

- Harmful Algae Studies Center (CREAN) Puerto Montt was present at a local Science Festival
  - IFOP Talcahuano collaborates in "Playa Negra" cleaning in Coronel 5

## "Abate Molina" Scientific vessel participates in Joint Regional Cruise coordinated by the Permanent Commission of the South Pacific

#### COLOMBIA, ECUADOR, PERU AND NORTHERN CHILE ARE ALSO PART

Between September 14th and October 19th, 2019, the Chilean Fisheries Development Institute (IFOP) is developing the "MOBIO-MPH 2019" cruise, associated with the project "Bio-oceanographic conditions and evaluation of spawning anchovy stock between the regions of Arica and Antofagasta, year 2019". The execution is in IFOP Department of Oceanography and Environment hands and the project manager is the oceanographer Jessica Bonicelli.

The cruise main objectives, within the framework of IFOP Fisheries Development Institute advice to the Chilean Subsecretariat of Fisheries, is oceanographic monitoring and anchovy eggs sampling to carry out spawning stock evaluation of this resource. During this period, the 14 researchers and embarked technicians will perform ichthyoplankton, zoo and phyto plankton

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sampling, nutrients, isotopes, pelagic small acoustics, physical oceanography and cetacean observation.

This cruise, in its oceanographic part, is part of the XXII Joint Regional Cruise and for this reason the scientific vessels of Colombia, Ecuador and Peru are also deployed simultaneously in their respective seas. The Permanent Commission of the South Pacific (CPPS) objective for this joint cruise is to document the variability of the properties of the ocean and Southeast Pacific, adjacent atmosphere during the months of September-October 2019. This results in monitoring of the oceanographic conditions of an extensive maritime area within the framework of the study of El Niño, a regional process that was presented in its warm phase un-

the month of July just past and currently the ocean-atmospheric conditions are neutral.



### Schoolchildren visit Talcahuano's IFOP facilities

Students from Pencopolitano High School in Penco, toured Fisheries Development Institute premises in Talcahuano, after their high school professional technical coordination requested the Descarte Scientific ObserversProject, a motivational talk to high school aquaculture specialty students.

The itinerary prepared for the students began with some welcome words from Cristian Villouta Field Coordinator who explained visit scheduled activities.

Fishing operations in industrial and craft vessels audiovisual material were shown to the students; a laboratory work presentation and a practical activity by Héctor Pastor.Scientific Observer The students performed a biological sampling and interacted with an exhibition of species caught in fishing operations.

The students were very interested in visiting IFOP Headquarters, their daily work and the role played by IFOP. Their previous visit to IFOP Talcahuano facilities was last August.

Finally, the High Scool coordinator Haroldo Tapia "thanked the hospitality and highlighted the value of this visit so that IFOP and the students had a meeting considering a possible insertion as practitioners in the future."



# **Ifopino** Researcher Jorge Sateler exhibits at the Marine SciencesLatin American Congress

## IT WILL TAKE PLACE BETWEEN NOVEMBER 4TH AND 8TH IN MAR DEL PLATA, ARGENTINA

This congress (COLACMAR) is the most important event in the Americas, for those interested in marine sciences development. IFOP professionals participation contributes to institutional positioning and allows the collection of experiences and knowledge to incorporate into the projects carried out by our institution.



Jorge Sateler Galleguillos is a marine technician with a master's degree in marine science and technology. He currently works as a senior researcher in the Fisheries Evaluation Department and in his long professional career he has participated in several research lines and multiple projects. His interest field is artisanal fisheries performance, fleet behavior and fishing gear.

The scientific work that will be presented at CO-LACMAR was carried out jointly with Dr. Dante Queirolo of the PUCV and is entitled "Effects of progressive change of mesh sizes in gillnets used in common hake fishery (Merluccius gayi gayi) versus Central Chile ". The stock of common hake is in a state of overexploitation and this condition (among others) has modeled the behavior and performance of fishery, with strong impacts on users. A direct relationship is established between the size composition of artisanal catches and the decrease in mesh size of gillnets, concluding that this may have implications on the condition of the stock and should be considered in management measures.

