



FISHERY IMPROVEMENT PROJECT

PROGRESS REPORT



JUNE 2019

Guayaquil - Ecuador

Index

A. Summary of FAP Objectives	2
B. Changes incorporated to the FAP.....	2
C. Progress report.....	3
Objective 1: Decision making process on fishery management is transparent, inclusive and participatory.....	3
Improvement recommendation	3
Activities and results	3
Objective 2: Fishery data, species, habitats and environmental information is collected, published and publicly available	11
Improvement recommendation	11
Activities and results	11
Objective 3: Stock assessments of relevant species to the fishery are conducted on regular bases, following scientific methodology and their results are published and publicly	20
Improvement recommendation	20
Activities and results	20
Peer review comments on FAP	21
Improvement recommendation	21
Activities and results	21
D. Annexes	22

A. Summary of FAP Objectives

According to the FAP approved by IFFO RS, the objectives of the fishery improvement project are:

Summary of FAP Objectives

6 months	<p>1. Decision making process on fishery management is transparent, Inclusive and participatory</p> <p>2. Fishery data, species, habitats and environmental information is collected, published and publicly available.</p>
1 year	<p>3. Stock assessments of relevant species to the fishery are conducted on regular bases, following scientific methodology and their results are published and publicly available.</p> <p>4 Conservation and Management Measures (CMMs) are adopted by fishery managers accordingly to the Stock Assessments outcomes and recommendations</p>
2 years	<p>3. Stock assessments of relevant species to the fishery are conducted on regular bases, following scientific methodology and their results are published and publicly available.</p> <p>4 Conservation and Management Measures (CMMs) are adopted by fishery managers accordingly to the Stock Assessments outcomes and recommendations</p> <p>5. Fishery interactions with ETP are registered by concerned fleets and mangers adopt CMMs accordingly</p>
3 years	<p>3. Stock assessments of relevant species to the fishery are conducted on regular bases, following scientific methodology and their results are published and publicly available.</p>

B. Changes incorporated to the FAP

The Fishery Action Plan of the project has incorporated the suggested changes resulting from the application process (peer review comments and IPAC meeting). The updates mentioned are the followings:

18. Provide evidence from The National Fisheries Institute (INP, as per acronym in Spanish) showing that jack mackerel catches are negligible.

19. Provide evidence that habitat interactions are minimal.

Updated FAP is detailed in Annex 1.

C. Progress report

Management of the project

The Project has successfully designed and implemented its governance and funding model during these first months of operation. These are fundamental aspects for the FAP implementation. The project structure includes:

- An assembly of participating companies
- An executive committee
- A project coordinator
- A technical staff

The main functions of the Executive Committee are a) to enable project implementation and b) to work as the management and representative body of the FIP. The Executive Committee is integrated by the following members:

- Two representatives of fishmeal producers with whole fish raw material
- One representative of fishmeal producers with by-products raw material
- One representative of the traders
- One representative of the aquaculture feed industry
- The President (or delegated person) of the National Chamber of Fisheries
- The Chairman of the Small Pelagics Commission

Additionally, the Executive Committee receives the technical assistance from:

- The FIP Coordinator (The Committee's Technical Secretary).
- Advisors of the National Chamber of Fisheries (CNP, as per its acronym in Spanish)
- Advisors of the Sustainable Fisheries Partnership.

Since May 2019, the FIP operates under the name Small Pelagics Sustainability (hereinafter referred to as SPS-FIP).

The main results and progress of the project in these first months of implementation are detailed below, describing the activities and results for each FAP Objective.

Objective 1: Decision making process on fishery management is transparent, inclusive and participatory

Improvement recommendation

Ensure stakeholder engagement mechanisms are functional.

Activities and results

Advances have been made in the establishment of the National Small Pelagics Platform. In this regard, some actions such as the organization of meetings with fishery stakeholders

represent a good progress. These meetings have been developed in order to: a) socialize the new scientific information generated by the hydroacoustic surveys of small pelagic resources carried out SPS-FIP framework, and b) to discuss management measures with the Fishery Authority (herein referred to as SRP for its acronym in Spanish) and National Institute of Fisheries (herein to referred as INP for its acronym in Spanish).

The Fishing Authority opened a multi-sector dialogue and enhanced the governance process in the small pelagic fishery. This was reinforced by a [national policy](#), through which the government committed to open dialogue with stakeholders to identify solutions for the problems that the country is facing. Also, the [Global Marine Commodities Project](#) (GMC) is implementing actions to improve governance of the small pelagic fisheries. This project is implemented by the Under-Secretariat of Fisheries Resources (SRP) in collaboration with the technical support of the United Nations Development Program (UNDP) and the facilitation support of the Sustainable Fisheries Partnership (SFP).

In the case of Ecuador, the small pelagic fishery is one of the fisheries prioritized by the Government in the GMC project. The project seeks to generate multi-sector dialogue platforms and to implement fishing improvement projects, among others. In the case of the Small Pelagics Sustainability-Fishery Improvement Project (herein after referred to as SPS-FIP) implemented by the CNP, the FAP aims at the creation of a "Sustainable Marine Commodities Platform" as a tool to enhance the governance of the fishery. The execution of these activities is the responsibility of the GMC Project as detailed in the FAP, specifically the Under-Secretariat of Fisheries with technical and financial support of the United Nations Development Programme. As SPS-FIP, we have provide technical and advocacy support to accelerate the implementation of the Platform.

