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## IFOP will implement a monitoring network for brown algae from the Arica and Parinacota Region to the Coquimbo Region to obtain indicators that contribute to management

Fishing Development Institute(IFOP) was awarded FIPA 2020-34 project "Monitoring plan Proposal for status and extractive activity of brown algae in the maritime area of the Arica and Parinacota Region until the Region of Coquimbo design and implementation", which will allow gathering relevant information for management.

The project general objective that will last 28 months is; to implement and evaluate a design for monitoring population, fishing, social and basic economic indicators associated with huiro negro brown algae, huiro palo and floating huiro fishery resources in the regions ranging from Arica and Parinacota to Coquimbo and the sector of Bahía Chasco, which allows evaluating and proposing ad-



ministration and management measures, with the least possible uncertainty.

### Specific Objectives are:

- Proposal of a sampling design that allows the availability of population, fishing, social and economic indicators for the huiro negro, huiro palo and / or float resources in maritime areas of the macro northern zone of the country between the regions of Arica and Parinacota and of Coquimbo.
- Implement, on a pilot scale, the sampling design in



### Editorial committee

Luis Parot D. / Executive Director  
Gabriela Gutiérrez V. / Journalist

### Graphic design

Mario Recabal M. / Senior graphic designer





the resources and the selected areas to monitor the proposed indicators.

- Evaluate design and recommendations / suggestions regarding pilot monitoring spatial scaling.
- Propose decision rules associated with administration and management plans management measures based on battery of indicators evaluated.

Pablo Araya IFOP benthic researcher and head of the project explained “It is a highly anticipated project by those who are working on brown algae (huir) productive activity sustainability.. In recent decades, there has been a productive activity rapid growth in the north of the country, especially between Arica and Parinacota and Coquimbo regions, currently showing high levels of landings, which has caused interest and concern for conservation of natural grasslands, given their high importance for marine ecosystems.

The administration has established various norms for a rational and sustainable exploitation, among which numerous areas of management and exploitation of benthic resources (AMERB) stand out in specific sectors along the coast and management plans in extensive free access areas. There is one for each region of the north, in addition to a specific one in Bahía Chasco within Atacama region. Those plans consider different administration measures, aimed at conservation and sustainable extraction of these resources, but their correct operation and control are difficult due to productive activity particular characteristics.

Management Plans have difficulties in evaluating implemented measures, since there is no permanent monitoring that generates inputs to generate indicators, both of the state of various huirs and of the activity carried out on them. Although there has been research on brown algae, in the extractive field they have been oriented to direct evaluations carried out to know grasslands state at a certain time and have allowed us to estimate exploitable biomasses that do not explain landing in some regions, with high uncertainty in their estimate, given the large spatial scale where macroalgae are distributed. This project is aimed at identifying bounded areas or sectors, representative of each resource and region, that allow informative data collection, both quantitative and qualitative, capable of providing indicators to monitor and explain grasslands of the brown algae extractive and population dynamics subject to exploitation in northern Chile ”.

Pablo Araya commented “Personally I am honored and proud to be able to lead the work team that made obtaining this project possible. The initiative brought together professionals who lead high-level benthic research groups within our institution, in addition to integrating consultants led by professionals with vast experience in brown algae population evaluations in the study area. Most of the team with an active participation in management. There is great optimism in being able to count on the extractive sector collaboration in the project development. Active participation will be promoted in data gathering, extractive activity recording and contributions in results discussion from the initiative. Productive activity sustainability is only possible with all the actors collaborative and multidisciplinary work ”.

In general, the project includes three stages:

- 1) Implementation; where monitoring sectors must be identified, selected and defined (pilot monitoring network), for this a review of existing information is needed, local knowledge recovery and samplers recruitment.
- 2) Monitoring execution, bio-fishery collection, population and socioeconomic data from monitoring selected sectors.
- 3) Analysis, established monitoring network evaluation and potential continuity, key indicators selection and decision rules proposal that allow progress in management of these fisheries within each management plan.

RETURN





## Fisheries Development Institute and Universidad de Tarapacá sign collaboration agreement



Fisheries Development Institute (IFOP) and Universidad de Tarapacá have just signed an agreement which aims to establish general collaboration basis between Universidad de Tarapacá through its Marine and Limnological Studies Center (CEMYL) of the Sciences Faculty and Mechanical Engineering Faculty Department, and IFOP, through its Fisheries Research and Aquaculture Research Divisions, to strengthen cooperative work ties in common interest areas.