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## IFOP Talcahuano, participates in V Scientific Conference "Educating for Sustainable Development"

#### THE ACTIVITY IS PART OF THE DISSEMINATION REQUIREMENTS OF THE IFOP SCIENTIFIC OB-SERVER PROGRAM

On Thursday, October 10th , in the Faculty of Natural and Oceanographic Sciences at the Universidad de Concepción offices , the open doors day was held for schoolchildren in the area. It was organized by Filidor Gaete Monsalve High School of Llico jointly with INCAR, Universidad de Concepción and Arauco Municipality.

It was attended by 16 institutions dedicated to marine sciences and aquaculture, including the Fisheries Development Institute (IFOP). The activity began with a talk, where students were explained the role of the Institute as an advisor to the decision making of the national fisheries and aquaculture institutions. Subsequently, a practical activity was carried out with fish sampling and structure extraction, indicating the role of each of these in the fish and its use in research. Finally, the model of an industrial ship was used to explain how the fish they analyzed are extracted from the sea.

The participants were the Cristian Villouta Field Coordinator and scientific observers Daniel Beroiza, Danilo Oro, Héctor Pastor and Rui- Feng Wang.

There will be a second Scientific Conference that will be held at Llico High School on October 29 and 30, 2019. On this occasion, IFOP will have a Stand and 2 talks for the students of the aforementioned high school.





### Science goes out in Aysén

In the main square of Coyhaique, in Aysén region, the activity "Science goes outside" was carried out, organized jointly by the Regional Associative Project, CONICYT PAR Explora Universidad Austral de Chile, Campus Patagonia from Region of Aysén.

Various public, private institutions, educational establishments, Research centers, NGOs, and companies participated in the activity, under the proclamation of the Sun's year as a theme that guides activities presented by each of the stands proposed by the participants.

In that same sense, researchers, laboratory analysts and scientific observers of Fisheries Development Institute (IFOP); Yessica Robles, Fernanda Cornejo and Gustavo Merino exposed a talk to the community through simple and didactic material, as The Sun relates to the different organisms studied by IFOP in the Aysén Region, the importance it presents for the development of marine life and how it directly affects the different human activities related to the sea.

IFOP's stand, had diverse educational and didactic material related to the proposed theme and the institution work, in addition to the artistic intervention of an outsourcing with magic tricks related to the subject, to encourage citizen participation. IFOP workers also took advantage of the instance to raise awareness among the community about environmental care, marine pollution, bycatch and affected seabirds.

Luis Iriarte, together with other workers, participated in the "Museums, Laboratory and Open Observatories" activity, showing the main activities carried out by IFOP, at the base of Puerto Aysen. Each

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student was given material provided by the team of Scientific Observers and the Center for Harmful Algae Studies CREAN, so that they learn about the marine species that inhabit our country.

### Researchers shared Humboldt Current Great Marine Ecosystem fishery resources scientific knowledge

With presence of Science Faculty researchers, Sustainable Environments Research Center (CIBAS-UCSC), Fisheries Development Institute (IFOP), Universidad de la Laguna from Spain and UCSC Master in Marine Ecology Program graduates and Biodiversity and Biorecourse Doctorate mention in Sciences, the second part of the workshop "Importance of biochemical composition, fatty acid profile and mitochondrial markers was carried out to determine Humboldt Marine Ecosystem fishery resources nutritional and reproductive status "which was carried out last week at UCSC Faculty of Science Postgraduate Building.

This instance allowed to share and enhance scientific knowledge generated in "Monitoring Program of IFOP Main National Fisheries. Fishery Highly Migratory Resources. Biological-Fisheries Aspects "framework project, since collaborative scientific research is carried out in which information is analyzed at the individual level of transzonal and highly migra-



tory oceanic fish, in which Dr. Ángel Urzúa, Faculty of Sciences Academic and Researcher at CIBAS-UCSC is a principal investigator and maintains a line of research in these areas.

