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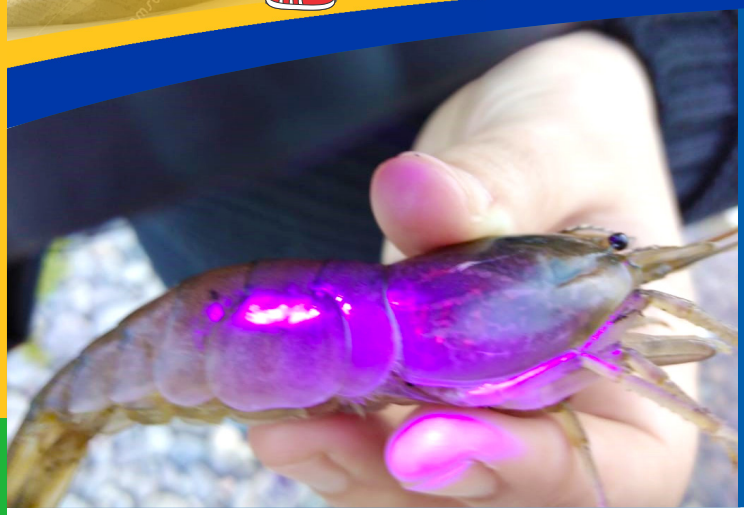
El Ifopino



IN THIS NUMBER

IFOP and UCN carry out 12,000 shrimps in the choapa river basin second sowing event of

Within the framework of "AQUACULTURAL FISHING STRATEGY CONSOLIDATION PROGRAM OF THE NORTH RIVER SHRIMP IN THE CHOAPA RIVER BASIN" project financed by Coquimbo Regional Government, Fisheries Development Institute and Universidad Catolica del Norte are jointly executing it with shrimp farmers organizations a second stocking of 12,000 specimens of juvenile shrimp in the Choapa River.

This release constitutes the first event carried out on October 30th, 2020 continuation , in which 6000 specimens were sown and was attended by regional and sectoral authorities related to social, fisheries and environmental development.

Dr. Francisco Cárcamo, head of Repopulation and Culture Department, indicates that "both releases are part of the project's commitments, its objective being to supply new recruits to natural shrimp populations, as a mitigation measure to the continuing threat species faces at Choapa river basin, due to

the prolonged drought that affects the area, habitat reduction and modification due to river channel canalizations, fishing overexploitation and invasive alien species presence, which consequently have reduced abundance and distribution Altitudinal of species only towards the basin lower and middle zones, where 40 years ago it reached up to the upper zone, according to what was reported by the shrimp farming organizations ".

Mg. Carlos Velásquez IFOP Coquimbo Semi-senior researcher and in charge of the project technical execution explained "for both repopulations, IFOP applied a multi-criteria environmental analysis to select optimal release sites, with more than satisfactory results, due to adults and ovigerous females specimens recapture from Crustacean

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Culture Laboratory run by UCN Dr. Ma. Cristina Morales. These indicators reflect the success that specimens had in adapting to the basin fluvial conditions, growing and joining the reproductive fraction of the natural shrimp populations "

Telematic red tides conferences will be offered by ifop

As part of Fisheries Development Institute (IFOP) Harmful Algae Research Center (CREAN) regular work, within ASIPA program framework; Comprehensive Advice on Fishing and Aquaculture. During Monday, May 31rst, morning a closure workshop seminar will be held on "Management and monitoring of harmful algal blooms and marine toxins in the Pacific Ocean of south central Chile (36° – 44° s) , stage III, 2020 – 2021 Program "and "management and monitoring of red tides in the Chilean fjord and channel system (stage XIV) 2020-2021 Program", which between them cover up a very wide extension of the country's coastline, covering from the extreme north of the Biobío region to the extreme south (Islotes Mariotti), in the Beagle Channel sector, the Magallanes region and Chilean Antarctica.

Both studies are aimed at providing reliable and timely information regarding harmful microalgae distribution and abundance, linked to what people call red tides, in addition to collecting oceanographic and meteorological information, also including data dissemination and distribution obtained through different platforms and social networks, both for the authority and for general public.

The seminar considers a total of 7 presentations that address various topics on different types of harmful microalgae, both on the coast exposed to the Pacific Ocean, and in the fjord and canal system in the south of the country.