The agreement will serve as future specific collaboration actions framework on various topics such as:

- Research, training, training, extension;
- Publications;
- Experts exchange through talks, courses and seminars;
- Student practices and thesis conduction;

### Other related contributions.

This inter-institutional agreement is part of a series of actions that seek, through collaborative work, to contribute to advanced human capital formation, and to shorten information gaps on issues relevant to Arica and Parinacota region development, and of the entire country.

It represents an institutional effort result to establish relationships with higher education institutions that have commitments and interests on IFOP's institutional mission relevant matters.

## IFOP Coquimbo participates on brown algae technical meeting

In this activity, developed within regional interest FIC project framework, called "Monitoring via web of biomass and distribution of brown algae", executed by Universidad Católica del Norte (UCN), both general scope and technical aspects of the project, where commitment to develop a Web Geographic Information System that can be consulted online was highlighted that will help to have pertinent and timely information on available resource biomass levels, and thus provide valuable background for management and regulatory measures implementation by both the administrator and this fishery users.

Álvaro Wilson, IFOP Fisheries Development Institute researcher explained "Atacama Region maintains a relevant presence in the benthic field with a work team made up of; 3 professionals, 1 technician and 2 scientific observers from Coquimbo and Caldera bases who directly participate in three ASIPA benthic field research programs: Comprehensive aquaculture development program for artisanal fishermen and small-scale aquaculturists; Benthic Fisheries Monitoring Program, Benthic Resources Management Areas program and indirectly also, in Management Plans program that in Atacama region monitors Bahía Chascos sector.

IFOP's participation in this activity is related to its formal sponsor role in this research initiative and to its interest and permanent collaboration commitment with both regional research institutions and public institutions, such as Subpesca Zonal Directorate, regional Sernapesca and Navy".





## IFOP invites to CHONOS online dissemination workshop

During the summer of 2021 IFOP will hold a new dissemination workshop entitled "Oceanography and Numerical Modeling in Fjords and Channels of Patagonia" and which will be given by the Oceanography and Climate group of IFOP in Castro (chonos.ifop.cl).

Due to COVID-19 pandemic current health contingency it will be carried remotely in 2 sessions via Meet. The link will be provided via email the days before. To reserve a place, please fill this form <https://forms.gle/yX4T1hGgU6yGDHnH6>.

The first session will take place on February 4th from 10:00 in the morning

The second session will take place on March 4th from 10:00 in the morning

The workshop will consist of various presentations in which progress made in the field of physical oceanography and its applications for sustainable development of productive activities carried out in the marine systems of southern Chile will be announced.

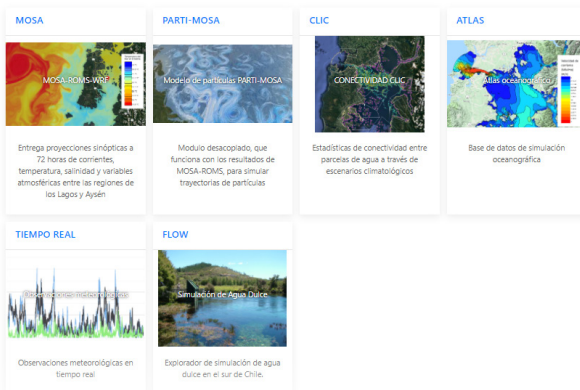
The exhibitions cover topics related to operational oceanographic forecasting systems, connectivity, water exchanges, biogeochemical cycles and structuring of benthic communities (see attached program poster for more details).

In addition to IFOP knowledge and activities dissemination, at the end of each session and through "round tables", the workshop aims to be a place and occasion for ideas and realities exchange that allow establishing new future objectives in the service to the community from sustainable development.

