoring Fisheries Under the Management Area Regime” framework, on June 29th, 2023, an important workshop was held which dealt with quality management of data and information generated in Benthic Resources Management and Exploitation Areas (AMERB) research. In almost 25 years of Management Areas regime development, technical organizations that advise artisanal fishermen’s organizations attached to this regime have generated a large number of reports and data records, thereby creating an unique opportunity to evaluate and to compare these areas evolution, as well as to verify main species population status. However, AMERB regime main species and management evaluation actions. Through information analysis from these studies, has been limited due to different methodologies use and ways of delivering data and information. The aforementioned led to the development of a process that would allow standards definition and control contribute to information quality improvement.

The workshop resulted in an opportunity to disseminate results corresponding to a line of work related to AMERB database management system (BDA) standardization and optimization process and AMERB study quality control system relevant information for technical organizations. In addition to IFOP professionals presentations, Fisheries Undersecretariat Benthic Resources Unit (URB-SSPA), presented on advances and challenges from the perspective of the administration regarding AMERB quality information management research.

This workshop brought together around 30 technical organizations representatives linked to follow-up research execution required in AMERB regime. Among opinions and comments expressed



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get species without increasing mortality in other groups, but at the same time maintaining target species quantity and quality catches”.

Ilia Cari M.Sc researcher added “the workshop participants felt that their opinions, interests and traditional knowledge were considered in participatory workshops, highlighting their interest in continuing with this type of instances or initiatives at least once a year. A key aspect was to consider diversity of actors, including different age ranges fishermen and with different functions, such as crew members, captains and shipowners. Have the participation of international guests, belonging to Conservation Areas National System and Costa Rica Environment Ministry (Rotney Piedra) and Fundación MarViva Science Manager (Cristina Sánchez) and ACOREMA in Peru (Elizabeth Gutiérrez) who presented. For fishermen, the relevance of the actions that they can carry out with sea turtles in Chile to conserve Eastern Pacific subpopulations it was relevant for many fishermen, giving importance to the actions that they can carry out on high seas and for artisanal fishing trade”. The number of fishermen trained in these workshops represent a low percentage of fishing fleets that incidentally catch sea turtles, which is why it is necessary to continue with these trainings both for artisanal and industrial fishing sector, as well as for public-private sector officials in Chile.

This project, of approximately 3 years, has made it possible to evaluate a mitigation measure to reduce sea turtles incidental capture of in the high-sea dorado fishery in the northern zone, generate local capacities to reduce marine turtles incidental capture in Chile and has facilitated regional collaboration to improve Eastern Pacific Ocean leatherback turtles conservation and management.



by these representatives, the importance of considering the performance of artisanal fishermen's organizations was highlighted, recognizing them as a fundamental element of AMERB regime success. In addition, it was noted that data and information contribution can go beyond accounting for management areas, being able to contribute with relevant information for climatic change impact evaluation. The need to advance in data and information collection that allows comprehensive management, oriented towards management with an ecosystemic approach, was also discussed, considering that AMERBs are part of a socio-ecological system.

Gabriela Arenas, researcher highlighted: "...the importance of generating these dissemination instances, since they contribute to awareness of those who are key actors in the collection of data and information, in addition to meaning an instance to receive those who work permanently with artisanal fishermen appreciations ". On the other hand, researcher Bryan Bularz pointed out that it is important to advance in standard procedures implementation that regulate the way in which data is collected in AMERB, which would allow restricting problems that have historically been repeated in the studies carried out in AMERB evaluations.

In her part, Cecilia Godoy, management areas research consultant , pointed out that: "It is good to share experiences between teams of professionals who are in the field with organizations and it is very important to rescue AMERBs organizational history and to have indicators that also show fishermen and their communities development and the incorporation of issues such as gender equality, climatic change and circular economy".

Finally, Luis Ariz, IFOP's Management Areas Section's head, said that: "...workshops like these allow us to account for our advisory role to fishing authority on AMERB matters,

in which IFOP has paid special attention to the quality of information from AMERB research, proposing standardized procedures for information and data sampling and delivery, so that a reliable evaluation of AMERB regime and specific studies of management areas is possible. A notable point addressed in the workshop was the need to understand AMERBs information gathering and evaluation, not only in consideration of fishing biological, having to highlight socio-economic and organizational aspects, areas that are observed to be weakened in their importance, and even more so if topics in vogue are added such as marine environment, climatic change, gender equality, among others... ".

Image Analysis Course with Image-Pro software use held at IFOP Talcahuano Headquarters

BETWEEN JULY 03RD AND 07TH. "IMAGE ANALYSIS USING THE IMAGE-PRO SOFTWARE" TRAINING WAS DEVELOPED AT IFOP TALCAHUANO HEADQUARTERS

Lizandro Muñoz R., laboratory analyst in Age and Growth Section, who has received various international and national training courses in microscopy and image analysis, among others in his curriculum, indicated as course reporter that this is an activity that has been carried out at Human Resources Department request in order to deliver basic microscopy tools pre-acquisition of work images and image analysis tools to Talcahuano Regional Headquarters personnel.