After welcome greetings by the organizers and Fisheries and Aquaculture Undersecretariat, the seminar will begin with a presentation offered by Dr. Oscar Espinoza-González on "Pacific Ocean of Central-South Chile Harmful Marine Algal Blooms and Toxins Progress and Challenges"Then Dr. Gonzalo Fuenzalida Del Río will refer to the use of molecular biology for these microalgae research through the conference called" Phytoplankton monitoring through molecular methodologies implementation"; The third presentation will refer to a status that some microalgae present in their life cycle, known as cysts, which are deposited on the seabed and an important participation in the blooms, this will be in charge of Dr. Pablo Salgado Garrido and carries by title "Registry of dinoflagellate resistance cysts between the Biobío and Magallanes regions: Distribution, diversity and abundance"; To finalize the first conference block, the strategies that have been developed to distribute results and knowledge about these events to different segments of the community about red tides will be shown, a conference that will be given by Pamela Carbonell Arias, entitled "Dissemination Strategies linked to Harmful Algal Blooms and their effects".

After a brief interruption, the second block will begin with three lectures, referring to various harmful microalgae and the effect of environmental variables on their distribution and abundance, which is in

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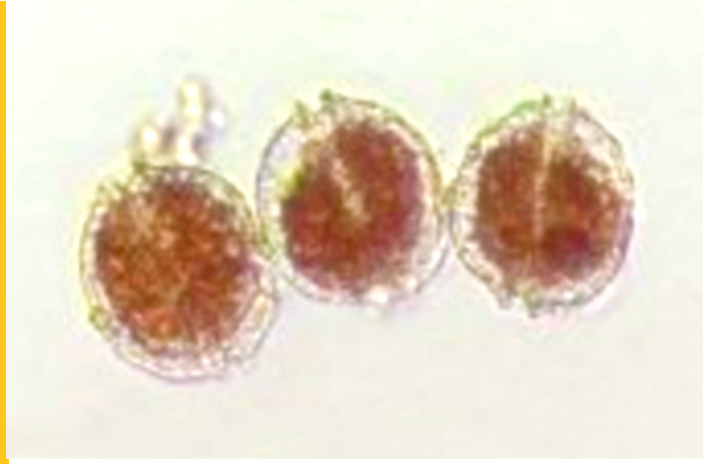

charge of Dr. Javier Paredes-Mella. ”Salinity’s role, temperature and climatic patterns in FAN species of the genera *Alexandrium*, Protoceratium and Dinophysis dynamics“; Then, two blooms that have affected the extreme north of the fjords in the Los Lagos region will be presented separately in recent months, one referring to microalgae that produce toxins that affect people’s health, which will be in charge of Dr. Oscar Espinoza-González. “Flowering of Pseudo-nitzschia and domoic acid in the inland sea of Chiloé during the spring-summer 2020-2021” and finally the last presentation, referring to a recent flowering in the Comau fjord, which produced a significant mortality of fattening salmonids, which will be in charge of Dr. Jorge Mardones Sánchez. “Heterosigma akashiwo flowering in the Comau fjord in 2021: In situ and laboratory observations”.

The opportunity will be conducive to an exchange of opinions and discussion about these events, which in recent years have caused significant impacts on the social and economic environment.

IFOP ‘s Chonos starting web page is updated

CHONOS (chonos.ifop.cl), Fishing Development Institute starting web page, since 2018 hostsoceanographic information system of Chilean Patagonia, publishes a new updated version of CLIC (http://chonos.ifop.cl/clic2/index/).

CLIC is a Lagrangian connectivity web application that, through numerical modeling, quantifies particles transport in their drift with ocean currents between different areas. CLIC includes a variety of environmental dispersion scenarios and types of particles in order to cover main environmental and production issues in which it is relevant to quantify particles transport through marine currents. Thanks to IBM (Individual Based Modeling) numerical modeling used in CLIC, particles (depending on their nature) respond to environmental variables that control processes such as larval maturation, mortality, vertical migrations, etc. Currently, particles such as Caligus rogercresseyi (salmon farming parasite), ISA virus (salmon farming parasite) and Mytilus chilensis (mussel larvae) are available, to which new environmental scenarios and types of particles (biological and inert) will be added.

CLIC new version improves its navigation interface, simpler and more intuitive, facilitating the user both selection of more and new environmental scenarios and types of particles, as well as the visualization and interpretation of the connectivity results.

