

Terms of Reference

Consultant Name:	Cristian Moises Canales Ramirez		
Consultant Email:	cristian.canales.r@pucv.cl		
Consultant Address:	San Vicente de Paul #235, Villa Alemana, Chile		
Consultant Role:	Stock Assessment Advisor		
Supervisor:	Enrique Alonso		
Start Date:	28/01/2019		
End Date:	28/07/2019		
Level of Effort:	Total		
Rate/Total Cost:	18,683 US\$		
FOR OFFICE USE ONLY:			
<input type="checkbox"/> Inv <input type="checkbox"/> Exp	Division: Programs	Project(s): ∇ Latin America Reduction Fisheries SR	
ID Proposal#	NAME ProposalName	ALLOCA TION 100%	<input type="checkbox"/> Finance approval for fixed-price

PURPOSE OF CONSULTANCY

The purpose of this consultancy 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.

DESCRIPTION OF SERVICES:

1. Providing hands on training to INP staff in stock assessment methodologies and analysis for target fisheries, as well as in the use of the selected statistical software that will be used to carry out the assessments.
2. Reviewing and analyzing historical information, including outcomes from previous research and surveys, as well as biological and fisheries data available at the INP's Small Pelagic Fishes Program's databases.
3. 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.
4. Estimating biological and fishing parameters required for stock assessment.
5. Exploring and advising on options for abundance indices
6. Standardizing abundance indices, which are focused on different types of distributions
7. 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*, *Trichuuris*

lepturus, *Opisthonema spp*, *Cetengraulis mysticetus*, *Fistularia spp*, *Etrumeus acuminatus* y *Maemulopsis axillaris*. 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.

8. 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
9. Conceptualizing and advising INP on the development of harvest control rules
10. Setting target and limit reference points for the above referred small pelagic fishes in Ecuador
11. Presenting the outcomes of the work to a peer review panel and providing responses to comments and suggestions from peer reviewers as required.

DESCRIPTION OF DELIVERABLES

Description	Due
1. First progress report: This first report will include: An analysis with preliminary conclusions and recommendations in regards: a) the historical methodologies and outcomes of past stock assessments and research surveys, and b) the resulting management measures adopted, as well as c) the effectiveness of the national data collection system.	15 February 2019
2. Second progress report: This will include results of in depth analysis, including: a) The complete work during the field visit in Ecuador, b) brief review of the stock assessment alternatives that could be implemented, c) a suggested stock assessment model to implement in the Ecuadorian key fisheries (specified above), d) INP's agreements and commitments to collect information needed to carry out the stock assessments and required to sustain the suggested management approach e) detailed recommendations for data collection and analytical requirements to support the stock assessment approach, f) details of the trainings conducted with key staffs involved in stock assessment.	28 February 2019
3. Final Report: This will include: 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, c) a summary of the peer review process and outcomes.	28 July 2019

Methodology

First phase: <ul style="list-style-type: none"> • Historical information analysis • Training: Course-workshop to establish the methodological basis for the stock assessment and management of key small pelagics fishes of Ecuador- this workshop will take place in the first 10-day trip in Guayaquil: from January 28th to February 6th, 2019 • Implementing first analyses and stock assessment models for selected fisheries 	28 January - 28 February
Second phase A series of online meetings between the INP and the contractor to complement and strengthen progress in implementation of stock assessments. The duration of these will depend on the topics and agreed upon work agenda, following the commitments achieved during the first phase.	1 March - 20 May
Third phase Developing stock assessments for key small pelagic resources and establishing reference points and harvest control rules - This will take place in the second 5 days trip in Guayaquil in dates to be agreed to (tentatively between May and July). Stock assessments will be developed in those fisheries where the quality of data allows and diagnoses of population status will be provided for data poor resources.	21 May - 30 June
Fourth phase Along with INP researchers, presenting the outcomes of the work to a peer review panel. The peer review will be through video call.	1 July - 28 July

The present consultancy envisages:

1. Regular calls with INP scientists during the time of the consultancy
2. Regular coordination calls with SFP staff and key consultants to report progress and challenges when needed.
3. 15 Days trip to Ecuador (in two phases as per table above) to work at INP facilities in Guayaquil
4. The remaining work, including preparing reports, will be completed in the consultant's country of residence.

The total budget for this consultancy is US **\$18,683**. (Eighteen thousand six hundred eighty-three American dollars), plus the costs of accommodation, food, transportation and air travel. Food and urban transportation will be covered by the rate of USD \$75/day, while for the accommodation an amount of US \$100/night is covered. Payments will be disbursed in the following way after invoices are issued by the consultant:

1. First payment of **\$4,019** after signing the contract, which includes:
 - 10% of his honoraries: \$1,440

- Airline tickets Santiago – Guayaquil roundtrip: \$579
- Transportation Valparaiso-Santiago roundtrip: \$150
- Food and extras (\$75 x 10 days): \$750
- Lodging (\$100 x 11 nights): \$1,100
- Total: \$4,019

This first payment will be issued after receipt of two separate invoices: one for travel expenses and one for honoraria.

2. Second payment of **\$5,760** (40% of his honoraries) after receiving the first report

3. Third payment of **\$6,024** after receiving the second report, which includes:

- 30% of his honoraries: \$4,320
- Airline tickets Santiago-Guayaquil roundtrip: \$579
- Transportation Valparaiso-Santiago roundtrip: \$150
- Food and extras (\$75 x 5 days): \$375
- Lodging (\$100 x 6 nights): \$600
- Total: \$6,024

This third payment will be issued after receipt of two separate invoices: one for travel expenses and one for honoraria.

4. Fourth payment of **\$2,880** (20% of his honoraries) after receiving the final report

Detail of the cost of the consultancy

	Effective days	Preparation days ⁽³⁾	Total Days	US Dollar/Day ⁽⁴⁾	Total
1st Trip	10	2	12	\$600	\$7,200
2do Travel	5	2	7	\$600	\$4,200
Web meetings ⁽¹⁾	2	0	2	\$600	\$1,200
Peer review ⁽²⁾	1	2	3	\$600	\$1,800
TOTAL honoraries	19	6	25		\$14,400
Travel costs					\$4,283
TOTAL					\$18,683

1. Total estimated time of video-conferences and calls
2. Peers review meeting and/or preparation of documents in Spanish
3. Time incurred in preparing and editing of documents and presentations
4. Considering a lowering equivalent to 75% of the international consulting fee of reference (<http://ciereviews.org/reviewer.php>)