A series of meeting with relevant stakeholders were carried out in order to present the results of, and discuss management measures on the basis of scientific research carried out within the framework of the SPS-FIP (see report of actions detailed below). The outcomes of the research conducted have been socialized with the stakeholders of the fishery industry: The National Fisheries Institute (INP), the Under-Secretariat of Fisheries Resources (SRP), the National Chamber of Fisheries (CNP), and other related associations.

As a result of the research executed within the framework of the SPS-FIP —specifically resulting from the outcomes of the hydroacoustic surveys of small pelagics (set of annexes 6), INP has gained more and enhanced knowledge that has enabled the development of recommendations to the SRP to generate management measures. These measures have been discussed with the stakeholders.

In particular, two management decisions related to seasonal closures in the fishery have been discussed along with relevant stakeholders (processors, ship-owners of all segments of the fleet, INP, SRP). In November 22, 2018 and January 11, 2019, meetings were held to discuss these management measures:

- November 22, 2018: meeting where the addition of 15 days to the seasonal closure was discussed for the month of December 2018. There were 46 participants, 33 of which were men and 13 women. Likewise, 15 people belonged to the public sector

and 31 to the private sector. The decision was made based on the results of the small pelagic research survey carried out in November 2018 within the framework of the SPS-FIP.



Discussion meeting of small pelagic fishery management measures on November 22, 2018

- January 11, 2019: meeting where the seasonal closure for 2019 was discussed, in which 43 people participated; 29 men and 14 women. Likewise, 22 people were from the public sector and 21 from the private sector. Moreover, the scientific recommendations for the setting of seasonal closure were based on the information from the monitoring of the small pelagic fishery carried out by the corresponding Program of INP and also based on the data obtained in the research surveys carried out within the framework of the SPS-FIP and the CNP-INP cooperation.



Discussion meeting of small pelagic fishery management measures on January 11, 2019

During both meetings, participants were able to provide their perspective on the data provided by the fisheries administration. This reflects that the decision-making was based on a transparent, participatory and inclusive process that was not present before the starting of the FIP.

The dialogue process described led to the establishment of the following ministerial agreements with fisheries management measures (Annex 2.1 and 2.2):

- AGREEMENT No. MAP-SRP-2018-0240-A (November 22, 2018).
 - Extension of the closure season for the catching of small pelagic fish to 15 additional days, from November 24 to December 8 of 2018.
- AGREEMENT No. MPCEIP-SRP-2019-0007-A (January 11, 2019)
 - Establishment of the seasonal closure from February 17 to March 25 of 2019.
 - Suspension of Pacific Anchoveta (*Cetengraulis mysticetus*) seasonal closure.

A summary of both meetings is appended as Annex 3.1 and 3.2, along with signatures and photographic record of the fishery stakeholders' meeting.

Resulting from the new approach to the relationships between the private and public sectors in the fisheries sector in country, the Ministry of Production, Foreign Trade, Investment and Fisheries, [Mr. Pablo Campana, established on March 18, 2019](#) a Consultative Council for the Fishing Industry; including both, the artisanal and industrial sectors. The purpose of this council is to discuss the main problems of the fishing sector in technical working groups in charge of the fishing authority, which will discuss the national fishing policy and new required management measures. The FIP participation in this new dialogue process through the CNP

will be key to strengthen the need of consultation mechanisms that ensure the active participation of the fishing sector in management decisions.

Within this group, a "technical roundtable for the management of the purse seine fishery" was created. This is a further evidence of the public policy for a transparent and participatory dialogue that has gained traction in country to which the FIP has contributed positively. In Annex 3.3 there is a record of attendees.



Ministerial meeting of the sectoral fishing group on May 18, 2019

Regarding the activities that the GMC Project committed for the implementation of the SPS-FIP, they are detailed below:

1.1. Identify all members that will participate on the “Sustainable Marine Commodities Platform” (Intersectional working group), with membership composed of the public and private sector stakeholders directly concerned by the small pelagic fishery, and established by the Article number 7 of the Ministerial Agreement N 047 of April 9th, 2010.

In the framework of the GMC project, the technical consultancy "Root Cause Analysis for the small pelagic fishery in Ecuador" was conducted by the firm CORAMIR S.A.. The study was aimed at identifying the main issues to be tackled by the Platform. The fourth report of this consultancy was an “ANALYSIS ON THE ESTABLISHMENT OF THE PLATFORM” of the small pelagic fishery which —in its chapter 6.3, contains the identification list of key stakeholders who should be summoned to actively participate in the platform (Annex 4.3).

1.2. Develop a by-law defining the way through which the "Sustainable Marine Commodities Platform" will operate.

In the framework of the GMC project, the technical support analysis "Root Cause Analysis for the small pelagic fishery in Ecuador" was conducted by the consulting firm CORAMIR S.A.,. The fourth report of this consultancy was an "ANALYSIS ON THE ESTABLISHMENT OF THE PLATFORM“ of the small pelagic fishery, which in its chapter 3 contains the management model for the “Sustainable Small Pelagic Fishery Platform” (Annex 4.3).