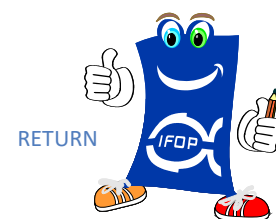
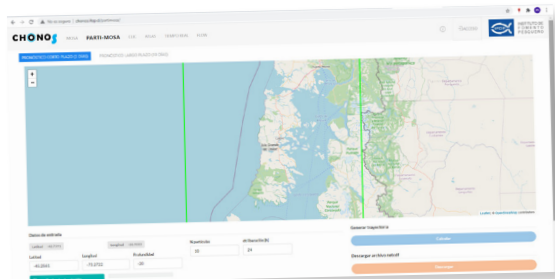
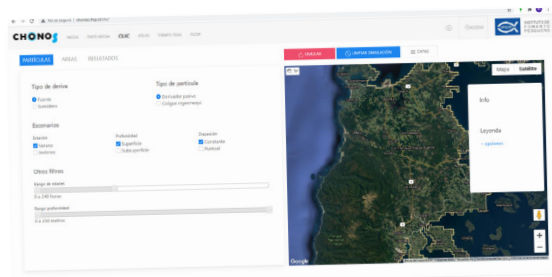
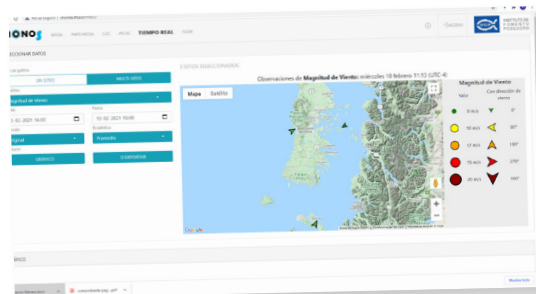
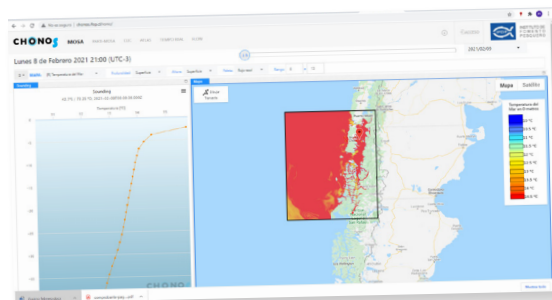
Among the workshop participants will be; community representatives, political authorities, and the administration (Subpesca, Sernapesca), Regional Government and related fields researchers from.



Chonos es un sistema de información oceanográfica resultado de estudios ambientales diseñados para el desarrollo de modelación numérica en la Patagonia chilena. Chonos, a través de sus productos, permitirá mejorar la gestión y planificación del territorio, así como también, el manejo de contingencias ambientales o sanitarias. [Más información...](#)



Los Chonos eran un pueblo originario del sur de Chile, grandes navegantes y conocedores de sus mares. Recuperando ese espíritu, hoy CHONOS provee del último conocimiento de los mares australes al servicio de la sociedad a través de sus aplicaciones.





Worldwide classifications have undergone changes over time, there are new species publications; species that have been changed in category, description and / or others redescription, this has led us to a website redesign and update. It currently has a design with simple lines and easy navigation, each group of interest (Polychaetes, Mollusks and Crustaceans) is presented in an independent tab, where the collection of species distributed in a dendrogram appears, in each table the information is provided for each of the families, genera and species identified, described or cited for Chile. The glossary and bibliography for each group are also described. There are three more tabs: one for general information, another for diffusion and another for contact.

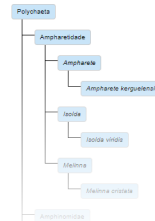
## Colección de Poliquetos

## Annelida

El filo incluye las lombrices de tierra, sanguetas, y un gran número de gusanos en su mayoría marinos conocidos como poliquetos. Estos gusanos segmentados son algunos de los organismos marinos más comunes, se pueden encontrar en las profundidades del océano, flotando cerca de la superficie, o excavando en el barro y la arena de la playa.

Los poliquetos se caracterizan por portar en cada segmento un par de parapodios, con una rama dorsal y su rama ventral, dotados de numerosas setas (lo que da nombre a los poliquetos, literalmente "muchas setas" "muchos pelos"). Estos parapodios son utilizados para la locomoción, los poliquetos tubícolas los usan a modo de palas realizando movimientos repetitivos para mover el agua a través de sus madrigueras y poder alimentarse. Existen muchas formas sésiles que secretan sus propios tubos a modo de protección, y en situaciones en las que muchos de estos gusanos crecen juntos, los tubos pueden formar un arrecife. Estos poliquetos pueden formar tubos espirales y con sus tentáculos en forma de plumas filtran el agua para buscar comida. Los tentáculos son a menudo de colores y muy bonita apariencia. Existen Poliquetos de vida libre y también parásitos.

En Chile se han registrado un total de 593 especies de poliquetos bentónicos distribuidas en 47 familias (Rozbaczylo et al., 2017).





## “Science campaign to protect the sea”

IFOP, Metro Valparaíso, Ministry of Science, Explora Valparaíso



Sargento Aldea Station



Peñablanca Station





Quilpué Station



La Concepción Station