The presentations during the workshop consisted of the review of ecological, fishing and biological theory for the interpretation of scientific results of national fisheries. Presentations such as "Physiological applications of metabolic monitoring of marked fatty acids in marine animals", "reproductive aspects of highly migratory resources", "fatty acid profiles of marine invertebrates" and "statistical analysis with R statistical software" were made at the workshop. among others.

Patricio Barría, IFOP Senior Researcher from Valparaíso, explained that "the presentations have consisted of scientific reviews that analyze fishing exploitation main effects and mechanisms on various fisheries worldwide, so that this theoretical knowledge allows



to identify and explain similar effects that occur in national fisheries. "Regarding his appreciation of the workshop, the researcher argues that "it has been a very interesting day, in which national and foreign researchers with considerable experience as senior researchers, also recently graduated researchers, and postgraduate students in training have participated; during the discussions of the exhibitions an important transfer of knowledge has been generated. The fundamental thing of every scientific community is to develop in a space of freedom where all ideas are expressed and confronted with the best scientific arguments, respecting people, so that we can all learn from this interaction ". In addition, he explains

that "instances of this type allow to deepen the application of the scientific method in fisheries and the application of the







statistical method for the analysis of the results of fisheries that are generated in IFOP and in biological studies carried out in the UCSC".

It should be noted that all participants were certified and it is expected to maintain this interaction which generates synergies between the researchers participating in the project, which culminates in 2022.

Source: IFOP / UCSC

## Harmful Algae Studies Center (CREAN) – Puerto Montt was present at a local Science Festival

CREAN researchers, participated with different activities related to publicize main phytoplankton species and talk about Harmful Algae Blooms in Chile, at the Science Festival, organized by Explora CONICYT, in the main cities of the south of our country.

On Puerto Montt's dock, an interactive stand was held where children could imagine being part of the phytoplankton, understanding in a playful way, how these species are distributed in the ocean, the importance of the Sun for microalgae, and the great diversity of sizes and forms of these organisms, among others. In addition, it was shown through a microscope, where you can see what you can find in just one drop of seawater, observing through a screen attached to this instrument everything that was in the sample.

With a photographic sample, main phytoplankton species associated with Harmful Algae Blooms (FANs)



in our country were announced, conversing from the first detection to current situation.

The responsible researcher for this activity, Pamela Carbonell, said that "these activities have a fundamental role in our Program, since it allows us to talk directly about southern Chile FANs, with very receptive people, children are very enthusiastic in learning of microalgae. It is definitely an enriching and incredibly entertaining activity. In addition, workshops were held on Foldscope, a paper microscope, where children and adults could assemble it and see through a small lens, but no less complex, various samples. Behind this activity, there was a great team work, thanks for the time and dedication so that everything went great: Gissela Labra, Julia Cáceres, Loreto López, Emma Cascales and Rodrigo Martínez"

### IFOP Talcahuano collaborates in "Playa Negra" cleaning in Coronel

Talcahuano IFOP Scientific Observers, together with Environmental and Social Recovery Program (PRAS) participated in Black Beach cleaning organized by DIRECTEMAR Colonel.

Children arrived from Coronel schools, along with volunteers from local institutions in order to collect garbage



and debris that could be found on Playa Negra shores.

Coronel beach cleaning program is applied to all the commune beaches (Escuadrón Beach, Maule Beach, Schwager Beach and Coronel Bay) in order to conserve the local coastal territory and raise awareness in neighbors and tourists who visit these or other coasts in the country.

Playa Negra has a historical and natural value, since despite not being close to an area with the presence of volcanoes. This has black sands. Why? The explanation is that for thousands of years Biobío River has transported volcanic sands (basaltic sediments) for more than 300 kilometers long, from the Andes Mountains, where this river is born in the lakes Icalma and Galletué, in the middle of an extensive cordon of volcanoes.