Pablo Reche, IFOP researcher in Putemún, “CLIC updated new version will significantly increase the number of new connectivity studies which, together with a more intuitive interface, we hope will serve to facilitate and increase knowledge of Patagonia seas at sustainable development and conservation of the environment service”.

Workshop on Management Strategies held by IFOP

On June 3rd Fisheries Development Institute organized its Fisheries Management Strategies workshop with 50 attendees participation, among which we can mention IFOP, Fisheries Undersecretary and Sernapesca researchers.

Dr. Juan Carlos Quiroz explained “Management strategies (SEM) are a tool that scientists use to simulate a fishing system operation and test whether potential harvest strategies can achieve previously agreed management objectives.

EEM also helps to identify capture strategy that is likely to perform best, regardless of uncertainty, and balance trade-offs amid competing management goals. In essence, EEM is a process for developing and agreeing on a harvest strategy and, unlike traditional assessment-based fisheries science, allows collaboration between scientists who do most of the modeling and analytical work of the EEM and the administrators, with the guidance of interested parties”

IFOP researcher Alejandro Roldan explained, this time the workshop was about the presentation of the project, background and scope on EEM application, first approaches to concepts and methodology for its implementation, as well as differences between an indirect evaluation of stock and EEM.

These workshops are part of “Development of a structural route for the implementation of the Approach Evaluation of Management Strategies (EEM) in pelagic fisheries project”, whose objectives are:

- To agree on a EMS definition consistent with current regulations, and the roles of involved Institutions in management and scientific research for its development.
- To identify, describe and prioritize Chilean pelagic fisheries EEM structural components at a general level, and, considering as case studies South Pacific Chilean Horse Mackerel and North Anchovy.
- To develop and execute EEM structural components for pelagic fisheries, and associated with each case study technical scope.
- To evaluate EEM-pilot tool effectiveness to achieve established management objective in each sresearch fishery.

Climatic change adaptation in the Chilean fishing and aquaculture sector analysis will be adressed on Virtual Seminar

This online event will convene representatives from Fisheries and Aquaculture Undersecretariat (SUBPESCA), Ministry of Environment and United Nations Food and Agriculture Organization (FAO) to discuss learning and opportunities for climatic change adaptation in artisanal fishing and small-scale aquaculture in Chile. Outstanding researchers and beneficiaries of an important adaptation initiative implemented in four coves of the country will also present in this seminar.

Next Tuesday, June 15th, “Learning and opportunities for climatic change adaptation” virtual seminar, convened by FAO, will be held. The event will be broadcast live on the FAO channel at https://www.youtube.com/watch?v=ckNOxnMQdWw, from 09:30 hours.

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The activity is part of the closing phase of "Strengthening Chilean fishing and aquaculture sector adaptation capacity to climatic change" project, which is executed by SUBPESCA and Ministry of Environment, and implemented by FAO, with funding from the Global Environment Facility (GEF).

During the meeting, authorities, specialists and project participants will explain why it is important for artisanal fishing and small-scale aquaculture to adapt to climatic change and concrete progress will be presented in designed public policies and instruments context to face this situation at a local level.

The meeting will discuss results of the project implemented in Chile and existing opportunities for its continuity. In addition, adaptation learnings from artisanal fishermen and small-scale aquaculturists will be presented and regional and community authorities from the localities involved in the initiative will intervene.

The seminar will include presentations on the threats and risks of climatic change impacts, national efforts in public policy for adaptation and its link with the ocean, fisheries and aquaculture. In addition, beneficiaries and members of the pilot coves where the project was carried out testimonial videos will be presented.

The activity will feature Fisheries and Aquaculture Undersecretary, Alicia Gallardo Lagno, participation; Javier Naranjo, Environment Undersecretary, and FAO Representative in Chile, Eve Crowley.

The opening talk will be given by Doris Soto, Interdisciplinary Center for Aquaculture Research (INCAR)researcher. At the international level will present, José Zavala, Coastal Marine Adaptation Project coordinator of Peru.

About the interinstitutional project

The project "Strengthening Chilean fisheries and aquaculture sector to climatic change adaptation capacity" began operations in 2017 and is expected to end during June 2021. Its main objective is to reduce vulnerability and increase climatic change adaptation capacity, climatic change from artisanal fisheries and small-scale aquaculture. For this, adaptation activities were carried out in four pilot coves: Riquelme (Tarapacá Region), Tongoy (Coquimbo Region), Coliumo (Biobío Region) and El Manzano-Hualaihué (Los Lagos Region).