Furthermore, a first draft of the Platform by-laws were developed by the Platform Coordinator and was presented to the Platform Steering Committee. Once the new coordinator of the platform is hired, a second improved version will be sent to the Steering Committee for its review and approval. See section 1.4.2.

1.3. Define a calendar for yearly regular meetings, the standard agenda of items to be discussed and specify, at least, the next two meetings dates.

In the framework of the GMC project, the technical consultancy "Root Cause Analysis for the small pelagic fishery in Ecuador" was conducted by the consulting firm CORAMIR S.A.. The fourth report of this consultancy contains an "ANALYSIS ON THE ESTABLISHMENT OF THE PLATFORM" of the small pelagic fishery, which in Chapter 4 contains the work plan and schedule (2019-2020). (Annex 4.3)

Id.	Nombre de tarea	Comienzo	Fin	Duración	2019			2020			
					T2	T3	T4	T1	T2	T3	T4
1	Definición de la Pesquería	1/3/2019	1/4/2019	4,4s	■						
2	Análisis de actores	1/3/2019	1/4/2019	4,4s	■						
3	Análisis de situación actual	1/3/2019	1/4/2019	4,4s	■						
4	Determinación del enfoque de manejo	1/3/2019	1/4/2019	4,4s	■						
5	Elaboración de Plan de Capacitación para el Diálogo e inicio de su ejecución	1/4/2019	30/4/2019	4,4s	■						
6	Determinación del propósito del Plan	1/5/2019	28/6/2019	8,6s	■	■					
7	Determinación de metas y objetivos del Plan: Biológicos, ecológicos, sociales y económicos	1/7/2019	30/8/2019	9s		■	■				
8	Determinación de estándares de manejo: Puntos de referencia e indicadores para cada objetivo (provisionales)	2/9/2019	29/10/2019	8,4s			■	■			
9	Determinación de medidas de manejo para el cumplimiento de objetivos y metas	1/11/2019	31/12/2019	8,6s				■	■		
10	Determinación de reglas de control: que medidas y niveles de medidas a aplicar según el estado de la pesquería	1/1/2020	30/1/2020	4,4s				■			
11	Determinación de recursos requeridos	3/2/2020	3/4/2020	9s					■	■	
12	Diseño del Plan de Implementación del PAN PPP	3/4/2020	2/7/2020	13s					■	■	
13	Proceso de socialización final a la Asamblea	2/7/2020	30/7/2020	4,2s						■	
14	Aprobación del PAN PPP por la Asamblea y remisión a la Autoridad Pesquera	3/8/2020	17/8/2020	2,2s							■

Gantt diagram of the Small Pelagic Fishery platform workplan

1.4. Attend Sustainable Marine Commodities Platform meetings in order to discuss about harvest control rules, CMMs related to ETP interactions and ecosystem impacts and other management issues

1.4.1. Participated in the launch of the Sustainable Marine Commodities Platform (SMCP).

In November 26, 2018, the event "Launching of the Sustainable Small Pelagic Fishery Platform" was carried out by the GMC Project. As a project we participated as exhibitors under the theme "Current State of the Small Pelagic Fishery FIP", presentation that was in charge of Ec. Jimmy Anastacio, from the National Chamber of Fisheries and Coordinator of SPS-FIP (Annexes 4.1 – 4.1.1 – 4.1.2).



Launching event of the Small Pelagic Fishery Platform of the GMC project and participation of CNP SPS-FIP. November 26, 2018

1.4.2. Participate in the first SMCP meeting in order to approve its statutes and strategic plan.

The first meeting of the steering committee was held on March 15, 2019 (initially scheduled for March 13) through videoconference, the participants were:

- Ana María Núñez, Program Officer, Environment and Energy Area - UNDP
- María Verónica Cordova - Director of Regulations and Projects, Ministry of Environment of Ecuador (MAE, Spanish acronym)
- Amnuska Veliz - Director of policies and management, Vice-Ministry of Aquaculture and Fisheries (VMAP, Spanish acronym)
- Rafael Trujillo - Executive Director of the National Chamber of Fisheries and Jimmy Anastacio as technical advisor to the CNP and FIP Coordinator
- Viviana Jurado - Responsible of the Small Pelagic Fishery research program - INP
- Pablo Cueva - National Platform Coordinator - GMC Ecuador

The agenda of the meeting was the following:

1. Structure and objective of the steering committee
2. Scope, vision and objectives of the Small Pelagic Fishery Platform
3. Process and work plan of the platform
4. Review of the working group structure
5. Others

The steering committee approves the work plan of the platform for the year 2019 and invites to enforce its development.

The following documents were pending for review and approval by the members:

- Proposal of Statutes of the platform
- Proposal for a Code of Conduct
- Proposal to set up the working groups

The SRP and the steering committee have pending the process of review and approval of these documents, as well as the implementation of the work plan of the platform, because of the resignation of the Platform Coordinator. The individual in charge of coordinating the work of the platform, Pablo Cueva, left his position. The GMC project has been in selection and hiring process for a new National Coordinator since April 2019, which is estimated to be designated by SRP in June 2019.

Supporting documents from this meeting can be found in set of Annexes 4.2.

Objective 2: Fishery data, species, habitats and environmental information is collected, published and publicly available

Improvement recommendation

Ensure reports relating to management activities, stock assessments, data collection, control and enforcement, and other key areas of the fishery management process are made publicly available.