With an attendance of twelve people including researchers, technologists and scientific observers, the



Start-up ceremony “Atacama Region anchovy monitoring program incorporation associated to artisanal fishing fleet”

On Monday, July 17th, at 3:30 p.m., an activity was carried out at Universidad de Atacama’s House of Culture, located in Caldera city, with which began Atacama Region anchovy monitoring program incorporation associated to artisanal fishing fleet execution. (BIP 40044584). Welcome greeting words were given by the institution in charge of this research IFOP Executive Director representative, researcher Nancy Barahona Toledo, Fisheries Evaluation Department head.

This program is financed by the Regional Government of Atacama through FIC-R funds for an amount of \$221 million to be executed in 36 months.

This activity was attended by Atacama Region’s Regional Governor, Miguel Vargas Correa, Fisheries Commission president, Chamber of Deputies Aquaculture and Maritime Interests , Daniella Cicardini, Javier Chávez fisheries zonal director, Alejandro Dal Santo IFOP zonal director Dora Jiménez, IFOP’s Resource Evaluation Department head, Francisco Leiva, project manager, researchers Adrián Ibieta and Luis La Cruz, Héctor Álvarez and Sofia Ríos artisanal fishermen representatives, along with others assistants.

The meeting program included a presentation of the project by the project manager, to then give rise to a second presentation by the remaining researchers in this study, on the equipment that will be used, its mode of use and results that will be obtained. they hope to obtain in the study, by incorporating new technologies. This was followed by a round of consultations, which stood out for the interest that this study aroused on the part of artisanal fishermen.

It should be noted that this cruise occurs simultaneously with El Niño condition development, which represents a unique opportunity to describe this phe-



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training included an introduction to image analysis tools use , but also included real samples provided by attendees themselves, which resulted in a greater and better understanding of the processes that occur from the moment the samples are sent to the laboratories for further analysis. Juan Olivares, Talcahuano Headquarters Head, explained to the attendees what happens with otoliths, how they are treated, how they are analyzed and what type of research is carried out with these samples, which added value to this training.

On the other hand, having samples provided the possibility for the attendees to make a better approach and understanding in microscopy equipment proper use , because they were able to acquire their own images and carry out indicated activities, while the rest of the attendees proceeded to work with their own images from the software. For this reason, this training was developed in an interactive way where if mistakes were made, suggestions for the application of tools were made in order to improve methodologies, but best of all, the participants themselves gave those suggestions, with which it was also possible to go over and over again reviewing the use of the software’s Image Analysis tools.

This training has given the option of forming a good group of people who could develop or collaborate in studies that involve the use of “Image Analysis Research” and which counts on the fact that it has been completely developed by IFOP staff.



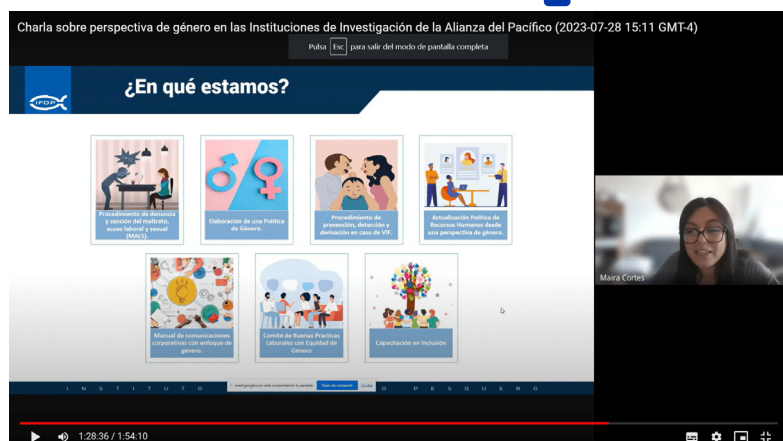
nomenon effects on anchovy important fishing resource distribution and abundance.

The activity closure was carried out by the Governor together with the Deputy, to then give rise to a closing cocktail.

Talk on gender perspective in Pacific Alliance Fisheries and Aquaculture Research Institutions

On Friday, July 28th, the talk “Unit: Gender Mainstreaming Unit in INIDEP field, Argentina” was held. This activity was carried out in the context of the of Pacific Alliance Fisheries and Aquaculture Research Institutions Network (IIPA/AP Network), made up of Fisheries Development Institute (IFOP) from Chile, José Benito Vives de Andrés (INVEMAR) from Colombia, National Fisheries Institute (INAPESCA) from Mexico and Sea Institute from Peru (IMARPE), and where Fisheries Research and Development National Institute (INIDEP) from Argentina also participates.

During the activity, researchers Cecilia Mauna and Nerina Lagos, and psychologist Micaela



Vázquez, belonging to INIDEP Gender Mainstreaming Unit, spoke about the work carried out prior to this Unit formation in 2020, to the progress made up to this date, actions under development and those that will be addressed in the future. On the occasion, Maira Cortés, IFOP Welfare Manager, spoke about the progress and future steps of the institution in terms of gender.