More information

http://bit.ly/AdaptacionCambioClimaticoChile

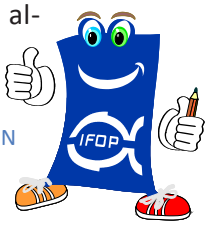
Source and photos FAO

Fishing Development Institute (IFOP) and ACAP celebrate world Albatross day

With the slogan "Guarantee friendly fisheries for albatrosses", ACAP and IFOP celebrate this second year "World Albatross Day". The two critically endangered albatrosses, Tristan Albatross and Galapagos Albatross, have been chosen as "representative species" to draw attention to 22 species of albatrosses ongoing threats faced by them on the sea.

(ACAP)Conservation of Albatrosses and Petrels Agreement, has established June 19th, as World Albatross Day to raise awareness about these birds around the world. The day also commemorates the date the Agreement was signed 20 years ago.

ACAP currently has 13 member countries (known as Parties) and coordinates international activities in order to reduce threats to these seabirds populations through legislation and education. This effort is supported by various non-member states and non-governmental organizations (NGOs). At this time, ACAP covers 31 species of albatrosses, petrels and fardelas, most of which have a global threat status.



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IFOP invites to participate in"Larval connectivity between management areas" talk

On Thursday, June 24th, from 4:30 p.m. to 5:30 p.m., IFOP Management Areas researcher Catherine González from its Oceanography and Environment Department Section.Will offer Larval Connectivity between management areas talk, in order to participate you just click

https://www.youtube.com/channel/UC88L4dKhVgvA4Z-MMtxbgwg

Catherine referred to her talk "The species of invertebrates and benthic algae appear sessile or not very mobile, but in their early stages of life they have larvae or spores that inhabit water column, from a few hours to several months, so they could scatter far away from their parents. Their habitat occurs discontinuously, alternating rocky areas with sandy or muddy bottoms, but larval dispersal makes it possible to connect populations including distant habitats. In Chile there are more than 700 coastal areas for benthic resources management and exploitation "management areas". Understanding larval connectivity between management areas, as well as between these and other areas of interest, is important due to its potential contribution to decision-making related tobenthic fisheries sustainability .

Within the Biological Diversity Convention's framework , the 2030 Sustainable Development Goals and Paris Agreement for climatic change prevention. Chile has an international commitment to create networks of well-connected, effectively managed and ecologically representative marine protected areas, which ensure marine life sustainability . However, on the continental coast, protected areas remain few and far between. Considering benthic species diversity of life history attributes, their larval dispersal was simulated and the connectivity between sites of the nor-

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Luis Adasme, IFOP researcher highlighted " Fisheries Development Institute since ACAP beginnings has had an active participation of its researchers in the different multilateral meetings, showing their work and that of the Institute in research on interactions between seabirds and fishing operations. The foregoing has made it possible to directly advise Undersecretariat of Fisheries, with relevant scientific-technical information in order to establish administrative measures aimed at reducing incidental catches in fishing operations".

IFOP carries out different dissemination activities on fisheries bycatch problem, highlighting various talks with fishermen, students, industrialists and local community in general that aim to teach the population in a didactic and entertaining way about the importance of implementing mitigation measures and good practices in fishing operations in oprder to minimize effects on these magnificent birds, underlining current conservation crisis that threatens them.

For this year ACAP has generated a series of high resolution posters, which can be downloaded for free from the website. All these products are available in the 3 official languages of ACAP (English, French and Spanish). All this information can be found in the World Albatross Day section of the ACAP website (www.acap.aq) accessible from the home page. Please contact ACAP Information Officer if you have any difficulty finding or downloading the items listed above.

th-central and south-central coast of Chile was estimated to identify critical sites for conservation and to evaluate contribution areas. from management to protected areas network connectivity. The results show that most of the critical areas to sustain these populations connectivity are located in management areas. The relevance of recognizing some management areas contribution to marine life sustainability is discussed, therefore it would be advisable to generate complementary protection instances to those that currently exist and that do not consider connectivity scope between management areas.

Catherine is a Researcher in IFOP Management Areas Section, she evaluates benthic species larval connectivity between AMERB.

She is a biologist with a environment and natural resources specialty, she had worked 15 years in research, teaching and marine conservation management. Diploma in Planning and Conservation Strategies, Instituto Tecnológico de Monterrey; Master in Biological Sciences, Pontificia Universidad Católica de Chile.

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