Activities and results

CNP and the INP signed, on November 5, 2018, an agreement for Inter-institutional Cooperation with the purpose of formalizing and enabling a working framework for the integration, within CNP's hires who will contribute with scientific and technical to the Institute to the project "Research Program for the Improvement of the Small Pelagic Fishery" (Annex 5 and Annex 6.4.2), its specific objectives are:

- i. Development and dissemination of the scientific outcomes that are carried out within the framework of this Agreement between the INP and the CNP;
- ii. Promotion of scientific and technical research on topics of mutual interest;
- iii. Execution of scientific research campaigns jointly by both institutions;
- iv. Creation of an inter-institutional research team between the CNP and the INP in virtue of the objectives of this Agreement.

The framework agreement builds also the foundation for the implementation of the research surveys. Specifically, the "SPECIFIC COOPERATION AGREEMENT BETWEEN THE NATIONAL FISHERIES INSTITUTE AND THE NATIONAL CHAMBER OF FISHERIES FOR THE EXECUTION OF RESEARCH SURVEYS WITHIN THE FRAMEWORK OF THE PROGRAM OF RESEARCH RELATED TO THE "FIP" FOR THE SMALL PELAGIC FISHERY" (Annex 7) aims to enable the following surveys which contributes to the FIP objectives:

- i. Evaluation of fishery resources, hydroacoustic, fishing technology, population dynamics, monitoring of fisheries, fishery statistics, physical and biological oceanography.
- ii. Studies: Joint research of the state of the resources, fishing areas, fishing gear, etc.

An important milestone for the cooperation between CNP and INP in the SPS-FIP framework has been the reactivation of the hydroacoustic research surveys programme. Issues related with the allocation of the government budget for repowering the only fishing research platform in country, I/V TOHALLI, have led to discontinuation of the programme since 2013. Faced with this adversity and with need to strengthen fisheries research in country, from 2018, through collaboration between the INP, SRP, CNP and its partner companies in the framework of SPS-FIP, the research surveys with hydroacoustic equipment installed on commercial fishing vessels were reactivated (Annex 6.4.1).



Consequently, INP researchers during 2018-2019, conducted 3 research campaigns for small pelagic fish in Ecuador to estimate biomass, abundance and distribution of these species in an area of 21 220 km² —between latitudes 00°02,000 N (off Pedernales coast) and 03°23,000 S (border with Peru), on the platform and the continental slope.

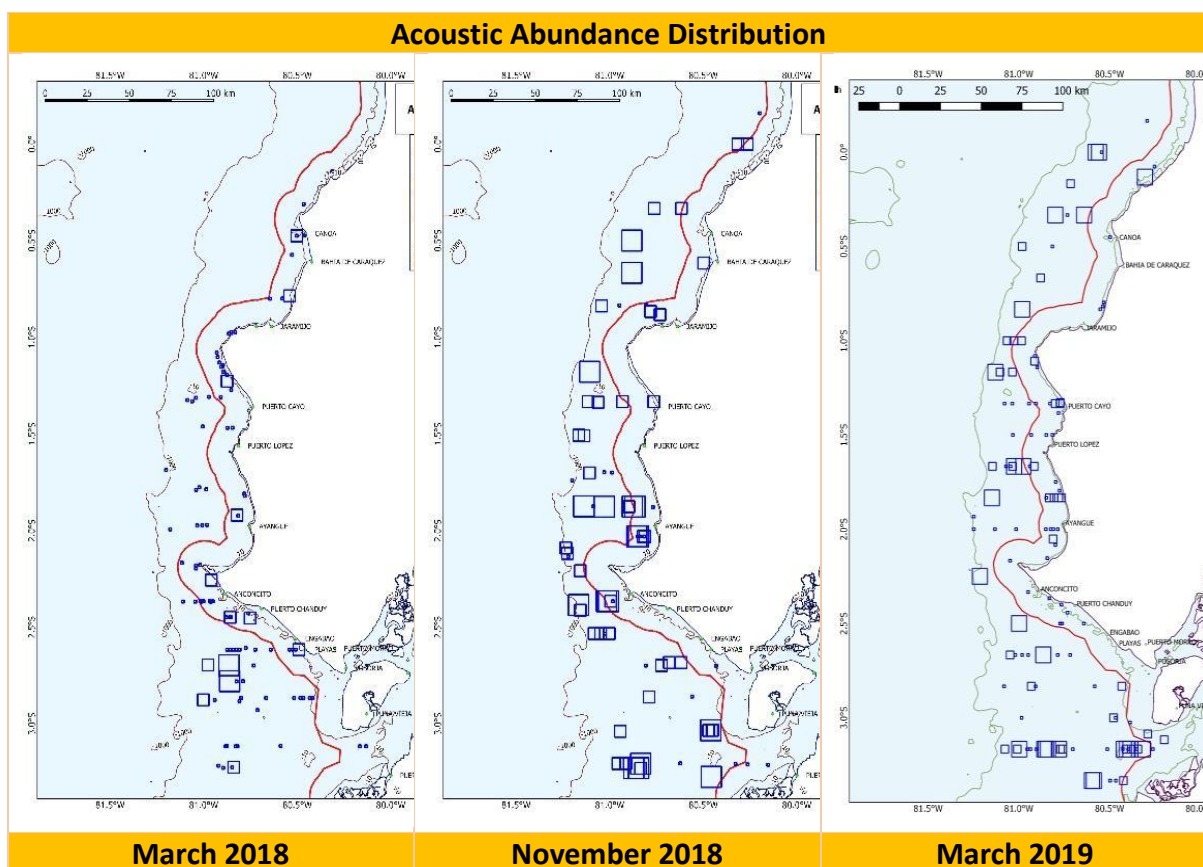
The logistics costs of the surveys were completely covered by the participating companies in the SPS-FIP, as well as the technical contribution of 1 engineer in fisheries oceanography and acoustic.