Through this activity, committed to the 2023-2024 Work Plan of the IIPA/AP Network, the aim was to create a space for dialogue between institutions that carry out research activities in the fishing and aquaculture field, to share experiences and progress in gender matters, issues prioritized by all the institutions that make up the Network.

OpenMSE software Advanced training workshop

This workshop is being developed in Valparaíso city, aimed at a group made up of Fisheries and Aquaculture Undersecretariat administrators and researchers from both Technical Committee for Small Pelagic Fisheries and IFOP

During this week and within the framework of “Management Strategies Evaluation (EEM) for Precautionary



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Logros del trabajo colectivo (UTPG) (2022-2023)

- ▶ Resolución de la conformación de la **Unidad de Transversalización de la Perspectiva de Género** (Marzo 2022).
- ▶ **Capacitaciones, sensibilización y concientización** (folletería, cursos, material audiovisual y talleres)
- ▶ Apertura de **canal de comunicación** (mail de la unidad) para primera escucha en casos de violencia.
- ▶ Más de 200 hs de **reuniones de agentes**, espacio de debates y asesoramientos para casos de violencia de género con equipos interdisciplinario.
- ▶ Escritura conjunta de la **GUÍA ABORDAJE DE LAS VIOLENCIAS POR MOTIVOS DE GÉNERO EN EL INSTITUTO NACIONAL DE INVESTIGACIÓN Y DESARROLLO PESQUERO**.
- ▶ Elaboración y construcción de procedimientos para el **MANUAL INTERNO DE ACCIÓN ANTE SITUACIONES DE ACOSO, VIOLENCIA Y/O DISCRIMINACIÓN EN EL ÁMBITO LABORAL** - INIDEP.



Approach Implementation in Northern Anchoveta (*Engraulis ringens*) in Fisheries and Aquaculture General Law's Context" project, which is executed by IFOP's Resources Evaluation Department, "OpenMSE software packages Advanced training workshop" is being carried out.

EEM implementation activities started during July with a basic training on concepts and theory, and introduction to openMSE software platform, by a team of international experts from Blue Matter Science Ltd., and continue with this advanced training workshop applied to northern anchoveta fishery, given by Dr. Quang Huynh, an expert belonging to the same consultancy.

IFOP held a Dissemination workshop on mussel seeds larvae and collection monitoring

Fisheries Development Institute (IFOP), held a workshop to disseminate "Monitoring and surveillance program on mussels larval availability for the aquaculture activity sustainability in southern zone of Chile, X stage 2022-23 ", research results that has been carried out since 2013 and that is part of the permanent monitoring programs executed by the IFOP and defined by the Undersecretary of Fisheries and Aquaculture.

The workshop was carried out electronically through Googlemeet platform. With more than 154 attendees, who expressed great interest in what was presented there.

IFOP professionals associated with the monitoring program showed larval monitoring main results and presented presentations focused on describing mussel seed capture activity, from mussel farmers perspective, as well as seed detachments that may reflect capture and efficiency indicators for the industry. In addition, they presented results on larvae abundance in X region de Los Lagos inland sea , mainly in the last season. To end the day, the benefits of "Endemic Seed" interactive platform and its adjustments that also involve applicability information from Surveys of the Mutiliculturist Sector specific objective, which can be perfectly linked with the other elements of the platform, were noted. This platform can be viewed by the community at: <https://www.ifop.cl/monitoreo-larvas-de-mitilidos/>

MUSSEL FARMING; CHILEAN MUSSEL AQUACULTURE BASED ON SPAT CAPTURE

The Chilean Mussel Industry is established, mainly, in Los Lagos region and in the last two decades it has presented an important growth in its production volume, showing an increase of 1770% since the year 2000 with 23,996 tons to 425,911 tons. in 2021, representing a productive growth of 10.4% compared to the previous year (2020; Sernapesca Statistics 2021). This annual biomass production of mussels in Chile places it as the second producer and the first world exporter of this product.

One of mussel farming main characteristics is that its success depends on seeds (i.e., juveniles) and food (i.e., plankton) coming from the natural environment. In general terms, the practice of collecting seeds from the natural environment to later cultivate and market them is called "capture-based aquaculture" and has certain particularities that must be considered when administering, regulating and managing the activity.

The development of this mussel larvae monitoring program, within





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the framework of the Permanent Research Program defined in the General Law of Fisheries and Aquaculture of the State of Chile, has been key to gathering the biological-environmental information necessary to characterize natural processes behind mussel farming success , and it is also expected that it will be considered as a State tool to manage and regulate collecting seeds activity . The importance of the existence of permanent monitoring aimed at answering key questions has been recognized in literature for its potential to positively impact natural resources conservation and adaptive management plans implementation, as well as tending to increase efficiency and seed quality, reducing both e detachment losses and accompanying fauna respectively.



VOLVER