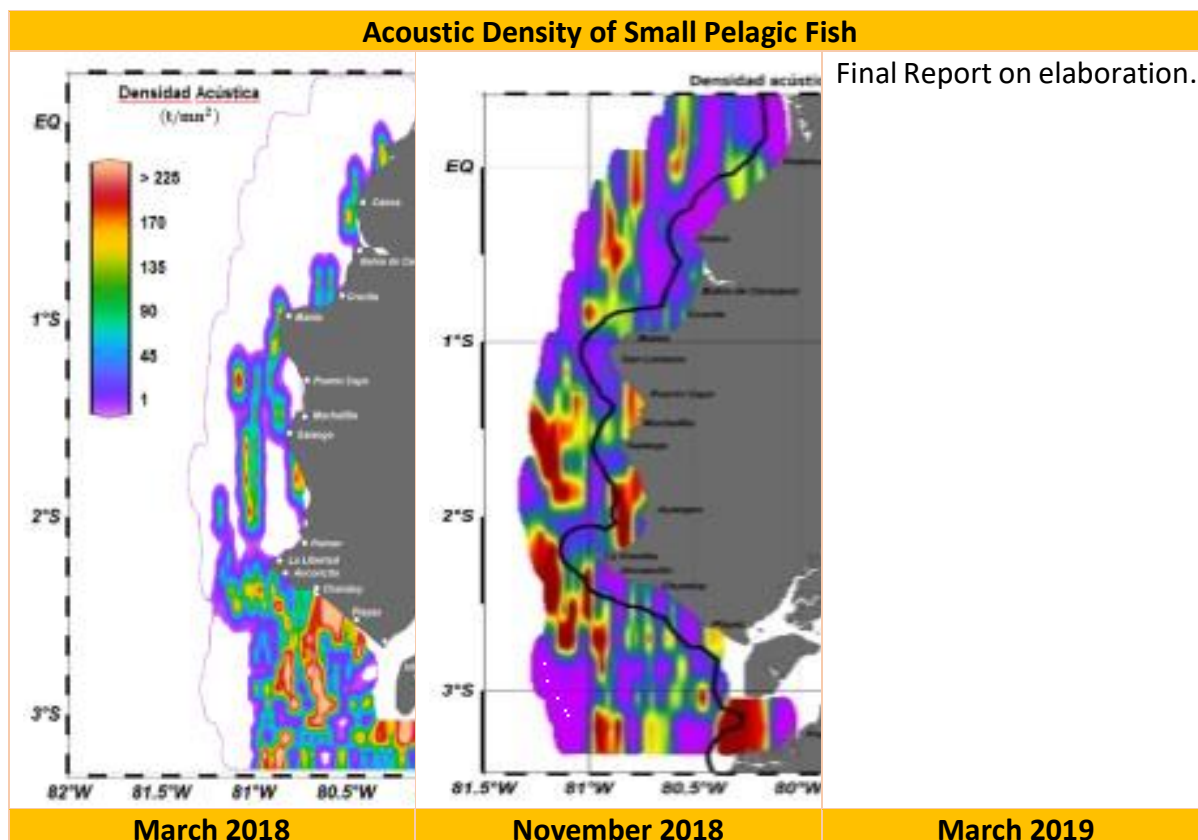




Results from the research campaigns are published in the INP and SPS-FIP official website and can be accessed by the following links:

- <http://www.smallpelagics.org/cruises/>
- <http://www.institutopesca.gob.ec/cruceros-de-hidroacustica/>





Among the results obtained, it was known that the abundance of small pelagic fish in the Ecuadorian coasts was:

RESEARCH CAMPAIGN	BIOMASS*	ABUNDANCE
MARCH 2018	1 396 200 t	6 thousand million individuals
NOVEMBER 2018	1 490 713 t	6.8 thousand million individuals
MARCH 2019	The final report is still under development	

*Estimates on the biomass by species are detailed in Annex 6.

The final reports of these studies are available in the set of Annex 6. They are an evidence of the effort put by the companies for the collection of primary data that have been used as input for the development of updated stock assessments which are detailed bellow.

2.1 Establish an office with equipment and a research team which will develop a research program in order to assess both the small pelagic fish stocks and the fishery impacts on ETP species and the ecosystem.

Within the framework of the cooperation between SPS-FIP with SFP and the GMC Project, [Dr. Cristian Canales](#) was hired as an expert in stock assessment since January 28, 2019 (Annex 8.1). Dr. Canales is a professor at the PUCV in Chile and has extensive experience in the evaluation of fishery resources and particularly small pelagic fish. The objective of Dr. Canales' technical assistance is to strengthen the knowledge and skills of scientists and technical staff of the National Fisheries Institute (INP) in the process and methodologies of stock assessment, ultimately enabling them to carry out adequate stock assessments for key small pelagic fishes in the Ecuadorian continental coast. Final product of technical assistance of Dr. Canales will be:

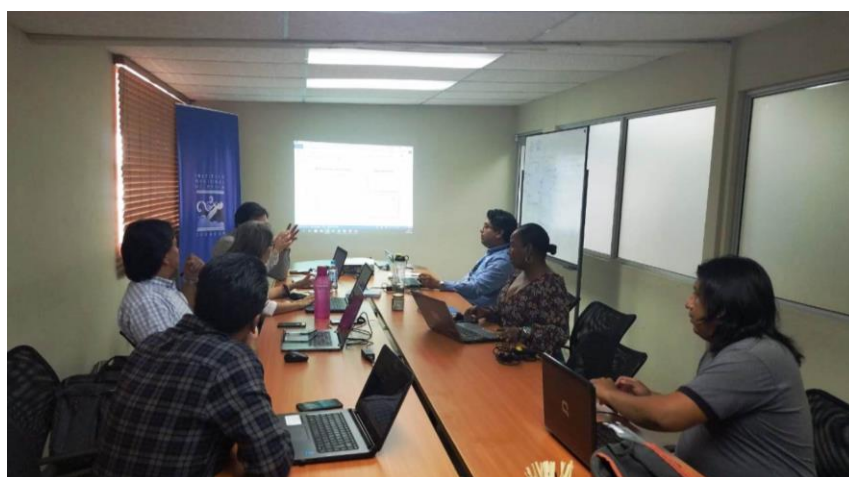
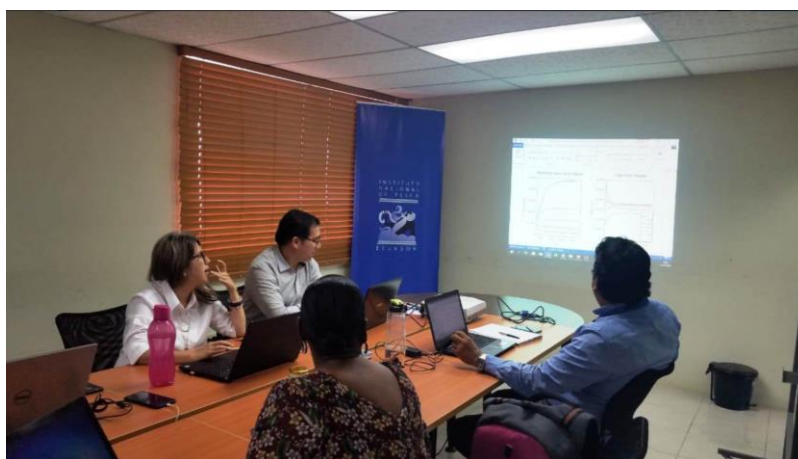
- a) Stock assessment results for those small pelagic fishes with enough data availability,
- b) Diagnosis for those other key small pelagic species with poor data;
- c) A proposal of biological reference points and harvest control rules,
- d) A summary of the peer review process and outcomes.

The final deliverable of Dr. Canales work is to develop assessments of the SPS-FIP focal species that have passed an independent peer review process.

It is important to highlight that the technical assistance of Dr. Canales not only consists in carrying out stock assessments of Small Pelagic Fish, but also strengthening the INP researchers' capacities in stock assessment during the implementation of its technical assistance. A total of 7 researchers of the INP have been trained, both during field visits and through videoconferences and e-mail, being another added value of the project and its lines of cooperation.

The research team that has worked along with Dr. Canales was integrated by:

Name	Institution
Viviana Jurado Maldonado	National Fisheries Institute
Manuel Peralta Bravo	National Fisheries Institute
David Chicaiza Veloz	National Fisheries Institute
Álvaro Romero Guerrero	National Fisheries Institute
Mercy Preciado	National Fisheries Institute
Esteban Elías Méndez	National Fisheries Institute



Working sessions of Dr. Canales together with INP staff.

Under the framework of technical cooperation project, Dr. Cristian Canales recommended a set of professional profiles that should be hired by the SPS-FIP to join INP's in-house research team. Based on his recommendations, the INP prepared the drafts of the ToRs to be hired within the framework of the cooperation agreement with the FIP (Annex 8.2). After a [public call](#) and a joint selection process between the CNP and INP, 3 additional professionals who would be part of the FIP technical team and who are currently working on the project since June 3, 2019, were selected. Curriculum vitae of the professionals are enclosed (Annex 8.3):

- Engineer Gabriela Ponce, researcher in fisheries and acoustic oceanography.
- Lcda. Karina Solis, process engineering and database manager.
- Biologist Guillermo Gilbert, MRes, fishery researcher and database manager.

Under the framework agreement of interinstitutional cooperation between the INP and the CNP for the development of the FIP for the small pelagic fishery with purse seine nets in Ecuador (Annex 5), the research team has facilities at the headquarters of the INP (Letamendi and La Ría, Guayaquil, Ecuador), as well as at the office of the CNP (October 9 and Chile, Guayaquil, Ecuador). Regular meetings and the coordination are held at both locations, so it was determined unnecessary to rent and equip a new office for the project staff.

As part of the cooperation agreement, SPS-FIP has acquired 2 laptops available to the technical staff of the project and the INP (Annex 9.1 and 9.2).

Additionally, the oceanographer Eng. Evelyn Landívar (Annex 8.4) was part of the project. She participated in the research campaigns for the estimation of biomass and abundance of small pelagics in hydroacoustic surveys (Annexes 6.1.2, 6.2.2, 6.3.2), as contributions of the FIP within the framework of the INP-CNP cooperation agreement.

2.2 Review and evaluate all the historical information / data related to the Ecuadorian small-scale fishery existing at the INP, for scanning it into an electronic format, allowing its further publication on the webpage of the INP and / or CNP. To assure that all the new documentation originated, relevant to the fishery, will be uploaded to the same place, including assessments.

The FIP Coordinator, along with the INP, compiled all the information related to the small pelagic fishery, including bulletins and technical reports, journal articles and scientific articles. As a result, a list of publications and scientific reports related to the small pelagic fishery was prepared with its respective link, which is uploaded to the FIP project website (<http://www.smallpelagics.org/fishery-data/>), in such a way that the information is public and available.

2.3 Recollect (scanning into electronic format if needed) all the relevant legislation and normative related to the Ecuadorian small pelagic fishery and to place it all together in

the web page of the CNP. To ensure all the relevant new issued legislation is uploaded as well.

The FIP Coordinator, along with the INP and the SRP, compiled all the regulations related to the small pelagic fishery. Once compiled, it was systematized in such a way that this legislation with its respective link is public and available in the digital platform of the FIP (<http://www.smallpelagics.org/fishery-data/>).

2.4 Design a research project in order to define and conduct stocks assessment models, which may take into consideration oceanographic particularities. This project has to determine the stock structure and its distribution and will be the basis of the management strategy.

2.4.1 Develop a scientific strategic plan in order to conduct stock assessments and evaluate the impacts of the fishery on ETP species and the ecosystem.

Based on the annual operational program of the Small Pelagic Fish Program of the INP and recommendations made by Dr. Canales to the INP, the institute carried out along with the FIP staff adjustments to the fishery research plan detailed in Annex 10. The report defines lines of action for research aligned to the requirements of stock assessment and others FIP objectives. The FIP team will add skills to the implementation of this plan.

2.4.2 Define stock status models for all species on the basis of historical data and management regulations.

In coordination with SFP, and in the framework of the GMC project, the fishery assessor Dr. Cristian Canales was hired as a stock assessment consultant, whose terms of reference can be found in Annex 8.1. The scope of this contract includes, among others:

- Based on the agreed assessment methodology between the consultant and INP's scientific staff, identify and recommend complete data collection and analytical requirements needed to support the development of stock assessments in key fisheries. At a minimum, recommendations should address issues related to quantities, temporal and spatial aggregation, profiles of the staff required to implement the stock assessment, along with timeframes for: research surveys, commercial catch and effort data, and biological data collection and analyses.
- Estimating biological and fishing parameters required for stock assessment.
- Exploring and advising on options for abundance indices
- Standardizing abundance indices, which are focused on different types of distributions
- Along with INP scientists, conceptualizing adequate stock assessment models and carrying out stock assessments for the following small pelagics species in Ecuador: *Scomber japonicus*, *Auxis brachydorax*, *Decapterus macrosoma*, *Trichuirus lepturus*, *Opisthonema* spp, *Cetengraulis mysticetus*, *Fistularia* spp, *Etrumeus acuminatus* y *Haemulopsis* spp. Specific models/approaches will be established/identified for the different species depending on the availability and

quality of data, ranging from models specific for data poor as well as for data-rich species.

- Applying evaluation models and analyzing adequacy of the different approaches as well as assessment results, identifying among others:
 - Recruitment trends
 - Fishing mortality trends
 - Spawning biomass trends
 - Capture strategies
 - Long-term biomass projection (taking into consideration F variable)
 - Decision tables
 - Probabilities distribution of measures which will be applied
 - Risk analysis

Dr. Canales, along with the INP, analyzed the historical information available in the INP databases: landings, catches, species composition, reproductive and biological features of the 9 species assessed, as well as information on estimates of biomass and abundance from hydroacoustic surveys. All these parameters are information sources for the development of stock assessment models.

The stock assessment models defined for the species covered in this project are defined in Annex 11.

2.4.3 Develop training workshops for observers, fishing inspectors and captains on data collection.

Additionally, trainings have been carried out in data collection processes:

- In the framework of the objectives of the SPS-FIP, INP developed a workshop entitled "Training in biological-fishery-environmental data collection established in the protocol of small pelagic fish" aimed at observers of the SRP. The trainers were: Fernando Félix of the Permanent Commission for the South Pacific (CPPS, Spanish acronym), Julián Pérez of the Espíritu Santo University (UEES, Spanish acronym), Marcos Herrera, Mario Hurtado and Viviana Jurado of the INP. A report on the trainings is found in Annex 12.1. As a result of the trainings, the templates that the observers will use for the mammals, birds and turtles observation was discussed and elaborated (Annex 12.2), this template came into force in April, 2019. Additionally, it has been proposed to have a meeting with the fishery observers on June, 2019 to evaluate the use of the template and hear their feedback. This activity is also aligned with the improvement recommendation "13. [F1.1] Require vessels to record and report all interactions with ETP species" and activities described in the FAP.
- Likewise, the 3 research campaigns that have been carried out in the framework of cooperation CNP - INP had an induction on the research activities to be carried out aboard the "scientific" vessels for the captains, crew and fishery inspectors that participated in the research campaigns.

- Finally, the survey plans of the 3 research campaigns were socialized with the participating companies: managers, fleet managers and captains, explaining how the data collection process would be carried out, explaining the methodology of the research activities and collection of field data, as well as the deadlines established to present the results. (Annex 13).

Objective 3: Stock assessments of relevant species to the fishery are conducted on regular bases, following scientific methodology and their results are published and publicly

Improvement recommendation

Conduct a stock assessment at least every 3 years, which considers all fishery removals and the biological characteristics of the species

Activities and results

Through joint work with the INP, important progress has been made in the development of the first stock assessment of the 9 species that made up 95% of the catches according to the first pre-assessment under the IFFO RS standard.

On May 23, 2019, Dr. Canales, along with the INP, presented the preliminary results of the stocks assessments to the Executive Committee of the SPS-FIP, the presentation can be found in Annex 14. The technical assistance of Dr. Canales will finish on July 28, 2019 and the results of his work will be submitted later to a peer review panel, which will provide the first stock assessment of the resources in this fishery, implying significant advances in activities of the project planned for the first 2 years.



Peer review comments on FAP

Improvement recommendation

Reviewer comments that evidence is required to demonstrate that the amount of landings of jack mackerel are negligible.

Activities and results

INP's Small Pelagic Fish Program prepared a report on the Jack mackerel species, which describes the historical landings data, thus demonstrating that the landings of Jack mackerel are not significant/marginal in comparison with the total annual catches in the small pelagic fishery, which is why it is evaluated under Category D Species (Annex 15).

As additional information, Ecuador is part of the South Pacific Regional Fisheries Management Organization that regionally manages Jack mackerel.

D. Annexes

Annex 1. Updated Fishery Action Plan

Annex 2.1. Agreement No. MAP-SRP-2018-0240-A

Annex 2.2. Agreement No. MPCEIP-SRP-2019-0007-A

Annex 3.1. November 22, 2018 meeting summary, signatures and photographic record

Annex 3.2. January 11, 2019 meeting summary, signatures and photographic record

Annex 4.1. Call for launching event of the Sustainable National Platform of small pelagic fishery.

Annex 4.1.1. Agenda of the launching event of the Sustainable Marine Commodities Platform

Annex 4.1.2. Presentation in Power Point format of the FIP of Small Pelagic Fishery (nov 2018)

Annex 4.1.3. Photographic record of the launching event of the Sustainable Marine Commodities Platform

Annex 4.2. Announcement for the SMCP meeting

Annex 4.2.1. Presentation in PDF Format of the SMCP meeting

Annex 4.2.2. Meeting record of the SMCP meeting

Annex 4.3. Root Cause Analysis for the small pelagic fish fishery in Ecuador report

Annex 5. Agreement for Inter-institutional Cooperation between INP and CNP for the Improvement of the Small Pelagic Fishery

Annex 6.1.1. Plan for the Hydroacoustic Survey of March 2018

Annex 6.1.2. Final report of the Hydroacoustic Survey of March 2018

Annex 6.2.1. Plan for the Hydroacoustic Survey of November 2018

Annex 6.2.2. Final report of the Hydroacoustic Survey of November 2018

Annex 6.3.1. Plan for the Hydroacoustic Survey of March 2019

Annex 6.3.2. Preliminary results report of the Hydroacoustic Survey of March 2019

Annex 6.4.1. News about Hydroacoustic Survey of March 2018

Annex 6.4.2. News about Signature of the Agreement for Inter-institutional Cooperation between INP and CNP for the Improvement of the Small Pelagic Fishery

Annex 7. Specific cooperation Agreement between the INP and the CNP for the execution of research surveys within the framework of the "FIP" for the small pelagic fishery.

Annex 8.1. Terms of Reference of Dr. Cristian Canales

Annex 8.2. Terms of Reference of FIP Technical Staff

Annex 8.3. Curriculum vitae of FIP Technical Staff

Annex 9.1. Bill of the laptops acquired for FIP Technical Staff

Annex 9.2. Certificate of delivery of the laptops acquired for FIP Technical Staff

Annex 10. Small Pelagic Fishery Scientific Program - Improvement Plan

Annex 11. Stock assessment models for the main small pelagic species

Annex 12.1. Report of the training workshops with observers, fishing inspector and captains on data collection

Annex 12.2. Templates for the scientific observer program (Record of turtles, birds and marine mammals with purse seine nets vessels)

Annex 13. Presentation Research campaign of March 2019 methodology

Annex 14. Preliminary results presentation by Dr. Cristian Canales of stock assessments along with INP researchers

Annex 15. Biological fishing aspects of Jack Mackerel (*Trachurus murphyi*) in Ecuadorian waters

Click here to download the annexes:

<https://drive.google.com/open?id=1rtDjJbbQVNeS7jfvmWWUDtJYFGHZqWip>